

SYLLABUSES FOR THE DEGREE OF BACHELOR OF ENGINEERING (BENG)

General Engineering courses (applicable to candidates admitted in the academic year 2012-13 to the three-year curriculum)

General Engineering courses include

ENGG1002	Computer programming and applications (6 credits)
ENGG1003	Mathematics I (6 credits)
ENGG1004	Mathematics IA (3 credits)
ENGG1005	Mathematics IB (3 credits)
ENGG1006	Engineering for sustainable development (6 credits)
ENGG1007	Foundations of computer science (6 credits)
ENGG1009	Industrial management and logistics (6 credits)
ENGG1011	Introduction to biomedical engineering (6 credits)
ENGG1015	Introduction to electrical and electronic engineering (6 credits)
ENGG1016	Computer programming and applications I (6 credits)
ENGG1018	Introduction to mechanical engineering (6 credits)

Candidates are required to satisfactorily complete General Engineering courses as specified in the syllabus of the programme concerned.

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

ENGG1002. Computer programming and applications (6 credits)

This course covers both the basic and advanced features of the C/C++ programming languages, including syntax, identifiers, data types, control statements, functions, arrays, file access, objects and classes, class string, structures and pointers. It introduces programming techniques such as recursion, linked lists and dynamic data structures. The concept and skills of program design, implementation and debugging, with emphasis on problem-solving, will also be covered.

Target students are those who wish to complete the programming course in a more intensive mode in 1 semester. Students with some programming knowledge are encouraged to take this course.

Assessment: 50% continuous assessment, 50% examination

ENGG1003. Mathematics I (6 credits)

Linear algebra, advanced calculus, vector analysis, ordinary differential equations, Laplace transforms.
Prerequisite : HKALE Pure Mathematics

Assessment: 10% continuous assessment, 90% examination

ENGG1004. Mathematics IA (3 credits)

Linear algebra, advanced calculus, ordinary differential equations.

Assessment: 10% continuous assessment, 90% examination

ENGG1005. Mathematics IB (3 credits)

Vector spaces, vector analysis, Laplace transforms.

Assessment: 10% continuous assessment, 90% examination

ENGG1006. Engineering for sustainable development (6 credits)

Natural and human-made environment; urban resource consumption and environmental pollution; past and present civil engineering wonders; modern engineering systems; role of civil engineers in a changing world; sustainable cities and the future.

Assessment: 50% continuous assessment, 50% examination

ENGG1007. Foundations of computer science (6 credits)

This course provides students a solid background on discrete mathematics and structures pertinent to computer science. Topics include logic; set theory; mathematical reasoning; counting techniques; discrete probability; trees, graphs, and related algorithms; modeling computation.

Assessment: 50% continuous assessment, 50% examination.

ENGG1009. Industrial management and logistics (6 credits)

The fundamental role of logistics and supply chain management in the economy and organisation; contribution of logistics and supply chain management to value creation; introduction to logistics industry in Hong Kong; contemporary topics in logistics and supply chain management.

Essential management and business skills for engineers; introduction to project management; global manufacturing; applications of industrial engineering principles in different sectors and industries; quality functions; performance improvement; basics of problem solving and decision making.

Assessment: 100% continuous assessment

ENGG1011. Introduction to biomedical engineering (6 credits)

This course is an overview of the essential areas in biomedical engineering including technologies and application in life sciences and medicine. The course is broadly divided into 4 areas: biomechanics and biomaterial; cell and tissue engineering; biomedical instrumentations and sensors; and medical imaging.

The global development and other issues such as safety, ethics and industry will also be addressed. The course has a laboratory component to provide the students with some hands-on experience in the subject.

Assessment: 20% practical work, 40% continuous assessment, 40% examination

ENGG1015. Introduction to electrical and electronic engineering (6 credits)

This course provides an overview of the general field of electrical and electronic engineering and its role in the modern world. The function of different electronic engineering disciplines in modern electronic system designs will be introduced, including signal processing, system-level design, digital logic design, circuits design, as well as electronic devices design. The role of electrical systems and their impact on the environment will also be discussed. Finally, the socio-economical impact of electrical and electronic technologies will be introduced.

Assessment: 40% practical work, 20% continuous assessment, 40% examination

ENGG1016. Computer programming and applications I (6 credits)

This course covers both the basic and advanced features of the C/C++ programming languages, including syntax, identifiers, data types, control statements, functions, arrays, file access, objects and classes, class string, structures and pointers. It introduces programming techniques such as recursion, linked lists and dynamic data structures. The concept and skills of program design, implementation and debugging, with emphasis on problem-solving, will also be covered.

Target students are those who wish to complete the programming course in a slower pace covering 2 semesters.

Assessment: 50% continuous assessment, 50% examination

ENGG1018. Introduction to mechanical engineering (6 credits)

Modeling of mechanical systems; working principles of robots; mechanics and propulsion of aircrafts; strong materials; hands-on projects

Assessment: 30% continuous assessment, 70% examination

University Language Enhancement Courses

All the students admitted to the Bachelor of Engineering curriculum under common code admission are required to take the following two language enhancement courses in their first year of study:

CAES1515 Professional and technical oral communication for engineers
CENG1001 Practical Chinese language course for engineering students¹

¹ 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

COURSE DESCRIPTIONS

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

This course focuses on students developing technical and professional spoken English skills. Throughout the course, the students will give a series of presentations which will help them to improve skills such as accessing, abstracting, analyzing, organizing and summarizing information; asking questions and negotiating meanings; making effective grammatical and lexical choices and using visual aids to ensure meaning is clear. The presentations give the students an opportunity to develop the skills to talk about general issues in Engineering in the Hong Kong context, engineering theories and their practical applications and also requires them to present a detailed exploration of one aspect of engineering related to their chosen major.

Assessment: 100% continuous assessment

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

The course is designed to introduce practical Chinese writing skills; letter-writing; official, business and personal; office documents: notices, announcements, proposals, minutes and reports; technical writing skills; characteristics of the written language used in China, Hong Kong, Taiwan and Singapore; the art of public speaking; different scripts of Chinese characters; the engineering profession and Chinese culture.

Assessment: 50% continuous assessment, 50% examination

ENGG1001. Improving English proficiency for engineering students

This course aims to develop students' spoken fluency, grammatical accuracy and knowledge of academic vocabulary. Students will develop these skills through online independent work as well as assessments such as an academic essay and through participating in a series of tutorial discussions.

Assessment: 100% continuous assessment

Note: The Faculty of Engineering will enroll this course for students who are required to complete this course in addition to the graduation requirements of the BEng degree. This course cannot be counted as elective course or language enhancement course.

Minor Option (applicable to candidates admitted in the academic year 2005-2006 and thereafter)

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.

international and exchange students; OR (ii) to be exempted from the Chinese language requirement and take an elective course in lieu.

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-Degrees in BEng/BBA Option (applicable to candidates admitted in the academic year 2007-2008 and thereafter)

Candidates are given an option to pursue the double-degrees 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-degrees curriculum requirements may also be considered as equivalent courses that satisfy the complementary studies and 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 4th year, candidates must (1) fulfil the requirements of the BEng curriculum; and (2) pass the 54 credits of courses, as listed below, as required by the Faculty of Business and Economics during their study for BEng²:

Course Code	Course	Credits
BUSI1002	Introduction to accounting	6
BUSI1003	Introduction to management information systems	6
BUSI1004	Marketing	6
BUSI1007	Principles of management	6
ECON1001	Introduction to economics I	6
FINA1003	Corporate finance	6
BUSI0027	Management accounting I	6
	Electives (Any 2 courses in HRM or Marketing major as specified below)	12
	Total	54

Elective courses for BEng/BBA (Human Resource Management)

Course Code	Course	Credits
BUSI0029	Human resource management and business strategy	6
BUSI0034	Human resource: theory and practice	6
BUSI1005	Organizational behaviour	6
BUSI2003	Leadership	6

Elective courses for BEng/BBA (Marketing)

Course Code	Course	Credits
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² Students pursuing double-degrees in BEng/BBA are required to take “CAES1907 Business Communication” in lieu of the following English enhancement courses during their first year of study as required by respective BEng curricula: CAES1503, CAES1505, CAES1507, CAES1509, CAES1511 or CAES1513.

BUSI0004	Advertising management	6
BUSI0031	Marketing research	6
BUSI0038	Services marketing	6
BUSI0050	Consumer behaviour	6
BUSI0071	Strategic marketing management	6

Subject to approval of the Board of the Faculty of Engineering, candidates who have completed the requirements of BEng and decide not to proceed to the study for BBA may be awarded with a minor as specified by the Faculty of Business and Economics, if they have completed not less than 36 credits of courses in compliance with the syllabuses for the minor programme.

To obtain the degree of BBA, candidates must satisfactorily complete 114 credits of courses, 54 of which shall be completed during the study for BEng and 60 of which shall be completed during the 4th year in accordance with the Regulations and Syllabuses for the Degree of BBA in Conjunction with the Degree of BEng.

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-degrees in BEng/BBA option.