(For students admitted in 2018-19 under the 4-year degree)

BEng in Bioengineering

In addition to the requirements of their major programs, students are required to complete the University requirements for graduation. For details please refer to the respective section on this website.

Some courses can be used to fulfill both Major and University Common Core Requirements. Students may reuse a maximum of 9 credits of these courses to count towards both Requirements.

Students may use no more than 6 credits earned from courses offered in self-paced online delivery mode to satisfy the graduation requirements of a degree program. This 6-credit limit does not apply to credits obtained through the credit transfer procedures of the University.

For students graduating with an additional major, they must take all the requirements specified for that major, within which they must complete at least 20 single-counted credits. These 20 credits cannot be used to fulfill any other requirements for graduation except for the 120-credit degree requirement.

Major Requirements

Engineering Fundamental Course(s)

			Credit(s) attained
COMP		Note: [COMP 1021] OR [(COMP 1022P OR COMP 1022Q OR COMP 2011) AND COMP 1029P]	3-5
COMP	1021	Introduction to Computer Science	3
COMP	1022P	Introduction to Computing with Java	3
COMP	1022Q**	Introduction to Computing with Excel VBA	3
COMP	1029P	Python Programming Bridging Course	1
COMP	2011	Programming with C++	4
ENGG	1010	Academic Orientation	0
CHEM		Note: CHEM 1010 OR CHEM 1020	3
CHEM	1010	General Chemistry IA	3
CHEM	1020	General Chemistry IB	3
CHEM	1050	Laboratory for General Chemistry I	1
LANG	2030	Technical Communication I	3
LIFS		Note: Students with level 3 or above in HKDSE 1x Biology are exempted from taking LIFS 1901	0-3
LIFS	1901	General Biology I	3
MATH		Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND (MATH 1014 OR MATH 1024)] OR [MATH 1020]	4-7
MATH	1012	Calculus IA	4
MATH	1013	Calculus IB	3
MATH	1014	Calculus II	3
MATH	1020	Accelerated Calculus	4
MATH	1023	Honors Calculus I	3
MATH	1024	Honors Calculus II	3

PHYS		Note: PHYS 1112 OR PHYS 1312	3
PHYS	1112	General Physics I with Calculus	3
PHYS	1312	Honors General Physics I	3
SENG		Engineering Introduction course (If the students take an introduction course included in their major, this course can be counted towards their major requirement.)	3-4
BIEN	1010	Introduction to Biomedical Engineering	3
CENG	1000	Introduction to Chemical and Biological Engineering	3
CIVL	1100	Discovering Civil and Environmental Engineering	3
COMP	1021	Introduction to Computer Science	3
ELEC	1100	Introduction to Electro-Robot Design	4
ELEC	1200	A System View of Communications: from Signals to Packets	4
ENGG	1100	First Year Cornerstone Engineering Design Project Course	3
IEDA	2010	Industrial Engineering and Decision Analytics	3
IEDA	2200	Engineering Management	3
MECH	1901	Automotive Engineering	3
MECH	1902	Energy Systems in a Sustainable World	3
MECH	1905	Buildings for Contemporary Living	3
MECH	1906	Mechanical Engineering for Modern Life	3

Required Course(s)

			Credit(s) attained
BIEN/CENG		Note: BIEN 1010 OR CENG 1000	3
BIEN	1010	Introduction to Biomedical Engineering	3
CENG	1000	Introduction to Chemical and Biological Engineering	3
BIEN	2310	Modeling for Chemical and Biological Engineering	3
BIEN	2410	Cellular and Systems Physiology for Engineers	3
BIEN	2610	Chemical Biology for Engineers	3
BIEN	2990	Academic and Professional Development I	1
BIEN	3320	Data Science for Biology and Medicine	3
BIEN	3410	Introduction to Bioinstrumentation and Bioimaging	3
BIEN	3910	Bioengineering Laboratory	4
BIEN		Note: BIEN 4920 OR BIEN 4930 OR BIEN 4940	6
BIEN	4920	Bioengineering Capstone Design	6
BIEN	4930	Bioengineering Thesis Research	6
BIEN	4940	Bioengineering Industrial Project	6
BIEN	4990	Academic and Professional Development II	1
CENG	2210	Chemical and Biological Engineering Thermodynamics	3
CENG	2220	Transport Phenomena I	3
CENG	3230	Chemical and Biological Reaction Engineering	3
ENGG	2010	Engineering Seminar Series	0

ISOM/LIFS/ MATH		Note: ISOM 2500 OR LIFS 3150 OR MATH 2411	3-4
ISOM	2500	Business Statistics	3
LIFS	3150	Biostatistics	3
MATH	2411	Applied Statistics	4
LANG	4035	Technical Communication II for Chemical and Biological Engineering	3

Elective(s)

			Minimum credit(s) required
SSCI/SENG		Bioengineering Electives (5 courses from the specified elective list, of which at least 9 credits should be taken from a single specialty area (Area 1 or Area 2). Out of the 15 credits taken, at least 9 credits should be at 4000-level)	15

Area 1: Biomedical Data Acquisition and Analytics

BIEN	4310	Statistical Signal Analysis and Applications in Neural Engineering	3
COMP	2012	Object-Oriented Programming and Data Structures	4
COMP	2012H	Honors Object-Oriented Programming and Data Structures	5
COMP	4211	Machine Learning	3
COMP	4331	Data Mining	3
COMP	4421	Image Processing	3
ELEC	2100	Signals and Systems	4
ELEC	2100H	Honors Signals and Systems	4
ELEC	2420	Basic Electronics	3
ELEC	4820	Medical Imaging	3

Area 2: Bioprocesses, Biomaterials and Bioanalysis

BIEN	4110**	Regulatory Science and Engineering	3
CENG	4620	Bioproducts and Processing	3
CENG	4640	Biomolecular Engineering**	3
CENG	4650**	Biomaterials, Drug Delivery and Tissue Engineering	3
CENG	4660**	Introduction to Biomicrosystem	3
CENG	4670	Pharmaceutical Engineering	3
CHEM	2111	Fundamentals of Organic Chemistry	3
CHEM	2311	Analytical Chemistry	3

Other electives

BIEN	3010	Biodesign: A Taste of Solving Real-Life Healthcare Problems	3
CENG	4150	Product and Process Design in Chemical and Biological Engineering	3
ENGG	4930	Design for Global Health	3
LIFS	4370	Human Genetics and Personalized Medicine	3
LIFS	4760	Biochemistry of Diseases	3

**Remarks on course(s):		
-	BIEN 4110:	This is a new course subject to approval.
-	CENG 4640:	The course title will be changed to "Synthetic Biology and Biomolecular Engineering" subject to approval.
-	CENG 4650:	This is a new course subject to approval.
-	CENG 4660:	The course was last offered in 2015-16 and was deleted subsequently.
-	COMP 1022Q:	The course was last offered in 2019-20 and was deleted subsequently.