

COLLEGE OF ENGINEERING: SCHOOL OF CHEMICAL AND BIOMEDICAL ENGINEERING

1.1.1 Degree programmes and requirements

Undergraduate study

Bachelor of Engineering (Chemical and Biomolecular Engineering)

The programme amalgamates principles of chemical engineering and life sciences (biology, biochemistry and genetics) to facilitate the development of safe, profitable and environment-friendly processes for the synthesis and manufacture of products from chemical / biological raw materials.

Curriculum structure of B.Eng. (CBE)

The total number of AUs required in the B.Eng. (CBE) programme to qualify for graduation is 160 AUs. Students are to fulfill the specified AUs requirement in the B.Eng. (CBE) programme, according to the broad groups of courses in the curriculum structure indicated below:

(a) General Education Requirement (GER)

The first group of courses is collectively called the "GER" and consists of 36 AUs for adequate grounding in broad cross-disciplinary areas beyond the Engineering Majors. Students are to fulfill the GER in the following manner:

(i) Core Courses (12 AUs)

Effective Communication (2 AUs)
Technical Communication (2 AUs)
Professional Communication (2 AUs)
Human Resource Management (3 AUs)
Engineers and Society (3 AUs)

(ii) Prescribed Electives (15 AUs)

GER Prescribed Electives are classified under three areas of interests. Students are to satisfy their choices of courses according to specified AUs per area as follow:

- a) Arts, Humanities and Social Sciences (9 AUs)
- b) Management and Business (3 AUs)
- c) Science, Technology and Society (3 AUs)

(iii) Unrestricted Electives (9 AUs)

Students are to elect 9 AUs of Unrestricted Electives from the wide selection of courses available in the University. This includes courses in Minor programmes, technical electives related to Engineering Majors (including CBE prescribed electives), and any other courses offered by other Majors.

(b) Engineering Major's Requirement

Students are required to take 109 AUs of CBE core courses and 15 AUs of CBE Prescribed Electives from the current four specialisation areas (namely Pharmaceutical Engineering, Industrial Chemistry and Process Engineering, Biotechnology and Therapeutic Engineering, and Nanotechnology and Reaction Engineering). A student can elect to be classified under a specialisation area if he/she takes three CBE Prescribed Electives (9 AUs) under a particular specialisation area. It is not necessary to have a specialisation area to meet graduation requirements.

Bachelor of Engineering (Bioengineering)

The programme trains students in the blended field of modern biology with engineering advances in information technology, electronics, communications and materials to develop new engineering approaches and tools for biomedical applications.

Curriculum structure of B.Eng. (BIE)

The total number of AUs required in the B.Eng. (BIE) programme to qualify for graduation is 157 AUs. Students are to fulfill the specified AUs requirement in the B.Eng. (BIE) programme, according to the broad groups of courses in the curriculum structure indicated below:

(a) General Education Requirement (GER)

The first group of courses is collectively called the “GER” and consists of 36 AUs for adequate grounding in broad cross-disciplinary areas beyond the Engineering Majors. Students are to fulfill the GER in the following manner:

(i) Core Courses (12 AUs)

Effective Communication (2 AUs)
Technical Communication (2 AUs)
Professional Communication (2 AUs)
Human Resource Management (3 AUs)
Engineers and Society (3 AUs)

(ii) Prescribed Electives (15 AUs)

GER Prescribed Electives are classified under three areas of interests. Students are to satisfy their choices of courses according to specified AUs per area as follow:

- a) Arts, Humanities and Social Sciences (9 AUs)
- b) Management and Business (3 AUs)
- c) Science, Technology and Society (3 AUs)

(iii) Unrestricted Electives (9 AUs)

Students are to elect 9 AUs of Unrestricted Electives from the wide selection of courses available in the University. This includes courses in Minor programmes, technical electives related to Engineering Majors (including BIE prescribed electives), and any other courses offered by other Majors.

(b) Engineering Major's Requirement

Students are required to take 109 AUs of BIE core courses and 12 AUs of BIE Prescribed Electives from the specialisation areas.