# Arts and Science-Engineering Curricula 

- Chemical Engineering
- Civil Engineering
- Electrical Engineering
- Mechanical Engineering

This five-year program leads to the degree of Bachelor of Arts or Bachelor of Science and the degree of Bachelor of Chemical, Civil, Electrical, or Mechanical Engineering. The Arts-Engineering Program serves to both broaden the engineer's knowledge of the liberal arts and provide him or her with additional professional expertise. Many employers recognize the utility of hiring engineers who have extra proficiency in the language arts, the social sciences, and the humanities. Increasingly they search for employees with knowledge in some field that is interrelated with modern engineering, for example, economics, law, communication, mathematics and computer science and many of the biological and physical sciences. Yet some Arts-Engineering students have opted for this five-year program mainly for the personal satisfaction it can provide. These students, while committed to engineering as a profession, seek to enrich their nonworking hours with artistic or cultural knowledge acquired while in the College of Arts and Science.

In this program, students pursue courses in both the College of Arts and Science and the College of Engineering. It has attracted all kinds of students, among them freshmen who are undecided between a career in engineering or some field in Arts and Science. After sampling courses in both colleges, they can decide to continue in the program or switch to a four-year engineering or Arts and Science program. Conversely, a significant number of students who
graduate as Arts-Engineers transferred into the program at some later time in their college career, either seeking to enrich their engineering studies or, if they were originally Arts and Science majors, deciding to become engineers.

The five-year Arts and Science-Engineering program assumes that all requirements will be fulfilled in the engineering department of the student's choice. A minimum of thirty additional credits in Arts and Science is required. The additional courses are selected in consultation with an Arts and Science adviser in such a way as to fulfill all requirements in that college. Since many courses taken as part of the engineering curricula are also applicable to Arts and Science degrees, all requirements for both degrees can usually be met within the framework of the "bachelor's-plus-30."

For a degree in the College of Arts and Science, the student must fulfill the following requirements.

Second Writing Course: Must be passed with a grade of C or better; the course may also simultaneously fulfill one of the group or elective courses listed below.

Language: Must pass in an intermediate-level foreign language course or pass a proficiency test at the intermediate level. Note that credits earned in meeting the language requirements cannot be counted toward fulfilling the group requirements or the Arts and Science electives below.

## Group Requirements

Group A: Analysis and appreciation of the creative arts and humanities ( 12 credits, in at least two departments or programs).

Group B: The study of culture and institutions over time ( 12 credits in at least two departments or programs).

Group C: Empirically based study of human beings and their environment ( 12 credits in at least two departments or programs).

Group D: The study of natural phenomena through experiment and analysis Automatically satisfied by means of the engineering curriculum.

Consult the latest listing of courses fulfilling group requirements available at the Arts and Science Dean's Office, 127 Memorial Hall.
NOTE: The above groups differ from general education groups of the College of Engineering. (See College General Education Program in the College of Engineering section.) This requires the student to make careful course selection in order to choose courses that satisfy both curricula simultaneously.
Area of Concentration: 15 credits of Arts and Science electives to be used for acquiring some depth of knowledge in a field chosen by the student in consultation with an Arts and Science adviser. It is recognized that the 15 credits designated for specialization may well be insufficient to qualify the student for an official major in most departments of the College of Arts and Science. Hence no major is required. Arts-Engineers whose "Area of Concentration" falls short of a major will graduate with a B.A. from the College of Arts and Science.

However, some students do manage to major in an Arts and Science department either by taking more than the minimum number of Arts and Science courses, or by specializing in a scientific or mathematical field, several of whose courses are also required for their engineering program. Some science departments give B.A. and B.S. degrees. Arts-Engineers majoring in such a department can attain either degree by following the appropriate departmental requirements. There is one exception in that, although a few departments do not require a foreign language proficiency for a B.S., all ArtsEngineers must fulfill the foreign language requirement.

## DEGREE: BACHELOR OF ARTS or BACHELOR OF SCIENCE -BACHELOR OF [CHEMICAL, CIVIL, ELECTRICAL, or MECHANICAL] ENGINEERING <br> MAJOR: NONE REQUIRED-[CHEMICAL, CIVIL, ELECTRICAL, or MECHANICAL] ENGINEERING

## CURRICULUM

CREDITS**

## UNIVERSITY REQUIREMENTS

ENGL 110 Critical Reading and Writing ...................................... $3^{1 S}$
Three credits in an approved course or courses stressing ................... $3^{1-4}$ multicultural, ethnic, and/or gender-related content.\#

## ARTS AND SCIENCE COLLEGE REQUIREMENTS

Skill Requirements
Writing:
A writing course involving significant writing experience
including two papers with a combined minimum of 3,000 words to be submitted for extended faculty critique of both composition and content.
Foreign Language: .................................................................................. $0-12$
Completion of the intermediate-level course (107 or 112) in a given language. Students with four or more years of high school work in a single foreign language may attempt to fulfill the requirement in that language by taking an exemption examination.
Breadth Requirements (See page 80 )
Group A.
Understanding and appreciation of the creative arts and humanities. Twelve credits representing at least two areas.
Group B.................................................................................................. 12

The study of culture and institutions over time. Twelve credits representing at least two areas.
Group C............................................................................................................ 12
Empirically based study of human beings and their environment. Twelve credits representing at least two areas.
The above groups differ from the General Education groups of the College of Engineering. This requires careful course selection in order to have courses that satisfy both curricula simultaneously.

## AREA OF CONCENTRATION REQUIREMENTS

Area of Concentratiom.:
Fifteen credits of Arts and Science electives to be used for ............ 15 acquiring some depth of knowledge in a field chosen in consultation with an Arts and Science adviser.
Arts-Science Courses Completed............................................................. 1-5
The liberal arts component is listed as 51 credit hours. The absolute minimum required to satisfy the requirements listed above is 45 ; this assumes that the foreign language requirement is satisfied from high school work, the writing course is in one of the Groups A, B, or C, and that nine credits of the Area of Concentration are also from one of the Groups A, B, or C . Thus, students without language skills and concentrating in science or mathematics will need more than 51 credit hours to complete all of these requirements.

## ENGINEERING COLLEGE REQUIREMENTS

For a degree in the College of Engineering, the student must fulfill all the requirements of the chosen engineering major, including the College of Engineering General Education Program. Requirements for degrees in each of the engineering disciplines are described in the College of Engineering section.

CREDITS TO TOTAL A MINIMUM OF 158-161

Minimum total credit hours will vary, dependent upon the engineering major selected: Chemical (160), Civil (161), Electrical (158), Mechanical (161).

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[^0]:    *Superior figures indicate semester (fall or spring) and/or years in which the course is nor mally taken, i.e., ${ }^{15}$ fall of freshman year, ${ }^{2 S}$ spring of sophomore year, etc. \#This requirement may be fulfilled through a course taken to complete major, group, breadth, or elective requirements. See page 26.

