SECOND MAJORS AND MINORS IN THE SCHOOL OF ENGINEERING

Second majors in the School of Engineering require that you meet all requirements for that major within that department. Exceptions to this are the combination of second majors available through: Electrical Engineering, Computer Engineering, and Computer Science (see department chair). Students who satisfy the requirements of two engineering programs will receive one bachelor's degree with a double major designation. Students who satisfy all requirements for a bachelor's degree in Computer Science and an engineering program, receive separate bachelor's degrees in both Computer Science and Engineering and the Freeman School's office of Academic Programs.

Second majors from an outside division are subject to the conditions set by requirements for that major as designated by the home division or department.

ROBOTICS AND INTELLIGENT SYSTEMS MINOR

The area of robotics, and more widely intelligent systems is becoming increasingly important. Recent developments in robotic manufacturing, computer technology, and system engineering have greatly influenced all aspects of contemporary life. It is widely agreed that the next generation of the automatic systems will exhibit autonomous behavior that is very close to human intelligence. Robots and other intelligent systems applications cover the wide range of applications in all areas of human activities: construction, manufacturing, power generation, transportation, medicine, space exploration etc. This area of studies does not fit neatly into a single conventional engineering discipline, but draws the aspects of mechanical engineering, electrical engineering, computer science and computer engineering. Our minor program allows students to focus their studies toward robotics and intelligent systems while retaining a widely recognized major.

It is expected that all students in this program will have the requisite technical background of calculus, physics, linear algebra, and computer programming course. All majors of the School of Engineering qualify in this regard. For students outside the School of Engineering, additional requirements may be imposed in order to achieve this level of background knowledge.

Decisions regarding the program, such as certification of prerequisites, substitutions of course work, and determination of transfer credit will be made by the Program director in consultation with the Robotics and Intelligent Systems faculty, and the Associate Dean of Engineering for Undergraduate Studies. The Program Director is also responsible for certifying completion of minor requirements and reporting these findings to the Engineering Dean's office.

Requirements

The Robotics and Intelligent Systems minor requires completion of minimum of 8 courses (totaling at least 23 semester hours). The requirements are:

MATH 224	Introduction to Applied Mathematics
ELEN 220	Signals and Systems I
ELEN 321	Signals and Systems II
	or
MCEN 312	Linear Dynamic Systems
ELEN 346	Introduction to Control Systems
	or
MCEN 467	Control Systems
MCEN 671	Robotic System I
CPSC 466	Artificial Intelligence
CPSC 300	Principles of Computer Science
	or
CPSC 118	Data Structures
	and
CPEN 201	Computer Organization
	and
MATH 217	Discrete Mathematics

Plus one course from the following list:

CPEN 449 Neural Nets

CPEN 461 Computer Graphics

CPEN 422 Image Processing

CPSC 469 Machine Learning

ELEN 642 Introduction to Digital Control

ELEN 645 Modern Control

MCEN 672 Robotic Systems II

MAJORS OR MINORS OUTSIDE THE SCHOOL OF ENGINEERING

An engineering student may elect to pursue a major or minor in another division of the university. Anyone who is interested should contact the appropriate department chair and work out a program of courses. This should be approved by the department chair and forwarded to the engineering dean's office. When all requirements are met, the transcript will reflect that a major or minor has been completed.

Since many of the engineering students elect to add a minor in business or a minor or major in mathematics, these programs are as follows.

Business Minor:
For students in the School of Architecture, School of Engineering, Tulane College, and Newcomb College, the following selection of seven courses leads to a minor recognized by the Freeman School:

ECON 101 Microeconomics

ACCT 203 Financial Accounting

Any four of the following eight Freeman School courses:

ACCT 301 Managerial Accounting

FINC 352 Financial Management

ISDS 375 Business Computing

MCOM 335 Management Communications

MKTG 382 Marketing Management

OBHR 331 Organizational Behavior

PERS 321 Managerial Perspectives

PSOM 371 Operations Management

*And one Freeman elective**

** The additional elective may be chosen from any Freeman courses for which the student has taken the needed prerequisites; or an additional course from the list above. Students have the option of substituting More Than Just Business (TIDB 101 and 111) for Freeman School elective.*

Students who elect to complete the requirements of a business minor must earn a grade point average of at least 2.00 in courses counting toward the business minor.

MATHEMATICS MINOR OR MAJOR

A mathematics minor or major is awarded for the following course work:

Minor (22 credits or 6 courses)

MATH 121 Calculus I

MATH 122 Calculus II

MATH 221 Calculus III

MATH 224 Introduction to Applied Math

or

MATH 217 Discrete Math

MATH 309 Linear Algebra

Plus one additional MATH course at the 300 level or above

Major (31 credits or 9 courses)
A major in mathematics is awarded upon completion of all requirements for the minor and

MATH 305 Real Analysis I

Plus two additional courses at the 300 level or above, one of which must be a 400 level course.

Students contemplating either a minor or major in mathematics should consult with an academic advisor in the Department of Mathematics during the spring of the sophomore year.

Dual Degree
If a liberal arts degree is desired in addition to an engineering degree, then all liberal arts, as well as engineering requirements, must be met. Also, the student must spend one year either in Tulane College or Newcomb College to fulfill the residence requirement. (See Associate Deans for advice.)