ROBOTICS ENGINEERING MINOR

Description

The robotics engineering minor is jointly administered by the Departments of:

- Electrical & Computer Engineering (ECE)
- Computer Science and Engineering (CSE)
- Mechanical and Materials Engineering (MME)

College Requirements

College Admission

College Entrance Requirements

Students must have high school credit for (one unit is equal to one high school year):

1. 4 units of mathematics: 2 of algebra, 1 of geometry, 1 of precalculus and trigonometry.
2. 4 units of English.
3. 3 units of natural science that must include 1 unit of physics and 1 unit of chemistry (chemistry requirement waived for students in construction management).
4. 2 units of a single foreign language.
5. 3 units of social studies.
6. Students having a composite ACT score of 28 or greater (or equivalent SAT score) will be admitted to the College of Engineering even if they lack any one of the following: trigonometry, chemistry, or physics.
7. Students having an ACT score of 19 or less in English (or equivalent SAT score) must take ENGL 150 Writing and Inquiry or ENGL 151 Writing and Argument.

A total of 16 units is required for admission.

Students must have an ACT (enhanced) score of 24 or greater (or equivalent SAT). Students who lack entrance requirements may be admitted based on ACT scores, high school rank and credits, or may be admitted to pre-engineering status in the Exploratory and Pre-Professional Advising Center. Pre-engineering students are advised within the College of Engineering.

Students for whom English is not their language of nurture must meet the minimum English proficiency requirements of the University.

Students who lack entrance units may complete precollege training by Independent Study through the UNL Office of On-line and Distance Education, in summer courses, or as a part of their first or second semester course loads while in the Exploratory and Pre-Professional Advising Center or other Colleges at UNL.

Students should consult their advisor, their department chair, or Engineering Student Services if they have questions on current policies.

Other Admission Requirements

Students who transfer to the University of Nebraska–Lincoln from other accredited colleges or universities and wish to be admitted to the College of Engineering (COE) must meet COE freshman entrance requirements and have a minimum cumulative GPA of 2.5 for Nebraska residents or 3.0 for non-residents, and be calculus-ready. Students not meeting either of these requirements must enroll in the Explore Center or another UNL college until they meet COE admission requirements.

The COE accepts courses for transfer for which a C or better grade was received. Although UNL accepts D grades from the University of Nebraska at Kearney and at Omaha, not all majors in the COE accept such low grades. Students must conform to the requirements of their intended major and, in any case, are strongly encouraged to repeat courses with a grade of C- or less.

All transfer students must adopt the curricular requirements of the undergraduate catalog current at the time of transfer to the COE—not that in use when they entered UNL. Upon admission to UNL, students wishing to pursue degree programs in the COE will be classified and subject to the policies defined in the subsequent section.

College Degree Requirements

Grade Rules

Grade Appeals

In the event of a dispute involving any college policies or grades, the student should appeal to his/her instructor, and appropriate department chair or school director (in that order). If a satisfactory solution is not achieved, the student may appeal his/her case through the College Academic Appeals Committee on his/her campus.

Catalog Rule

Students must fulfill the requirements stated in the catalog for the academic year in which they are first admitted at UNL. In consultation with advisors, a student may choose to follow a subsequent catalog for any academic year in which they are admitted to and enrolled as a degree-seeking student at UNL in the College of Engineering. Students must complete all degree requirements from a single catalog year. The catalog which a student follows for degree requirements may not be more than 10 years old at the time of graduation.

Requirements for Minor Offered by Department

This minor is available to all majors. Consult with your advisor before declaring this minor.

The robotics engineering minor consists of three core courses and three elective courses. When selecting electives, the student must take two courses outside of their major area of study. For example, a student in mechanical engineering might take an elective from the Department of Computer Science and Engineering and one from the Department of Electrical Engineering.

Core Requirements	
Select one course from each of the three following topic areas:	
Topic Area: Core Programming	
CSCE 155A	Computer Science I
CSCE 156	Computer Science II
CIST 1400	UNO course
Topic Area: Controls	
MECH 350	Introduction to Dynamics and Control of Engineering Systems
ECEN 444	Linear Control Systems
ECEN 220	Introduction to Embedded Systems

ECEN 491	Special Topics in Computer and Electronics Engineering IV
Topic Area: Embedded Systems	
ECEN 106	Microprocessor Applications
CSCE 236	Embedded Systems
MECH 457	Mechatronic Systems Design
Elective Requirements	
Three courses from the following list of electives are required; two must be outside your department.	
ECEN 400	Electronic Instrumentation
ECEN 428	Power Electronics
ECEN 444	Linear Control Systems
ECEN 460	Labview Programming
ECEN 462	Communication Systems
ECEN 498	Special Topics in Electrical Engineering IV
CSCE 436	Advanced Embedded Systems
CSCE 439	Robotics: Algorithms and Applications
CSCE 473	Computer Vision
CSCE 476	Introduction to Artificial Intelligence [1]
CSCE 4XX	special topics courses on Robotics
ECEN 345	Mobile Robotics I
ECEN 433	Microprocessor System Design
ECEN 435	Embedded Microcontroller Design
MECH 342	Kinematics and Dynamics of Machinery
MECH 450	Mechanical Engineering Control Systems Design
MECH 442	Intermediate Kinematics
MECH 444	Intermediate Dynamics of Machinery
MECH 449	Advanced Dynamics
MECH 453	Robotics: Kinematics and Design
MECH 458	Digital Control of Mechanical Systems
MECH 488	Kinematics and Machine Design Laboratory

[1] *on the Omaha campus, similar courses being offered by CIST could be substitutions*

Grade Rules

Pass/No Pass

No course taken Pass/No Pass will be counted toward the minor.