

Application for an Undergraduate Minor in Robotics

Description: The Schools of Aerospace Engineering, Biomedical Engineering, Electrical and Computer Engineering, Interactive Computing, and Mechanical Engineering offer a minor in robotics for students majoring in any discipline. The objective of the Robotics Minor is to provide a concentrated experience in the multidisciplinary field of robotics.

Applications for the minor are taken each semester (Summer, Fall, Spring), and decisions on the application are made during that semester.

To apply for the minor program you must meet the following:

- Be in good academic standing
- Receive a grade of C or better in CS 1331 or ECE 2035 or ECE 2036 or an equivalent proven competency

Satisfaction of these requirements does not guarantee admission to the minor. Students must also have completed a projected plan of study and a Statement of Objective. Please refer to the Robotics Minor Requirements in order to complete your application.

Forms and Signatures: You will need to complete this application as well as the [Undergraduate Change of Minor](#) form, both of which need to be signed by an academic advisor from your major school prior to submitting your application. On the change of major form, the School for the “Primary” (or “Secondary”) Minor for Robotics should be listed as “ECE” since ECE is the home department for this minor for the purposes of administration. The departmental signatures for the minor will be obtained after the applications are approved.

Submission and Deadlines: Submit the completed application and change of major form either in person to the ECE academic office located in Van Leer W208 or send them as email attachments to undergraduate@ece.gatech.edu, with the subject line “Robotics Minor Application”. Applications are due by the end of the second week of classes each semester, specifically, by 4:00pm on Friday of that week. Decisions and acceptance will be given by the beginning of Phase 1 registration.

Advising: It is recommended you meet with an advisor from your home school prior to phase 1 registration every semester to ensure academic progress toward the minor and to review any class conflicts prior to registration.

Robotics Minor Requirements

The robotics minor consists of 15 hours of credit, not including the prerequisite programming course, taken from the list of required and elective courses. Some of the courses below may have additional prerequisites that are not counted towards the minor. Additional specific restrictions on these hours are listed below.

Required Course in Robotics (3 hours): Pick one of the following courses

- BMED 4739 (4803) Medical Robotics
- CS 3630 Robotics and Perception
- ECE 4560 Introduction to Automation and Robotics
- ME 4451 Robotics

Elective Courses (12 hours):

Choose at least one course from 2 of the 4 core categories: Autonomy, Controls, Mechanics, and Perception.

Autonomy

AE 4552 Introduction to Humans and Autonomy
CS 3600 Introduction to Artificial Intelligence
CS 4641 Machine Learning
CS 4649 Robot Intelligence: Planning
ECE 4555 Embedded and Hybrid Systems

Controls

AE 3531 Control System Analysis and Design or ECE 3550 Feedback Control Systems or ME 4452 Control of Dynamic Systems (only one of these is allowed)
ECE 4550 Control System Design
ME 4012 Modeling and Control of Motion Systems
ME 4405 Fundamentals of Mechatronics

Mechanics

AE 2220 Dynamics or CEE 2040 Dynamics or ME 2202 Dynamics of Rigid Bodies (only one of these is allowed)
ME 4189 Structural Vibrations

Perception

BMED 3500 Sensors & Instrumentation
BMED/ECE 4781 Biomedical Instrumentation*
BMED/ECE 4783: Introduction to Biomedical Image Processing*
CS 4476 Introduction to Computer Vision or ECE 4580 Computer Vision
CS 4616 Pattern Recognition
ECE 2026 Introduction to Signal Processing
ECE 4180 Embedded System Design
ECE 4271 Applications of Digital Signal Processing

AE/BMED/ME/ECE/CS 4699 Undergraduate Research in robotics or autonomous systems (3 hours) may be used to fulfill one of the 4 core requirements. This research must be completed with a robotics faculty member and requires a final report that highlights its linkage to the respective core: Autonomy, Controls, Mechanics, and Perception.

Additional Restrictions on the 15 hours of credit for the Robotics Minor:

- At least two courses must be taken outside of the student's home school. Cross-listed courses, such as those marked with an * in the list above, cannot count as being "outside the home school" for any of the students who are from the schools that cross list that course.
- Courses must be taken from two or more schools.
- All courses from the minor must be passed with a grade of C or higher.
- No more than one 2xxx level course may be used towards the minor.
- No course that is required (by name and number) in the student's major discipline can be counted towards the student's minor. No course that is considered equivalent to a required course in the student's major is allowed for the minor.
- No course counted towards the Robotics Minor can be used for any other undergraduate minor, certificate, or Concentration Area (ME only).

APPLICANT INFORMATION

Full Name: _____
First *Last*

GT ID: _____ Date: _____

CONTACT INFORMATION

GT Email: _____ Cell Phone: _____

Address: _____
Street Address *Apartment/Unit #*

City *State* *Zip*

ACADEMIC INFORMATION

Primary Major : _____ Co-op: Yes _____ No: _____

Secondary Major : _____

Number of hours completed to date (including GT credit and transfer credit): _____

Georgia Tech overall GPA after last term: _____

Number of semesters remaining before graduation (excluding the current semester and any where you will not be enrolled): _____

Estimated graduation date: _____
Semester and year

Prerequisite Course: The prerequisite programming course (CS 1331 or ECE 2035 or ECE 2036 or equivalent) needs to be completed with a grade of C or higher prior to submitting this application.

Course Number: _____ Semester Completed: _____ Grade: _____
summer, spring, or fall and year

Please complete your intended program of study for the minor.

Category	Course Number	If completed, list the grade received	If not yet taken, list the semester you plan to take the course.*	Is this course outside of your home school?
Robotics Course				
Elective Category 1 (list one course)				
Elective Category 2 (list one course)				
Other electives				

* The schedule should be feasible, meaning that students can complete the in-major courses in the time frame indicated and that they are not attempting to take more than one out-of-major course in any semester.

You may substitute a robotics undergraduate research project for one of these core areas under the conditions specified in the Robotics Minor program of study. Is this an option that you will likely take? ___ yes ___ no

If so, what is the name of the research advisor (if known at this time): _____

STATEMENT OF OBJECTIVE

Please describe what interests you about robotics and how robotics fits into your future career plans. Limit your statement to no more than 150 words:

I certify that the information provided in the application materials is true to the best of my knowledge, and I understand that any omission or misrepresentation of facts or failure to furnish information will automatically invalidate consideration of this application.

Applicant's signature: _____ Date: _____

I certify that the student above is in good academic standing and has developed a feasible plan to complete the minor degree requirements in the time frame given above. ("feasible" means that students can complete the in-major courses in the time frame indicated and that they are not attempting to take more than one out-of-major course in any semester).

Major advisor signature: _____ Date: _____

OFFICE USE ONLY:

Approved: _____ Date: _____

Not Approved: _____ Date: _____

Comments: