

# Degree Requirements

## Master of Science in Robotics and Autonomous Systems

### Systems Engineering Concentration

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The MS in Robotics and Autonomous Systems requires a minimum of 30 credit hours. For the concentration in Systems Engineering, these credit hours must reflect one of the following options:

- 30 credit hours and a portfolio, or
- 30 credit hours including the required Applied Project course (EGR 593), or
- 30 credit hours including the required Thesis course (EGR 599) and a thesis

## Coursework

### Required Core Courses (6 credit hours)\*

- MAE 501 Linear Algebra in Engineering
- MAE 547 Modeling and Control of Robots \*MAE 501 is a pre/corequisite

### Concentration Courses (6 credit hours)\*

- EGR 550 Mechatronic Systems
- and one of the following:
  - EGR 557 Foldable Robotics
  - EGR 555 Mechatronics Device Innovation
  - EGR 598 System Control and Optimization

### Elective Courses (12 - 18 credit hours)

At least two courses (6 credit hours) must be chosen from outside the student's concentration area among the courses listed below. *The electives must be graduate courses in science, engineering, mathematics, or others approved by the Graduate Program Committee.*

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| MAE 508 Digital Control: Design and Implementation           | EEE 591 Feedback Systems                      |
| MAE 598 Multi-Robot Systems                                  | EEE 591 Real-Time DSP Systems                 |
| MAE 598 Bio-Inspired Robots                                  | CSE 522 Real-Time Embedded Systems            |
| MAE 598 LMI Methods in Optimal and Robust Control            | CSE 551 Foundations of Algorithms             |
| IEE 598 Optimal Foraging Theory: From Biology to Engineering | CSE 574 Planning and Learning Methods in AI   |
| CSE 575 Statistical Machine Learning                         | CSE 576 Topics in Natural Language Processing |
| CSE 591 Advances in Robot Learning                           | CSE 591 Perception in Robotics                |
| CSE 591 Human-Aware Robotics                                 |   |

### Culminating Experience (0 - 6 credits)

- Select one (1) culminating experience:
  - Portfolio (0 credits)
  - EGR 593 Applied Project (3 credits)
  - EGR 599 Thesis (6 credits)

<b>Culminating Experience</b>	<b>Required Credits</b>	<b>Concentration Credits</b>	<b>Elective Credits</b>	<b>Culminating Experience Credits</b>	<b>Total Credits</b>
Portfolio	6	6	18	0	30
Applied Project	6	6	15	3	30
Thesis	6	6	12	6	30

*\*Courses are subject to change and are not typically offered every semester. See program website, graduate advising, or department with questions.*