

## Graduate Certificate in Mechatronics Requirements

The Mechatronics Graduate Certificate requires a minimum of 15 credits of course work. The Graduate Certificate will be available for graduate students from ECE, EET, MEEM, and MET disciplines as long as they complete required courses in Mechanical, Electrical, and Cybersecurity. The core courses for the Graduate Certificate and for all disciplines are EET 5144 Real-time Robotics Systems and EET 5373 Advanced PLC. Knowledge of robotic systems and the ability to smartly program robots are necessary skills for Mechatronics graduates. Job descriptions from Tesla, Ford, Fanuc, GM, and many other companies dealing with automation, all call for a specific knowledge of Fanuc robots and Programmable Logic Controllers. This has been a deciding factor for requiring all majors to be enrolled in EET5144 and EET5373. Additional courses have been added to emphasize electrical, mechanical and cybersecurity aspects of the certificate. Supplementary elective courses are available to fulfill the prerequisite requirements for the required courses.

Table 1: Courses for Graduate Certificate in Mechatronics

| Disciplines   |   |   |   |
|---|---|---|---|
| Path 1 (suggested for EET major)                            | Path 2 (suggested for MET major)                            | Path 3 (suggested for MEEM major)   | Path 4 (suggested for EE major)   |
| EET5144 Real-Time Robotics Systems and EET5373 Advanced PLC | EET5144 Real-Time Robotics Systems and EET5373 Advanced PLC | EET5144 Real-Time Robotics Systems and EET5373 Advanced PLC                               | EET5144 Real-Time Robotics Systems and EET5373 Advanced PLC                               |
| MET3130 Statistics and Dynamics                             | EET3373 Introduction to PLC                                 | EET3373 Introduction to PLC   | EET3373 Introduction to PLC   |
| MET 5800 Dynamics and Kinematics of Robotics Platforms      | MET 5800 Dynamics and Kinematics of Robotics Platforms      | MEEM 5705 Introduction to Robotics and Mechatronics                                       | MET 5800 Dynamics and Kinematics of Robotics Platforms                                    |
| SAT 3812 Cyber Security I                                   | SAT 3812 Cyber Security I                                   | EE 5455/MEEM5300 Cybersecurity of Industrial Control Systems or SAT 3812 Cyber Security I | EE 5455/MEEM5300 Cybersecurity of Industrial Control Systems or SAT 3812 Cyber Security I |

**Note: Paths 1-4 are suggested pathways for EET, MET, MEEM, and ECE majors based on the available prerequisites. Students from the other majors, perusing the graduate certificate in mechatronics, can select any of four paths as long as they satisfy prerequisite requirements.**