EECE 6340 - Stochastic Systems, Estimation and Control – Fall 2024

Meeting Times: TuTh 3:30-4:45 pm

Meeting Place: Wehr Chemistry 003

Instructor: Prof. Edwin E. Yaz

Office Hours: TuTh 1:45-3:30 pm in person. Alternatively, you can send e- mail to Edwin.Yaz@Marquette.edu to make an appointment at another time.

Required Text: None. Class notes will be posted on D2L.

Software: MATLAB will be used. It is available at http://www.marquette.edu/its/help/matlab/ (at no cost to Marquette Students).

Prerequisites: Linear algebra and basic probability (stochastic processes will be briefly introduced at the beginning of the course)

Course Goals:

This course is designed to give graduate students the ability to model probabilistic dynamical behavior with stochastic systems, analyze the behavior of linear time-invariant and time-varying systems by computer simulation and analytical means, to construct various filters (including the Extended Least Squares, Kalman Filter, H-infinity filter, Extended Kalman Filter, Extended Lanenbr,gf3.6 Od T0.001 Tc -0.002 Tw 0 -1.15

6. how to design quadratic optimal controllers with incomplete and noisy state information.

7. how to apply stochastic modeling, estimation and control tools in various problems ranging from chemical sensing, power systems, radar tracking, to intrusion detection in cyber-physical systems, battery state of charge estimation and target tracking based on videos.

Attendance Policy:

Attendance is not required but highly encouraged, because of the very high correlation between attendance and performance in this class. You should not use any digital device for non-course related activities during lectures (Internet browsing, texting, Facebooking, tweeting, etc.) that prevent you from engaging with the class and distracting other students.

A Statement from the Office of Disability Services: Students with disabilities may be entitled to accommodation and/or academic adjustments designed to give them equal access to the university's resources. The procedures guiding the accommodations process are detailed at the Office of Disability Services website http://www.marquette.edu/disability-services/ Please contact the ODS as early as possible in the semester. If the accommodations are approved, the instructor will receive a letter from ODS describing the accommodations; the student will then work together

Grade Scale: [a, b) => a ≤ x < b	
[94, 100]	A
[90, 94)	A-
[86, 90)	B+
[82, 86)	B
[78, 82)	B-
[74, 78)	C+
[70, 74)	C
Below 70	F