San José State University

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Office Hours:	Monday & Wednesday 8:45-9:45
Class Days/Time:	Monday & Wednesday 7:30-8:45
Classroom:	On line (Link to Zoom sessions will be posted on Canvas.)
Prerequisites:	BSME or consent of instructor

Course Description:

Formulation of dynamic systems in state space form. System transient response, stability, controllability, and observability. Design of control systems using conventional and modern methods. Computer aided dynamic system analysis, control system design and simulation. Matlab will be used as the computational tool in design and analysis of control systems.

Course Format

Lo

References:
1.   -
2.
3.   , McGraw Hill, Inc..
4.   -Naeini, Addison-Wesley.
5.   -Wesley.
6.

University Policies

Per [University Policy S16-9](http://www.sjsu.edu/senate/docs/S16-9.pdf) *(http://www.sjsu.edu/senate/docs/S16-9.pdf)*, relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on [Syllabus Information web page](https://www.sjsu.edu/curriculum/courses/syllabus-info.php) (https://www.sjsu.edu/curriculum/courses/syllabus-info.php). Make sure to visit this page to review and be aware of these university policies and resources.

AUTOMATIC CONTROL ENGINEERING

Date	Topics	Readings
8/23	Introduction	Ch. 1-3
8/25	Review of Classical Control Systems	Ch. 5-6
8/30	Using Matlab to Design FeedbackControl Systems	
9/1	State Variable Representation of Dynamic Systems	Ch. 2-3
9/6	Labor Day	
9/8	State Variable Representation of Dynamic Systems	Ch. 2-3
9/13	Review of Linear Algebra	Ch. 9.1-2
9/15	Functions of Matrices	Ch. 9.5
9/20	Solving Linear State Equations	Ch. 9.3,5
9/22	Solving Linear State Equations	Ch. 9.3,5
9/27	Using Matlab to Solve State Equations	
9/29	Exam #1	
10/4	Controllability	Ch. 9.6
10/6	Controllability	Ch. 9.6
10/11	Observability	Ch. 9.7
10/13	Observability	Ch. 9.7
10/18	Design of Control Systems in State Space	Ch. 10.1-4
10/20	Design of State Observers	Ch.10.5-7
10/25	Design of State Observers	Ch. 10.5-7
10/27	Observer-Based Control Systems	Ch. 10.5-7
11/1	Using Matlab to Design Observer-Based Control Systems	
11/3	Observer Controller	Ch. 10.5-7
11/8	Exam #2	
11/10	Veterans Day	
11/15	Matlab Implementation	Notes
11/17	Digital Control Implementation	
11/22	Optimal Control & Kalman Filter	Ch. 10.8
11/24	Thanksgiving	
11/29	Nonlinear Control	Notes
12/1	Stability	Notes
12/6	Review	