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| 1. **Course title/number, number of credit hours**
 |
| EML 4312 – Mechanical Control Systems |  3 credit hours |
| **2. Course prerequisites, corequisites, and where the course fits in the program of study** |
| Prerequisites: EGN 4432 Dynamic Systems |
| **3. Course logistics** |
| Term: Fall 2018Class location and time: FL 404, T,R 08:00-09:20 |
| **4. Instructor contact information** |
| *Instructor’s name**Office address**Office Hours* *Contact telephone number**Email address* | Dr. Oren MasoryBuiliding 36, Room 112, Boca CampusT,R 08:00-09:00 2:00-5:00By appointment561-297-3424masoryo@fau.edu |
| **5. TA contact information** |
| *TA’s name**Office address**Office Hours* *Contact telephone number**Email address* | **To Be Assigned** |
| **6. Course description** |
| Course covers fundamental concepts in controls: block diagram, transfer function, stability, response in time and frequency domains, Root Locus, Bode and Nyquist Diagrams, PID controller design. Also, the control of discrete systems is discussed |
| **7. Course objectives/student learning outcomes/program outcomes** |
| ***Course objectives:***1. Understanding time and frequency behavior of a system
2. Evaluate the stability of the system using Root Locus and Bode and Nyquist Diagrams
3. Design of a PID controller
4. Design a controller for discrete systems

***Student learning outcomes & relationship to ABET a-k outcomes*** Upon successful completion of the course, the students would have acquired a fundamental knowledge and understanding of1. The students will be able to analyze and determine the stability of a system. (a,e,k)
2. The students will design PID controllers and will simulate the system response. (a,e,k)
3. The students will be able to design a controller for discrete systems. (a,c,e,k)
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| **8. Course evaluation method** |
| Grading and Exam Policy           1. Attendance 0% (missing 3 or more classes will cost a full grade)
2. Assignments 20%
3. Midterm exam 25%
4. Final exam 40%
5. Final project 15%

**Blackboard** Assignment should be submitted through SafeAssignment in addition to hard copy.  **View your Grades**Grades will be available on Black Board.   |
| **9. Course grading scale** |
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| **The minimum grade required to pass the course is C** |
| **Letter Grade** |  | **Percent (%)** |
| A |  | 94-100 |
| A- |  | 90-93 |
| B+ |  | 87-89 |
| B |  | 84-86 |
| B- |  | 80-83 |
| C+ |  | 77-79 |
| C |  | 74-76 |
| C- |  | 70-73 |
| D+ |  | 67-69 |
| D |  | 64-66 |
| D- |  | 60-63 |
| F |  | 0-59 |

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| **10. Policy on makeup tests, late work, and incompletes** |
| **Submission Deadline**Submission is ALWAYS due on or before the end of the due date (5 pm)**Late Submissions**Late submission will carry penalty of 10% per day.**Make-up Exam Policy**Make-up exams will be permitted only under extenuating circumstances and only with notification and documentation (original funeral notice, original doctor note, jury summons, police report, military orders, etc.  See the current FAU College Catalog for a more comprehensive description of what is acceptable in allowing make up exams).The instructor reserves the right to create alternate make-up exams for students who are not able to take the scheduled exam.*Departmental Policy: Makeup tests* are given only if there is solid evidence of a medical or otherwise serious emergency that prevented the student of participating in the exam. Makeup exam should be administered and proctored by department personnel unless there are other pre-approved arrangements*Late work* is not acceptable.*Incomplete grades* are against the policy of the department. Unless there is solid evidence of medical or otherwise serious emergency situation incomplete grades will not be given. |
| **11. Special course requirements** |
| None |
| **12. Classroom etiquette policy** |
| **Etiquette:** In all online communication, it is expected that all students will follow rules of online "netiquette". Netiquette is a set of rules for polite online behavior that all members of this class is expected to follow.  Basically, "be respectful and be polite to each other " and "be patient"  No one is perfect and we all have different approaches to life, work, and school.Individuals who violate the netiquette policy or engage in disruptive online behaviors such as flaming (posting disrespectful or hostile comments), posting inappropriate comments, or shouting (posting messages using all capitals) may have their course access privileges revoked and/or they may be referred to the Student Dean. Students who continue to engage in unacceptable online behavior even after being warned, may be permanently denied access to the course and/or may receive an F for the course.Please don't use email short hand like ROTFLO (rolling on the floor laughing out loud) or BTW (by the way) - not everyone knows what these abbreviations mean.Remember that in the real world we can see the facial expressions, gestures, and hear tone of voice. We can't do that online so it's very easy to misinterpret another person's meaning to to be misinterpreted ourselves. Be careful of how you communicate to your instructor and to your peers online. If you want to use emoticons (smileys) to convey feelings, please stick with the basics happy :-) sad :-( or wink ;-) Others are less well known and are subject to different interpretations. The idea is to be clear in your communications.If you have a concern about the course, a test or an assignment, please contact the instructor. |
| **13. Disability policy statement** |
| In compliance with the Americans with Disabilities Act (ADA), students who require special accommodations due to a disability to properly execute coursework must register with the Office for Students with Disabilities (OSD) located in Boca Raton campus, SU 133 (561) 297-3880 and follow all OSD procedures. |
| **14. Honor code policy** |
| Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and place high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. See University Regulation 4.001 at [www.fau.edu/regulations/chapter4/4.001\_Code\_of\_Academic\_Integrity.pdf](http://www.fau.edu/regulations/chapter4/4.001_Code_of_Academic_Integrity.pdf) |
| **15. Counseling and Psychological Services Center** |
| Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU’s Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to http://www.fau,edu/counseling/ |
| **16. Supplementary/recommended readings** |
| Class notes |
| **17. Course topical outline, including dates for exams/quizzes, papers, completion of reading** |
| Review digital logic and SimulinkControl of discrete processes Combinational and sequential systemsLadder diagramSequential function chartsPLCReview of Laplace transform (Ch. 2)Control systems block diagram (Ch. 2)Feedback Control system (Ch.3)System performance (Ch. 4)Linear Systems stability (Ch. 5)Root Locus (Ch. 6)Frequency Domain response & Stability (Ch. 8 & 9)Design of feedback control (Ch. 11)Digital Control systems (Ch. 13)Other topics if time permits |