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| **1. Course title/number, number of credit hours** |
| EGN 4432 Dynamic Systems |  3 credit hours |
| **2. Course prerequisites, corequisites, and where the course fits in the program of study** |
| Prerequisites: 1. EGN 3321 - Dynamics or equivalent
2. EEL 2161 C for Engineers (EGN 2213 Computer Applications in Engineering I, or equivalent)
3. MAP 3305 – Engineering Mathematics I or MAP 2302 Differential Equations I
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| **3. Course logistics** |
| *Term*: Spring 2014 (MWF 3:00−3:50)Boca Raton Campus (GS 107) |
| **4. Instructor contact information** |
| *Instructor’s name**Office address**Office Hours* *Contact telephone number**Email address* | Dr. AnRm 174, Building 36, Boca Raton CampusMW 10-12pm561−297−2792pan@fau.edu |
| **5. TA contact information** |
| *TA’s name**Office address**Office Hours* *Contact telephone number**Email address* | TBA |
| **6. Course description** |
| Acquaints students with basic knowledge about dynamic systems, systems stability analysis and basic controller design. |
| **7. Course objectives/student learning outcomes/program outcomes** |
| *Course objectives* | To acquaint Ocean and Mechanical Engineering students with basic knowledge about dynamic systems, systems stability analysis and basic controller design |
| *Student learning outcomes**& relationship to ABET a-k objectives* | 1. A basic knowledge of the fundamental principles governing the dynamics of simple mechanical, thermal, fluid and electrical systems. (a,e,k)
2. An ability to apply the knowledge of mathematics and engineering to model simple dynamic systems. (a,e,k)
3. An ability to simulate dynamic systems using computer simulation tools. (a,e,k)
4. An ability to characterize the stability properties of a dynamic system. (a,e,k)
5. An ability to design a simple feedback control system that meets desired system output specifications. (a,c,e,k)
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| **8. Course evaluation method**10% homework, 20% quizzes, 20% test #1,20% test #2, 20% final exam, 10% LabsIf the overall grade two weeks before the final exam is maintained at 85% or above, the final exam can be waived, and the final grade will be recomputed proportionally. |
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| **9. Course grading scale**> 90.0 A86.7-90.0 A-83.3-86.7 B+80.0-83.3 B76.7-80.0 B-73.3-76.7 C+70.0-73.3 C66.7-70.0 C-63.3-66.7 D+60.0-63.3 D56.7-60.0 D-< 56.7 F |
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| **10. Policy on makeup tests, late work, and incompletes** |
| *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** |
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| **12. Classroom etiquette policy** |
| University policy requires that in order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular phones and laptops, are to be disabled in class sessions. |
| **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. Required texts/reading**System Dynamics, 2nd or 3rd edition, William Palm III, McGraw Hill, 2014 |
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| **16. Supplementary/recommended readings**Lecture notes provided by the instructor |
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| **17. Course topical outline, including dates for exams/quizzes, papers, completion of reading** |
| Course Topics:1. Introduction to control systems
2. Mathematical models of dynamic systems
3. Analytical solutions of systems input-output equations
4. Numerical solutions of ordinary differential equations
5. Simulation of dynamic systems
6. System transfer functions
7. Closed-loop systems and system stability
8. Control systems

TestsTest #1 (Friday 2/14/14)Test #2 (Monday 3/24/14)Final Exam (Monday 4/28/14 at 1:15−3:45, following university exam schedule)HolidaysM.L King Jr. (1/20/13)Spring break (3/3/13−3/9/13) |