EEL6614 Modern Control Theory

1. **Catalog Description** - Optimization of systems using the calculus of variations, dynamic programming, and the maximum principle. Extensive study of the linear plant with a quadratic performance index. Observers and dynamic compensators.

2. **Pre-requisites and Co-requisites** EEL 5182

3. **Course Objectives** - Optimization methods and optimal control

4. **Instructor Dr. Jacob Hammer**
   a. Office location NEB 563
   b. Telephone 392-4934
   c. E-mail address hammer@mst.ufl.edu
   d. Web site mst.ufl.edu
   e. Office hours MWF 3:50-4:40

5. **Teaching Assistant TBA**
   a. Office location
   b. Telephone
   c. E-mail address
   d. Office hours

6. **Meeting Times MWF 9**

7. **Class/laboratory schedule**, three 50 minute classes each week.

8. **Meeting Location BEN 328**

9. **Material and Supply Fees** None

10. **Textbooks and Software Required**
   a. Title: Applied Optimal Control: Optimization, Estimation, and Control
   b. Author: A.E. Bryson and Y.C. Ho
   c. Publication date and edition
   d. ISBN number: 0891162283

11. **Recommended Reading**

12. **Course Outline**
   - Parameter optimization problems
   - Optimization problems for dynamical systems: the Euler Lagrange equations
   - Optimal feedback control: the Bellman Principle and the Hamilton Jacobi Bellman Equation
   - Linear Optimal Control
13. **Attendance and Expectations** - Attendance not required

14. **Grading** – Midterm Exam 35%, homework 10%, final exam 55%

15. **Grading Scale** –

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<th>C+</th>
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<td>Notes</td>
<td>93-100</td>
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“In order to graduate, graduate students must have an overall GPA and an upper-division GPA of 3.0 or better (B or better). Note: a B- average is equivalent to a GPA of 2.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit: [http://gradschool.ufl.edu/catalog/current-catalog/catalog-general-regulations.html#grades](http://gradschool.ufl.edu/catalog/current-catalog/catalog-general-regulations.html#grades)

16. **Make-up Exam Policy** - Formal excuse required

17. **Honesty Policy** – All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others.

18. **Accommodation for Students with Disabilities** – Students Requesting classroom accommodation must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.

19. **UF Counseling Services** – Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:

- UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, psychological and psychiatric services.
- Career Resource Center, Reitz Union, 392-1601, career and job search services.

20. **Software Use** – All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.