Applied Optimal Control Systems
(MEM 733)

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1. **Introduction** (weeks 1 &2)
    a. The Optimal Control Problem
    b. Optimization basics
    c. Intro to Variational Calculus
2. **Variational Calculus and the Minimum Principle** (weeks 3,4 &5)
    a. Unconstrained Control problems
    b. Control and State Constraints
    c. Examples
3. **Dynamic programming** (weeks 6 &7)
    a. Principle of Optimality
    b. The Hamilton-Jacobi-Bellman Equation
4. **Min-Max Optimal Control** (week 8)
    a. Min-Max Control
    b. Game Theory
5. **Hybrid Systems** (weeks 9 &10)
    a. Hybrid Systems Basics
    b. Hybrid Systems Optimal Control

Grading:

1. Problem Set 1, Due: May 3, 30%
2. Problem Set 2, Due: May 17, 30%
3. Project, Due: June 7, 40%