

# Nonlinear Control

## Lecture Plan

(Fourteen 90-minute lectures or Twenty Eight 50-minute lectures)

| Lecture # | Topic                                                | Textbook Chapter |
|-----------|------------------------------------------------------|------------------|
| 1         | Introduction & second-order systems                  | 1 & 2            |
| 2         | Stability of equilibrium points                      | 3                |
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| 4         | Time varying & perturbed systems                     | 4                |
| 5         | Time varying & perturbed systems                     | 4                |
| 6         | Passivity & input-output stability                   | 5 & 6            |
| 7         | Stability of feedback systems                        | 7                |
| 8         | Special nonlinear forms                              | 8                |
| 9         | State feedback stabilization                         | 9                |
| 10        | State feedback & robust state feedback stabilization | 9 & 10           |
| 11        | Robust state feedback stabilization                  | 10               |
| 12        | Observers and output feedback stabilization          | 11 & 12          |
| 13        | Output feedback stabilization                        | 12               |
| 14        | Tracking & regulation                                | 13               |

Textbook: H.K. Khalil, Nonlinear Control, Pearson Education, Upper Saddle River,  
New Jersey, 2015