**ChE 391 Lecture Schedule**

**Spring, 2012**

1/17 History of modern control, Matrix Review

1/19 State space analysis 1

1/24 State space analysis 2

1/26 State space analysis 3

1/31 Multivariable control (Ch. 18 decoupling, Ch.3 Skogestad (VCB)

2/2 Optimal control 1 (Ricardo D. – TFE gone) Lagrange Multiplier Method

2/7 Optimal control 2

2/9 Optimal control 3, Minimum Time Control

2/14 Discrete dynamic programming, maximum power point tracking

2/16 Linear programming, Steam System

2/21 TFE gone

2/23 Linear programming

2/28 Internal Model Control, Time delay compensation, MPC -1

3/1 MPC -2

3/6 MPC -3

3/8 MPC -4 (Badgwell), Neural nets, feedforward control

***Spring Break***

3/20 Nonlinear optimization review, Opt temp profile, take home midterm (due 3/27), project selection due

3/22 Rockwell Automation – nonlinear MPC

3/27 Digital filter

3/29 Kalman filter, control with limited noisy measurements

4/3 Nonlinear stability (M. Baldea)

4/5 Recursive least squares

4/10 Power systems (A. Kwasinski)

4/12 Energy applications , solar thermal storage, smartgrid overview

4/17 Adaptive control 1

4/19 Adaptive control 2

4/24 Student presentations -1

4/26 Student presentations -2

5/1 No class (TFE gone)

5/3 Student presentations -3 and 4

5/10 Final exam (9am-noon)