Practical Multivariable Control and Tuning Course

Agenda
(3-days Course)

Day 1: Introduction to Robust Control

09.00 *REGISTRATION*

09.15 **Review of Frequency Response and State Space Modelling Methods**

10.15 *TEA/COFFEE*

10.30 **Review of State Feedback LQ Optimal Control**

11.15 **Multivariable Control Systems, Stability and Robustness**

12.15 *LUNCH*

13.15 **Uncertainty in Systems and Robust Control Design Fundamentals**

14.00 **Hands-on Session**: State Feedback LQ Optimal Control and Robustness

15.00 *TEA/COFFEE*

15.15 **Introduction to Kalman Filtering for Control / Condition Monitoring**

16.00 **LQ and LQG Multivariable Optimal Control: Design Issues**

17.00 *CLOSE*

Day 2: LQG and H-infinity Control Design

09.00 **Hands-on Session:** State Estimation using the Kalman Filter

09.40 **Hands-on Session:** LQR/LQG Design and Disturbance Rejection

10.20 *TEA / COFFEE*

10.35 **Introduction to Loop Transfer Recovery LQ Design Methods**

11.15 **Introduction to H-infinity Robust Control Methods and Advantages**

12.15 *LUNCH*

13.15 **Hands-on Session:** LTR Design

13.45 **H-infinity Algorithms, Structure and Control Design Issues**

14.30 *TEA/COFFEE*

14.45 **Feedforward and H-infinity Reliable Control Design**

15.30 **Introduction to Quantitative Feedback Theory**

16.00 **Hands-On Session:** H-infinity Robust Control

17.00 *CLOSE*

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Day 3: Predictive, Nonlinear Control Design and Fault Monitoring with Application

09.00 **Introduction to Predictive Control Design Methods**

10.00 **Hands-on Session:** Introducing Predictive Control Design and Results

11.00 *TEA / COFFEE*

11.15 **Introduction to Fault Monitoring and Detection Methods**

12.15 **Hands-On Session:** Model Based Fault Monitoring Methods

13.00 *LUNCH*

14.00 **Fault Tolerant, Safe and Reconfigurable Control**

14.45 **Simple Nonlinear Controllers and Compensation Methods**

15.45 *TEA/COFFEE*

16.00 **Hands-on Session:** Introduction to Nonlinear Control, Nonlinear Smith Predictors and NGMV Control Design Methods

17.00 *CLOSE*

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