Agenda: Control Fundamentals: Theory and Practice
(3-day Course)

Day 1: Linear Systems Models

09.00 Welcome
09.10 L1.1 Introduction to and the Need for Control
10.15 L1.2 Fundamentals of Modelling and Simulation
11.00 *TEA/COFFEE*
11.15 H1.1 Hands-On Session: Modelling for Controller Design using MATLAB/SIMULINK
12.30 *LUNCH*
13.30 L1.3 Linear Dynamic Systems and Transfer Functions
14.30 *TEA/COFFEE*
14.45 L1.4 Frequency Response Analysis (Bode, Nichols and Nyquist)
15.45 H1.2 Hands-On Session: Linear System Representations
17.00 *CLOSE*

Day 2: Classical Control Design

09.00 L2.1 Fundamentals of Feedback Control Design
(Performance, Stability & Disturbance Rejection)
10.15 *TEA/COFFEE*
10.30 H2.1 Hands-On Session: Control Fundamentals
11.30 L2.2 Frequency Domain Control Design - Lead-Lag Compensation
12.30 *LUNCH*
13.30 H2.2 Hands-On Session: Frequency Domain Control Design
14.30 L2.3 Control System Structures – Feedforward/Feedback Control, Cascade
15.30 *TEA/COFFEE*
15.45 L2.4 Introduction to PID Controllers – Basics of PID Control
17.00 *CLOSE*

Day 3 Practical Aspects in Control

09.00 L3.1 Introduction to PID Controllers - Tuning PID Methods
09.45 H3.1 Hands-On Session: PID Controller Tuning
10.45 *TEA/COFFEE*
11.00 L3.2 Implementation of Controller Issues - Anti-windup, Bumpless Transfer
12.00 *LUNCH*
13.00 H3.2 Hands-On Session: Practical Aspects in Control
14.00 L3.3 Discrete-Time Systems and Control – Sampling Theory, z-transforms
15.00 *TEA/COFFEE*
15.15 H3.3 Hands-On Session: Discrete Time Systems
16.15 L3.4 What Makes Control Difficult
17.00 *CLOSE*

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