

AMAE12 CONTROL ENGINEERING

UNIT-1 INTRODUCTION

- 1.1 Historical review- Simple pneumatic, hydraulic and thermal systems,
- 1.2 Series and parallel systems, Analogies
- 1.3 Mechanical and electrical components, Development of flight control systems.

UNIT-2 OPEN AND CLOSED LOOP SYSTEMS

- 2.1 Feedback control systems
- 2.2 Block diagram representation of control systems,
- 2.3 Reduction of block diagrams, Output to input ratios, Signal flow graph.

UNIT-3 CHARACTERISTIC EQUATION AND FUNCTIONS

- 3.1 Laplace transformation, Response of systems to different inputs viz.,
- 3.2 Step input, impulse, ramp, parabolic and sinusoidal inputs,
- 3.3 Time response of first and second order systems,
- 3.4 Steady state errors and error constants of unity feedback circuit.

UNIT-4 CONCEPT OF STABILITY

- 4.1 Necessary and sufficient conditions, Routh
- 4.2 Hurwitz criteria of stability, Root locus and Bode techniques,
- 4.3 Concept and construction, frequency response.

UNIT-5 SAMPLED DATA SYSTEMS

- 5.1 Introduction to digital control system,
- 5.2 Digital Controllers and Digital PID Controllers.

References Books:

1. Ogato, "Modern Control Engineering", Prentice – Hall of India Pvt. Ltd. New Delhi, 1998.