AMET 12 CONTROL SYSTEM

UNIT-1 INTRODUCTION TO CONTROL SYSTEM
1.1 Classification of Systems, Open-Loop Control System, Closed-Loop Control Systems,
1.2 Elements of Automatic or Feedback Control System,
1.3 Requirement of Automatic Control Systems

UNIT-2 MATHEMATICAL MODELS OF CONTROL SYSTEM
1.1 Representation of a Control System, Description of Some Of Typical Physics System,
1.2 Tachnogenerators, Potentiometers, LVDT and Synchros, Synchros, Hydraulic Actuation

UNIT-3 BASIC PRINCIPLES OF FEEDBACK CONTROL
3.1 The Control Objectives, Feedback Control System Characteristics,
3.2 Proportional Mode of Feedback Control, Integral Mode Of Feedback Control,
3.3 Derivative Mode Of Feedback Control

UNIT-4 TIME DOMAIN ANALYSIS AND FREQUENCY RESPONSE
4.1 Standard Test Signals, Static Accuracy, Computation of Steady State Errors,
4.2 Transient Response: First Order System,
4.3 Transient Response: Second Order System, Transient Response Specification,
4.4 Conclusion, Frequency Response,
4.5 Frequency Domain Specifications, Magnitude And Phase Angle Characteristics Plot,
4.6 Frequency Response Specification, Representation Sinusoidal Transfer Function

UNIT-5 CONCEPTS OF STABILITY AND THE ROUTH STABILITY CRITERION
5.1 Bounded-Input Bounded-Output Stability,
5.2 Zero-Input Stability, the Routh Stability Criterion

UNIT-6 NYQUIST STABILITY CRITERION
6.1 Stability Margin, Phase Margin

UNIT-7 BODE PLOTS & ROOT LOCUS
7.1 The transfer function of a second order control system,
7.2 General Rules

REFERENCE BOOKS:
1. Automatic Control Systems Book by Benjamin Kuo
2. Control Systems Engineering Book by I.J. Nagrath and M. Gopal