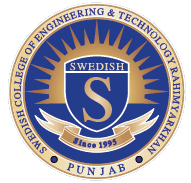
**SWEDISH COLLEGE OF ENGINEERING & TECHNOLOGY**

**RAHIM YAR KHAN**

**B.Sc. Electrical (Electronics) Engineering**

Session: 2010-14 Term: 6th

**Department of Electrical Engineering**

**Course Title: Control Systems (EE-303)**

**Course Supervisor: Engr. M Asif Munir**

**Credit Hours: 3+1**

**Text book**

1. Automatic Control System Benjamin C Kuo et al, 8th Ed

**Reference books**

1. Control Systems for Engineers S.K Hasnain
2. Control System Engineering Norman S Nise, 5th Ed
3. Control Systems Theory and applications Smarajit Ghosh

**Sessional Marks Evaluation Procedure:**

* Conduction of Quizzes on Weekly basis
* Conduction of Assignment and Viva voce on Monthly basis

**Week-wise Course Breakup for Mid-term**

|  |  |  |
| --- | --- | --- |
| **Week** | **Course Description** | **Book Author** |
| **Week 1** | Chapter#01) Introduction):  1.1 Introduction  1.2 What is Feedback and what are its effects?  1.3 Types of Feedback control Systems | Benjmin C KUO |
| Chapter#01 Fundamentals of Control Systems  1.1 Basic Definitions  1.2 Classification of Control Systems  1.3 Open-loop and closed-Loop system  1.4 effects of Feedback  1.5 Servomechanism  1.6 Standard Test Signals  1.7 Impulse Function | Smarajit Ghosh |
| **Week 2** | Chapter#06) Block Diagram  6.1 Definition of Basic Elements of Block diagram  6.2 Cannonical Form of Closed Loop System  6.3 rules for Block Diagram Reduction  6.4 Procedure for Reduction of Block Diagram  6.5 Reducing to Unity Feedback systems  (Including Related Examples + Exercise Problems of Medium Level Complexity) | Smarajit Ghosh |
| **Week 3** | Chapter#07) Signal-Flow Graphs):  7.1 Basic Definitions in SFG  7.2 Rules for Signal Flow Graph  7.3 Properties of Signal Flow Graph  7.4 Mason’s Gain Formula  (Including Related Examples + Exercise Problems of Medium Level Complexity) | Smarajit Ghosh |
| **Week 4** | Chapter#02): Transfer Functions of Physical Systems  2.3 The Transfer Function  2.4 Electrical network Transfer Functions  2.5 Translational Mechanical System Transfer Functions  2.6 Rotational Mechanical System Transfer Functions  (Including Related Examples + Skill Assessment Problems + Exercise Problems of Medium Level Complexity) | Norman S Nise |
| **Week 5** | Chapter#03 State Equations for Physical Systems):  3.1 Introduction  3.2 Some Observations  3.3 The General State-Space Representation  3.4 Applying The State-Space Representation  3.5 Converting a Transfer Function to State Space  3.6 Converting From State Space To A Transfer Function  (Including Related Examples + Skill Assessment Problems + Exercise Problems of Medium Level Complexity) | Norman S Nise |
| **Week 6** | Chapter #05 Equivalent Systems):  5.6 Signal Flow Graphs of Sate Equations  5.7 Alternative Representations In State Space  5.8 Similarity Transformations  (Including Related Examples + Skill Assessment Problems + Exercise Problems of Medium Level Complexity) | Norman S Nise |
| **Week 7** | Chapter#06 Transient Response Stability):  6.1 Introduction  6.2 Routh-Hurwitz Criterion  6.3 Routh-Hurwitz Criterion: Special cases  6.4 Routh-Hurwitz Criterion: Additional Examples  (Including Related Examples + Skill Assessment Problems + Exercise Problems of Medium Level Complexity) | Norman S Nise |
| **Week 8** | Review of Syllabus |  |
| MID-TERM EXAM | | |