**GAYATRI VIDYA PARISAD COLLEGE OF ENGINEERING FOR WOMEN**

**MADHURAWADA,VISAKAPATNAM.**

**LECTURE SCHEDULE**

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**Name of the Faculty : Mrs.N.VEEKSHITHA**

**Department : Electrical and Electronics Engineering.**

**Class and Year : II-EEE and II sem.**

**Subject : CONTROL SYSTEMS**

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| **S. NO** | **LECTURE NOS** | **UNIT NO’S** | **TOPIC** |
| 1 | Lecture 1 | **1** | Introduction to control systems |
| 2 | Lecture 2 | Open Loop & Closed Loop systems, examples |
| 3 | Lecture 3 | Classification of control systems |
| 4 | Lecture 4 | Feed-back systems and their characteristics |
| 5 | Lecture 5 | Effects of feedback on control systems. |
| 6 | Lecture 6 | Impulse response and its transfer function |
| 7 | Lecture 7,8 | Translation mechanical systems |
| 8 | Lecture 9,10 | Rotational mechanical systems |
| 9 | Lecture 11 | Block diagram representation of electrical systems |
| 10 | Lecture 12 | Problems on electrical systems to find transfer function |
| 11 | Lecture 13 | Steps to reduce the given block diagram |
| 12 | Lecture 14,15,16 | Problems on Block Diagram reduction technique |
| 13 | Lecture 17 | Mason’s Gain Formula |
| 14 | Lecture 18,19 | Problems to find T(s) using SFG |
| 15 | Lecture 20 | Transfer function of DC servo motor |
| 16 | Lecture 21 | T(s) of Synchro for data transmission system |
| 17 | Lecture 22 | Transfer function of synchro for error detection and correction |
| 18 | Lecture 23 | **2**  **2** | Time response ,Standard test signals |
| 19 | Lecture 24 | Time response of first order systems |
| 20 | Lecture 25 | Time response of second order systems |
| 21 | Lecture 26 | Characteristic equation, time domain specifications of second order systems |
| 22 | Lecture 27 | Derivation of time domain specifications |
| 23 | Lecture 28 | Problems to find the time domain specifications |
| 24 | Lecture 29,30 | Steady-state response, errors and error constants  and problems |
| 25 | Lecture 31,32 | Effects of PD,PI,PID Controllers |
| 26 | Lecture 33 | **3** | Concept of stability, Routh Stability criterion |
| 27 | Lecture 34 | Limitations of Routh stability criterion and problems on that. |
| 28 | Lecture 35 | Root Locus concept, magnitude and angle criterion. |
| 29 | Lecture 36 | Steps to solve the problem by root locus |
| 30 | Lecture 37,38,39 | Problems on root locus |
| 31 | Lecture 40 | Effects of adding poles and zeros to root locus |
| 32 | Lecture 41 | Advantages & Limitations of R.L, Dominant roots, Cancellation of poles of G(s) with zeros of H(s) |
| 33 | Lecture 42,43 | **4** | Frequency response Analysis, correlation between frequency and time response analysis |
| 34 | Lecture 44,45 | Bode plot concept |
| 35 | Lecture 46,47,48 | Problems on Bode plot |
| 36 | Lecture 49,50,51 | Polar plot and problems |
| 37 | Lecture 52,53,54 | Nyquist plot-stability criterion and problems |
| 38 | Lecture 55 | **5** | Compensator-classification |
| 39 | Lecture 56,57 | Lead compensator, Lag compensator |
| 40 | Lecture 58,59 | Lag-lead compensator |
| 41 | Lecture 60,61,62 | Problems on compensators |
| 42 | Lecture 63,64 | **6** | Concept of state, state variable and state model |
| 43 | Lecture 65,66,67 | Derivation of state model from block diagrams |
| 44 | Lecture 68,69,70 | Solving the state equations |
| 45 | Lecture 71,72 | Concept of controllability and observability |