**LESSON PLAN**

Branch/ Semister/Session : II ECE (B) (2nd semester)

Academic Year : 2016 – 2017

Subject Name : Electromagnetic Waves and Transmission Lines (EMTL)

Faculty Name : Dr. A. S. SRINIVASA RAO

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Period | Date(tentative) | Topic | Unit no | Teaching methodology |
| 1 | 05-12-16 | Review of coordinate systems |  | Class room teaching |
| 2 | 07-12-16 |
| 3 | 08-12-16 | Vector calculus |
| ELECTROSTATICS | | | | |
| 4 | 09-12-16 | Coulombs’ law | I | Class room teaching |
| 5 | 12-12-16 | Different charge distributions( , |
| 6 | 14-12-16 | Electric field intensity due to |
| 7 | 15-12-16 | Electric field intensity due to |
| 8 | 16-12-16 | Electric field intensity due to |
| 9 | 19-12-16 | Electric flux density |
| 10 | 21-12-16 | Gauss law |
| 11 | 22-12-16 | Electric potential |
| Relation between E & V |
| 12 | 23-12-16 | Maxwell two equations for E-fields |
| 13 | 26-12-16 | Energy density |
| 14 | 28-12-16 | Convection and conduction currents |
| 15 | 29-12-16 | Dielectric constant |
| 16 | 30-12-17 | Isotropic, homogeneous dielectrics |
| Continuity equation, relaxation time |
| 17 | 02-01-17 | Poisson’s & Laplace equations |
| 18 | 04-01-17 | Capacitance –parallel plate,coaxial,spherical |
| 19 | 05-01-17 |
| 20 | 06-01-17 | Problems, assignment-1 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Period | Date (tentative) | Topic | Unit no | Teaching methodology |
| MAGNETO STATICS | | | | |
| 21 | 09-01-17 | Biot-savart law | II | Class room teaching |
| 22 | 23-01-17 | Ampere’s circuital law & applications |
| 23 | 25-01-17 | Magnetic flux density |
| 24 | 26-01-17 | Maxwell two equations for H-fields |
| 25 | 27-01-17 | Magnetic scalar& vector potentials |
| 26 | 30-01-17 | Forces due to magnetic fields , Ampere’s force law |
| 27 | 01-02-17 | Inductances & magnetic energy |
| MAXWELL’S EQUATIONS | | | | |
| 28 | 02-02-17 | Faraday’s law & transformer emf | III | Class room teaching |
| 29 | 03-02-17 | Inconsistency of ampere’s law, displacement current density |
| 30 | 06-02-17 | Maxwell equations-diff forms &word statements |
| 31 | 08-02-17 | Boundary conditions dielectric-dielectric |
| 32 | 09-02-17 | Boundary conditions dielectric-conductor |
| 33 | 10-02-17 | Problems |
| 34 | 13-02-17 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Period | Date(tentative) | Topic | Unit no | Teaching methodology |
| EM WAVE CHARACTERISTICS | | | | |
| 35 | 15-02-17 | Wave equations for conducting and perfect dielectric | IV | Class room teaching |
| 36 | 16-02-17 |
| 37 | 17-02-17 | Uniform plane waves  Definition  All relations b/w E and H |
| 38 | 20-02-17 |
| 39 | 22-02-17 |
| 40 | 23-02-17 | Sinusoidal variations |
| 41 | 24-02-17 | Wave propagation in conducting media |
| 42 | 24-02-17 | Wave propagation in lossless media |
| 43 | 27-02-17 | Conductors and dielectrics characterisation |
| 44 | 06-03-17 | Wave propagation in good conductors |
| 45 | 08-03-17 | Wave propagation in good dielectrics |
| 46 | 09-03-17 | Polarization |
| 47 | 10-03-17 | Problems |
| 48 | 13-03-17 | Reflection and refraction of plane waves NORMAL & OBLIQUE incidence |
| 49 | 15-03-17 |
| 50 | 16-03-17 |
| 51 | 17-03-17 | Brewster angle, critical angle |
| 52 | 20-03-17 | Total internal reflection, surface impedance |
| 53 | 22-03-17 | Poynting vector ,poynting theorem |
| 54 | 23-03-17 | Power loss,problems |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Period | Date(tentative) | Topic | | Unit no | | Teaching methodology |
| TRANSMISSION LINES | | | | | | |
| 55 | 24-03-17 | Types,parameters,equations | V | | Class room teaching | |
| 56 | 27-03-17 | primary , secondary constants |
| 57 | 29-03-17 | Zo , Vp ,Vg ,propagation consts |
| 58 | 30-03-17 | Infinite,lossless,lowloss lines |
| 59 | 31-03-17 | Distortion,loading |
| 60 | 03-04-17 | problems |
| 61 | 05-04-17 | Zi , SC&OC Lines ,reflection coefficient |
| 62 | 06-04-17 | VSWR,UHF lines |
| 63 | 07-04-17 | λ/4, λ/2, λ/8 lines –impedance transformations |
| 64 | 10-04-17 | Smith chart-single & double stub matching |
| 65 | 12-04-17 | problems |