

**7. ENGINEERING ELECTROMAGNETICS**

Author: Dr. Sheel Aditya

UNITS: 41

S. No.	Title	No.
1-	Introduction	228
2-	Transmission Lines: Wave Propagation	229
3-	Transmission Lines : Reflection, transmission	230
4-	Transmission Lines: Travelling Waves (Contd.); Sinusoidal Signals; Impedance Transformation	231
5-	Transmission Lines : Standing Wave Ratio; Measurement of Impedance	232
6-	General Transmissign; Line Equations, Low Loss Transmission Lines, Transmission Lines as Circuit Elements	233
7-	Transmission Line Sections as Circuit Elements	234
8-	Transmission Lines : 1) Velocities of Wave Propagation 2) Transmission Line Charts	235
9-	Transmission Lines (Contd.) Smith Chart	236
10-	Transmission Lines (Contd.) mpedance Matching Using Stub- Line	237
11-	Transmission Lines (Contd.) Transmission Line Parameters (Primary Constants)	238
12-	Wave Propagation	239
13-	Wave Propagation (Contd.) Properties of Uniform Plane Waves, Sinusoidal Time Variation,	240
14-	Wave Propagation (Contd.) Polarization, Poynting Vector	241
15-	Wave Propagation (Contd.) Power Flow , Complex Poynting Vector , Wave Equation For a Conducting Medium	242
16-	Wave Propagation (Contd.) Conducting Medium- Conductors & Dielectrics Depth of Penetration- Surface Impedance	243
17-	Wave Propagation (Contd.) Surface .Impedance, Power Loss in a Conductor, Reflection at a Perfect Conductor (Normal Inc.)	244
18-	Reflection & Refraction of Waves- Reflection at the Surface of a Conducting Medium, Reflection at a Perfect Conductor (Oblique Inc.)	245
19-	Reflection & Refraction of Waves (Contd.)	246
20-	Reflection & Refraction of Waves (Contd.)	247
21-	Reflection & Refraction of Waves (Contd.); The Plane slab	248
22-	Reflection & Refraction of Waves (Contd.); Transmission Lines Analogy for Plane Waves	249
23-	Wave Guides	250
24-	Wave Guides ( Contd. ): Parallel Plane guide , Transverse Electric Waves, Field Distribution, Super position of Plane Waves	251
25-	Waves Guides (Contd.)	252
26-	Wave Guides ( Contd. ) : Parallel Plane Guide- Characteristics of TE & TM Waves, TEM Waves- Wave Impedances	253
27-	Wave Guides (Contd.)	254
28-	Wave Guides (Contd.)	255
29-	Wave Guides (Contd.) - Rectangular Wave Guides	256
30-	Wave Guides (Contd.) - Rectangular Wave Guides	257

31-	Wave Guides (Contd.) - Rectangular Wave Guides	258
32-	Resonators General Properties	259
33-	Resonators (Contd.) Transmission Line Resonators	260
34-	Resonators (Contd.) Wave Guide Resonators	261
35-	Radiation	262
36-	Radiation (Contd.)	263
37-	Radiation (Contd.)	264
38-	Radiation (Contd.)	265
39-	Radiation (Contd.) Monopole Antennas, Half Wave Dipole Antenna	266
40-	Radiation (Contd.)	267
41-	Radiation (Contd.); 2- Element Anays, Yagi- Uda Array	268