

Year & Sem: E2S2	Course Code: EC2203	Course Name: RF and Microwave Engineering	No. of Credits: 4	L 2	T&PS 2	P 0
Unit I: Introduction to Microwaves Microwave frequencies, Advantages of microwaves, General and Industrial applications of microwaves. Unit II: Transmission Lines & Microwave Measurements Transmission line equations & solutions, Reflection and Transmission Coefficient, Standing Wave and Standing Wave Ratio, Line Impedance and Admittance, Impedance Matching, Stub Line, Application of Smith Chart in solving Transmission Line problems. Unit III: Introduction to Waveguides Introduction, Different modes in Wave Guide (TE,TM,TEM), S Matrix and its applications in analysing microwave components. Losses associated with Microwave transmission. Co axial line, Circular wave guide, plan arwave guide, rectangular wave guide, Co-axial Connectors. Unit IV: Wave guide Junctions Wave-guide Tee: E-plane, H-Plane, Magic Tee; Wave-Guide Corners, Bends and Twists, Directional Couplers (Two & Multi hole), Ferrite Devices:Gyrator, Isolators and Circulators; S Matrix derivation for all components. Microwave resonators, Microwave attenuators. Unit V: Microwave Tubes and Circuits Limitations of conventional tubes at UHF & Microwave, Klystrons (2 cavity), Velocity modulation, Apple Gate diagram, Multicavity Klystron, Reflex Klystron, Traveling Wave Tube, Magnetron. Unit VI: Semiconductor Microwave Devices and Circuits Ridely-Watkins-Hilsun (RWH) Theory, parametric amplifiers, Gunn diode and its applications. References/Text Books: 1. M.kulkarni, "Microwave and Radar Engineering", Umesh publications, 3rd edition, 2003 2. David. M. Pozar , " microwave Engineering", John Wiley and sons, 3rd edition, 2005 3. SamuelY.Liao, " Microwave circuits and Devices", Pearson Prentice hall, 3rd edition, 2003 4. DevendraK.Mishra, " Radio frequency and Microwave Communication circuits", John wiley and sons, 2nd edition, 2004 Lecture Plan: Unit-I & -II syllabus for MID-I, Unit-III & -IV syllabus for MID-II and Unit-V & -VI syllabus for MID-III examinations. Video Lectures (Web Links): 1. http://nptel.ac.in/courses/117105122/ 2. http://nptel.ac.in/courses/117105130/ Study Materials (Web Links): 1. 2.						