

SARDAR PATEL UNIVERSITY
Programme: B.Sc (Electronics & Communication)
Semester: VI
Syllabus with effect from: November/December-2013

Paper Code: US06CELC05	Total Credit: 3
Title Of Paper: Microwave Devices & Circuits	

Unit	Description in detail	Weighting (%)
I	Microwave Transmission Lines Microwave region and band designation; advantages of microwaves; applications of microwaves. Introduction; Transmission Line Equations and Solutions; Reflection Co-efficient and Transmission Co-efficient; Standing wave and Standing wave ratio; Line impedance and admittance; Smith chart; impedance matching.	
II	Waveguides Introduction; Types of waveguides; propagation of waves in rectangular waveguides; propagation of TEM waves; TE and TM Modes; propagation of TM waves in rectangular waveguide; TM modes in rectangular waveguide; guide wavelength, group and phase velocity; propagation of TE waves in a rectangular waveguide; TE modes in rectangular waveguide; circular waveguide;	
III	Microwave Components, Tubes and Circuits Introduction; waveguide microwave junction; microwave T-junction; directional couplers; waveguide terminations; ferrite devices; phase shifters; microwave attenuators; High frequency limitation of conventional tubes; Microwave tubes; Klystron; Magnetron.	
IV	Solid State Microwave Devices Classification; Varactor diode; Parametric amplifier; PIN diode; Tunnel diode; Avalanche Transit Time devices, Gunn Diode.	

Basic Text & Reference Books:-

- Microwave and Radar Engg.:- M Kulkarni (Umesh Publications).
- Microwave Devices and Circuits:- Samuel Liao (PHI).
- Microwave Technology:- Dennis Roddy

