

BS (4 Years) for Affiliated Colleges



Code	Subject Title	Cr. Hrs	Semester
PHY-431	ADVANCED ELECTRONICS-III (THEORY)	3	VIII
Year	Discipline		
4	Physics		

Course Outlines:

Electronic Devices (operation and characteristics): Tunnel and IMPATT diodes, Quantum-effect devices, MESFET and MODFET and Hot-Electron devices. LED, Gunn, and Laser diodes, photodetector, UJT and the basic sweep circuit, circuit to generate triggered sweep.

Radio communication: Production and propagation of radio waves, direct waves, ground reflected, surface wave and space waves, formation of Ionospheric layer and their variations, skip distance.

Modulation and Detection: AM and FM modulation, bandwidth of FM signal, Angle Modulation, Vestigial Sideband and Single Sideband Modulation, Phase-locked Loop, Digital Communication, transmitter and superhetrodyne receiver.

Microwaves: Microwave spectrum and radar bands, properties of microwaves, production of microwave (klystron, magnetron, traveling wave oscillator), gunn oscillator, measurement of microwave power, radar system.

Books Recommended:

1. *Introduction to Digital Computer Technology* by Mashelsky (Wiley),
2. *Pulse Digital and Switching Wave forms* by Millman and Taub (McGraw-Hill)
3. *Microwave Principles*, by Reich-Skalmik-Ordung-Kranss.
4. *Microwave Measurements* by Gingston.
5. *Electronic and Radio Engineering* by F.E. Terman McGraw-Hill.
6. *Integrated Electronics* by Millman and Halkias.
7. *Microprocessors (principles and application) 2nd Edition* by Gilmore, (1996).
8. *Computer Engineering, Hardware design* by M. Morris Mano, Prentice Hall (1988)