

BS (4 Years) for Affiliated Colleges



Code	Subject Title	Cr. Hrs	Semester
PHY-411	ADVANCED ELECTRONICS-I (THEORY)	3	VII
Year	Discipline		
4	Physics		

Course Outlines:

Operational amplifiers: Ideal operational amplifier, differential amplifier, emitter coupled differential amplifier, offset error and voltages/currents, operational amplifier parameters and applications, frequency response of operational amplifiers.

Combinational Digital Circuits and Systems: Overview of number system, digital codes and circuits, Arithmetic circuits, Decoders/Encoder and multiplexers.

Sequential Logic; Flip-flops, latches, JK, T and D flip-flops, Master-slave flip-flops.

Register and Counters; Shift registers, ripple and Synchronous binary counters, Analog to digital conversion and digital to analog conversion, conversion errors.

Memory and programmable logic: ROM and RAM, memory decoding, error detection and correction, PLD, PLA and PAL.

Control Logic Design: Microoperations, shifter unit, micriprogrammed control, ALU and control of microprocessor unit.

CPU addressing modes: Address field and modes, stack organization, data transfer instructions, data manipulation instructions, program interrupt. Input-output interface, design of a CPU, pipeline processing.

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) 2ndEddition* by Gilmore, (1996).
8. *Computer Engineering, Hardware design* by M. Morris Mano, Prentice Hall (1988)