MOHANLAL SUKHADIA UNIVERSITY, UDAIPUR

BACHELOR OF COMPUTER APPLICATION
(BCA Annual Scheme)

(To be offered in affiliated colleges from session 2016-17)

1. **Duration of the Course :** The BCA (AnnualScheme)course will be of three years duration. Each year will be approximately 10 months (minimum 180 working days) duration.

2. **Medium of Instruction :** The medium of instruction and examination shall be English.

Second Year B.C.A.
(Effective from session 2015-16)

(a) The minimum marks for passing II year shall be 40% in each paper and 40% marks in the aggregate of papers.

(b) A candidate may be promoted to III year if he has/ she secured at least 40% marks in at least six papers/practicals out of 8 theory/practical papers and more than 40% in aggregate. Such candidate shall be required to appear in papers in which he has secured less than 40% marks along with papers of III year when these courses are offered again, so as to satisfy the passing criteria laid in II(a).

(c) A candidate fails to satisfy the criteria II(a), II(b) for promotion to III year shall be required to rejoin the course in II year, if otherwise eligible in accordance with the University regulations laid in this regard.

BCA 201: Computer Communications and Networking

UNIT-I

Protocol Architecture : Overview: Communication model, Communication Tasks, Data Communication Networking: WAN, LAN,Wireless Networks. Basics of Network Software: Protocol and protocol architecture, Protocol functions, Design Issues for the layers, interfaces &Services, Connection oriented and connectionless services, service primitives, relationship of services to protocols , ISO REF Models, TCP/IP Model.

Data Communications: Data Transmission: Concepts of Frequency,Spectrum, bandwidth, Electromagnetic spectrum and frequencies for data communication, Fourier analysis , Data and signal, Transmission impairments, channel capacity, Nyquist bandwidth, Shannon capacity formula ,decibels and signal strength, Transmission media:Coaxial, twisted pair, Comparative study of Categories of cables, Coaxial, Optical Fibers, Wireless transmission: Terrestial Microwave, satellite, Broadcast Radio,Infrared,.

UNIT-II

Data Encoding: (Brief idea of NRZ, Bipolar AMI, B8ZS,HDB3, ASK ,FSK, PSK,PCM,AM,FM,PM), Spread Spectrum. Asynchrous and Synchronous transmission, Full and Half duplex, Interfacing, Functional and Procedural aspects of V.24,

Data Link Control: Flow control: Stop and Wait, Sliding window, Error detection: Parity Check,CRC. Error control: Stop and Wait ARQ, Go back-N ARQ, Selective-Reject ARQ, Brief idea of HDLC and other Data Link control protocols

UNIT-III

Circuit Switching: Simple switching Network, Circuit Switching Networks, Brief idea of following (detail working) not required:

Circuit Switching Concepts: Space Division switching, Time Division Multiplexing, Routing in circuit switching Networks, Control Signalling, Inchannel & common channel signaling, Brief idea of SS7. Packet Switching: Packet switching principles,Routing,X.25

UNIT-IV

LAN Technology: LAN architecture, IEEE 802 standards, Ethernet (CSMA/CD): Medium Access Control, 10Mbps, 100Mbps, Gigabit Ethernet. Brief survey of other LAN systems (Token ring,FDDI,ATM, Fiber channel). Wireless LANS, Bridges, Latest trends in LANtechnologies

LAN Devices: Study of specifications of L2 and L3 switches, Structured cabling, Passive components.

UNIT-V

Principles of Internetworking, connection less Internetworking, IP, IPv6, IP multicasting. Routing protocols, TCP, UDP, SNMP,SMTP and MIME, HTTP.

Recommended Books :

1. William Stallings: Data & Communications,SixthEdition
2. A. S. Tanenbaum : ComputerNetworks