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 204: Data Structures using C

UNIT-I

Linear Structure: Arrays, records, stack, operation on stack, implementation of stack as an array, queue, operations on queue, implementation of queue.

UNIT-II

Linked Structure : List representation, operations on linked list - get node and free node operation, implementing the list operation, inserting into an ordered linked list, deleting, circular linked list, doubly linked list.

UNIT-III

Tree Structure : Binary search tree, inserting, deleting and searching into binary search tree, implementing the insert, search and delete algorithms, tree traversals

UNIT-IV

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Graph Structure : Graph representation - Adjacency matrix, adjacency list, adjacency

multilist representation. Orthogonal representation of graph . Graph traversals - bfs and dfs. Shortest path, all pairs of shortest paths, transitive closure, reflexive transitive closure.

UNIT-V

Searching and sorting : Searching - sequential searching, binary searching, hashing. Sorting - selection sort, bubble sort, quick sort, heap sort, merge sort, and insertion sort, efficiency considerations.

Recommended Books

1. Horowitz E Sartaj Sahni, Fundamentals of Data Structure, Galgotia Publication Private Limited., NewDelhi.