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.

Third Year B.C.A.

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

A candidate may be allowed to reappear in two papers of III year if he has/she secured at least 40% marks in at least six papers/practicals/project out of 8 theory/practical/project 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 due papers of I & II year (if any) when these courses are offered again, so as to sat isfy the passing criteria laid in III(a).

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

No candidate shall be deemed to have satisfied examination requirement for the award of BCA degree unless he fulfills the criteria for passing I year, II year and III year examinations, as laid in I(a), II(a) and III(a).

Candidate will not be allowed to reappear in any papers of I,II & III year to improve the percentage.

At the end of final examination, the candidates eligible for the award of B.C.A. (Annual Scheme)degree shall be classified on the basis to the marks obtained in the I,II & III year examinations, taken together, as follows:

(a) **I division with distinction :** 75% or more marks in the aggregate and provided the candidate has passed all the papers and examinations in the first attempt.

(b) **I division :** 60% or more marks but fails to satisfy the criteria for being classified as first division with distinction laid in (a).

(c) **II division : 48% or more but less than 60%**

(d) **III division: 40% or more but less than 48%**

A candidate must pass the examinations within five years of the initial admission to the first year of the course.

BCA 301: Object Oriented Programming using C++

UNIT – I

Different paradigms for problem solving, need for OOP, differences between OOP and procedure oriented programming, abstraction, overview of OOP principles- encapsulation, inheritance and data binding polymorphism.abstraction.

C++ basics: structure of a C++ program, data types, declaration of variables, expressions, operators, type conversions, pointers and arrays, strings, structures, references, flow control statement, functions-scope of variables, parameter passing, recursive functions, default arguments, inline functions, dynamic memory allocation and deallocation operators.

UNIT – II

C++ classes and data abstraction: class definition, class structure, class objects, class scope, this pointer, static class members, constant member functions, constructors and destructors, dynamic creation and destruction of objects, friend function and class, static class member.

Overloading : function overloading, operator overloading – unary, binary operators.

UNIT - III

Inheritance: defining a class hierarchy, different forms of inheritance, defining the base and derived classes, access to the base class members, base and derived class construction, destructors, virtual base class.

Polymorphism: static and dynamic bindings, base and derived class virtual functions, dynamic binding through virtual functions, virtual function call mechanism, pure virtual functions, abstract classes, implications of polymorphic use of classes, virtual destructors.

UNIT - IV

Templates - function templates and class templates, overloading of function template, static class member in class template.

Exception handling: benefits of exception handling, throwing an exception, the try block, catching an exception, exception objects, exception specifications, rethrowing an exception, catching all exceptions.

UNIT-V

File handling : stream classes hierarchy, stream I/O, file streams, opening and closing data file, creating a data file, read and write functions, error handling during file operations, formatted I/O, sequential and random file processing.

Standard template library (STL): component of STL, containers, iterartors, algorithms, application of container classes.

Recommended books