

MOHANLAL SUKHADIA UNIVERSITY, UDAIPUR

**BACHELOR OF COMPUTER APPLICATION
(Semester Scheme with Choice Based Credit System)
(Effective from session 2020-23)**

1. Duration of the Course

The Bachelor of Computer Application (B.C.A) which will be known as BCA (Semester Scheme with Choice Based Credit System) course will consist of six semester's duration which will be conducted in three years. Each semester will be approximately 5 months (minimum 90 working days in a semester) duration.

2. Eligibility:

Candidates seeking admission to the first semester of BCA programme must have passed 10+2 examination all faculty (Science, Commerce & Science) with at least 50% marks.

3. Admissions: Admissions to the first semester of B.C.A shall be made, through merit conducted by the University. The course will be initially offered only in the university campus under Faculty of Science

4. Medium of Instruction

The medium of instruction and examination shall be English.

5. No. of Seats

Total 180 seats on self-finance basis

6. Curriculum

6.1 B.C.A. Programme has a three year, six semester prescribed course structure which in general terms is known as curriculum. It prescribes courses to be studied in each semester as given under courses of study and examination

6.2 B.C.A Programme shall have a curriculum and course contents (syllabi) for the courses recommended by the committee courses in Informatics and Computational Sciences and approved by the academic council of the university.

6.3 The Programme shall follow a credit based semester system. Each academic year is divided in to two semesters as prescribed in 6.1

6.4 Course Credit System/Structure

In general a certain quantum of work measured in terms of credits is laid down as the requirement for a particular degree. A student earns the credits for a particular course by fulfilling the academic requirements viz. attendance and evaluation. The total credits required for completing the B.C.A. program shall be 172. The total number of credits in each semester (I to V semester) shall be 34 and 18 in the VI semester. Number of credits for a course in any semester is calculated as follows.

| S. No. | Course | Credits |
|--------|---------------------------------|---------|
| 1 | One Lecture or tutorial hr/week | 1 |
| 2 | Two Laboratory hours/week | 1 |
| 3 | Seminar 4hrs/week | 2 |
| 4 | Full semester project | 18 |

BCA Semester – I

| Paper | Paper Name | L-T-P | Credits | Max. Marks | | Total | |
|--------------------------|---|-------|---------|------------------|---------------------|-------|-----|
| | | | | University Exam. | Internal Assessment | | |
| Paper-I (BCA-S101) | Introduction to Information Technology & PC Packages | 3-1-0 | 4 | 80 | 20 | 100 | |
| Paper-II (BCA-S102) | Business Communication | 3-1-0 | 4 | 80 | 20 | 100 | |
| Paper-II (BCA-S103) | Problem solving through C | 3-1-0 | 4 | 80 | 20 | 100 | |
| Paper-IV (BCA-S104) | Computer Organization | 3-1-0 | 4 | 80 | 20 | 100 | |
| Paper-V (BCA-S105) | Practical-I C Programming Lab. | 0-0-8 | 4 | 80 | 20 | 100 | |
| Paper-VI (BCA-S106) | Practical-II ICT & PC Software Lab. | 0-0-8 | 4 | 80 | 20 | 100 | |
| Paper-VII (BCA-S107) | Language Lab | 0-0-2 | 2(AP) | | 50 | 50 | |
| Paper VIII (BCA-S108) | Seminar | 4 | 2 | | 50 | 50 | |
| Paper IX (BCA-S109) | Extension Activities (Required to choose one activity from the list of activities) | 2 | 2 (AP) | | 25 | 25 | |
| Paper X (BCA-S110) | Basic Mathematics-I (Only for those have not studied Maths at 10+2 Level) | 2-1-0 | 4(AP) | | 100 | 100 | |
| TOTAL | | | | 34 (26) | 480 | 345 | 825 |

BCA Semester – II

| Paper | Paper Name | L-T-P | Credits | Max. Marks | | Total |
|--------------------------|---------------------------------------|-------|---------|------------------|---------------------|-------|
| | | | | University Exam. | Internal Assessment | |
| Paper-I (BCA-S201) | Computer Architecture | 3-1-0 | 4 | 80 | 20 | 100 |
| Paper-II (BCA-S202) | Basic Physics | 3-1-0 | 4 | 80 | 20 | 100 |
| Paper-III (BCA-S203) | Basic Mathematics-II | 3-1-0 | 4 | 80 | 20 | 100 |
| Paper-IV (BCA-S204) | Object oriented programming using C++ | 3-1-0 | 4 | 80 | 20 | 100 |
| Paper-V (BCA-S205) | Object oriented Programming Lab. | 0-0-8 | 4 | 80 | 20 | 100 |
| Paper-VI (BCA-S206) | Microprocessor Lab | 0-0-8 | 4 | 80 | 20 | 100 |
| Paper-VII (BCA-S207) | Communication Skill Lab | 0-0-4 | 2(AP) | | 50 | 50 |
| Paper-VIII (BCA-S208) | Seminar | 4 | 2 | | 50 | 50 |
| SBCA 1209 | Environment Studies | | 2 | 100 | | 100 |
| SBCA 1704 | English | | 2 | 100 | | 100 |
| | | | 32 (28) | 680 | 220 | 900 |

PRACTICAL:

Practical-I: BCA-S205: Object Oriented Programming Lab

LIST OF EXPERIMENTS/EXERCISES

1. Write a program for Basic/Simple logic building in C++
2. Write a program to implement function overloading
3. Write a program to implement the concept of class and object
4. Write a program to implement the concept of friend function
5. Write a program to implement the concept of static data member
6. Write a program using the concept of constructor & destructor
7. Write a program to implement operator overloading
8. Write a program to implement single inheritance
9. Write a program to Implement Multiple inheritance
10. Write a program to Implement Virtual function
11. Write a program to create, read & write sequential file
12. Write a program to create, read & write random access file
13. Write a program to implement function template
14. Write a program to implement class template
15. Write a program for exception handling

Practical-II: BCA-S206: Microprocessor Lab

The laboratory focuses on implementation of sequential and combinational circuits such as adders, Subtractor, Decoder, Multiplexers, Flip-flops, counters, Registers etc.

8085 interfacing with basic I/O devices like keypad, LED display, usage of timers and USART peripherals, multi-port device access, stepper motor movement control, DC motor speed control.

Main attention should be given on Arduino and Raspberry Pi based application like sensor (temperature, flex, gyro, etc.), actuator (lcd, dc motor, stepper motor etc.). Set up communication between two or more Arduino. Set up communication between two or more Raspberry Pi. Priority should be given on web based applications. ARM assembly language programming should be done.

Practical-III (Audit course): BCA-S207: **Communication Skill Lab**

1. **CREATIVE THINKING:** What is creativity; 6 thinking hats; mental blocks; exercises. 1
2. **SELF DISCOVERY:** Importance of knowing yourself; SWOT analysis; benefits; strengths and weaknesses; exercises.
3. **DEVELOPING POSITIVE ATTITUDE:** Meaning; changing attitudes; power of positive thinking; overcoming negative attitude; exercises.
4. **TIME MANAGEMENT:** Features, time management matrix; tips for time management; effective scheduling; time wasters; time savers; exercises and time bound tasks.
5. **DECISION MAKING:** Definition; models and types; skills and techniques; courses of action; steps involved in decision making; individual decision making and group decision making; exercises

BCA-S208: Seminar: Seminar topics to be allotted in the beginning of the course by issuing schedule of seminars including faculty seminars

BCA PAPER 1209
Environmental Studies
Compulsory paper for all stream at UG level

UNIT I

The Multi disciplinary nature of environmental studies and natural resources.
Definition, Scope and importance, Need for public awareness .

a) Renewable and nonrenewable resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.

b) Water resources : Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.

c)Mineral Resources : Use and exploitation, environmental effects of extracting and using minerals resources, case studies.

d)Food Resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.

e)Energy resources : Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources, Case studies.

f)Land Resources: Land as a resource, Land degradation, man induced landslides, soil erosion and desertification.

Role of an individual in conservation of natural resources

Equitable use of resources for sustainable lifestyles. (10 Lectures)

UNIT II

Ecosystem

Concept. of an ecosystem

Structure and function of an ecosystem

Producers, consumers and decomposers.

Energy flow in the ecosystem.

Ecological succession.

Food Chains, food webs and ecologicalpyramids.

Introduction, types, characteristic features, structure and function of the following ecosystem:-

a Forest ecosystem b. Grassland ecosystem c. Desert ecosystem d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans estuaries) (6 lectures) .

UNIT-III

Biodiversity and its Conservation

– Introduction- Definition: genetic, species and ecosystem diversity .

– Biogeographical classification of India.

– Value of biodiversity: consumptive use, productive use, social ethical, aesthetic and option values.

– Biodiversity at global, national and local levels.

– India as mega -diversity nation

– Hot -spots of biodiversity

– Threats of biodiversity : habitat loss, poaching of wildlife, man-wildlife conflicts.

– Endangered and endemic species of India.

– Conservation of bio-diversity : In-situ and Ex-situ conservation of bio-diversity (8 Lectures)