

**Deenbandhu Chhotu Ram University of Science & Technology, Murthal (Sonapat) SCHEME OF STUDIES & EXAMINATIONS**

**Bachelor of Computer Applications (BCA) 1<sup>st</sup> Year 1<sup>st</sup> Semester Credit Based Scheme w.e.f. 2020-21**

| Sr. No.      | Course No. | Course Title                             | Teaching Schedule |          |           | Marks of Class Work | Examination Marks |            | Total      | Credit    | Exam Duration |
|--------------|------------|--|-------------------|----------|-----------|---------------------|-------------------|------------|------------|-----------|---------------|
|              |            |  | L                 | T        | P         |                     | Theory            | Practical  |            |           |               |
| 1.           | BCA101C    | Introduction to Computer & IT            | 3                 | 0        | -         | 25                  | 75                | -          | 100        | 3         | 3             |
| 2.           | BCA103C    | Programming in 'C'                       | 3                 | 0        | -         | 25                  | 75                | -          | 100        | 3         | 3             |
| 3.           | MATHS111C  | Mathematics-I                            | 3                 | 0        | -         | 25                  | 75                | -          | 100        | 3         | 3             |
| 4.           | HUM101BC   | Communication Skill-I                    | 3                 | 0        | -         | 25                  | 75                | -          | 100        | 3         | 3             |
| 5.           | BCA121C    | Software Lab-I (Based on BCA101C)        | -                 | -        | 4         | 25                  | -                 | 75         | 100        | 2         | 3             |
| 6.           | BCA123C    | Software Lab-II (Based on BCA103C)       | -                 | -        | 4         | 25                  | -                 | 75         | 100        | 2         | 3             |
| 7.           | HUM121BC   | Soft Skill Seminar I (Based on HUM101BC) | -                 | -        | 2         | 25                  | -                 | 75         | 100        | 1         | 3             |
| <b>TOTAL</b> |            |  | <b>12</b>         | <b>0</b> | <b>10</b> | <b>175</b>          | <b>300</b>        | <b>225</b> | <b>700</b> | <b>17</b> |               |

**L = Lecture, T = Tutorial, P = Practical, AUD = Audit Course, & C = Credits NOTE:**

1. For student admitted in B. Tech. 1st Semester (C-Scheme) in 2019 and all trailing students, Examinations and evaluation of students shall be conducted as per guidelines AICTE Examinations Reforms covering the entire syllabus. The students shall be made aware about the reforms.
2. Students will be allowed to use Non-programmable scientific calculator. However, sharing of calculators will Not be permitted in the examinations

**Semester – Ist**

**Subject: Introduction to Computer & IT**

**Subject Code: BCA101C**

| Study Scheme      |   |   |         | Evaluation Scheme   |                                   |               | Total Marks |
|-------------------|---|---|---------|---------------------|-----------------------------------|---------------|-------------|
| Lectures per week |   |   |         | Internal Assessment | External Assessment (Examination) |               |             |
| L                 | T | P | Credits | Max. Marks          | Max. Marks                        | Exam Duration |             |
| 3                 | - | - | 3       | 25                  | 75                                | 3 hours       | 100         |

**UNIT – I**

Topic No:1: Basics of Computer: Introduction, characteristics of computer;  
 Topic No:2: History of computers; classification of computers on size,  
 Topic No:3: Architecture and chronology; Applications of computers;  
 Topic No:4: Commonly used terms–Hardware, Software, Firmware;  
 Topic No:5: Computer Architecture and organization; Input, Process and Output;  
 Topic No:6: Memory, Units of measurement of storage; Input/Output devices;  
 Topic No:7: primary and Secondary storage devices.

**UNIT II**

Topic No:8: Operating system concepts, functions of an operating system,  
 Topic No:9: Types of operating systems, structure of operating system,  
 Topic No:10: Generation of Languages; Translators - Interpreters, Compilers,  
 Topic No:11: Assemblers and their comparison.  
 Topic No:12: Solving Problems using algorithms, flow charting, decision tables,  
 Topic No:13: Pseudo code, Software, types of software application software packages.

**UNIT – III**

Topic No:14: Basic elements of a communication system, Data transmission modes,  
 Topic No:15: Data Transmission speed, Data transmission media, Digital and Analog Transmission  
 Topic No:16: Network topologies, Internet: Network, Client and Servers, Host & Terminals,  
 Topic No:17: World Wide Web, Uniform Resource Locator, Web Browsers, IP Address,  
 Topic No:18: Domain Name, Internet Services Providers, Internet Security,  
 Topic No:19: Internet Requirements, Web Search Engine.

**UNIT – IV**

**Word Processor using Microsoft Word**

Topic No:20: Creating work documents, formatting and managing text,  
 Topic No:21: Formatting and managing paragraphs, Working with lists and tables,  
 Topic No:22: Inserting pictures, managing page layout and background, Using Smart Art,  
 Topic No:23: Checking spelling and grammar, Managing Header and Footer,  
 Topic No:24: Adding security passwords to word documents, printing word documents, Using Mail Merge.

**Presentation Software using Microsoft Powerpoint**

Topic No:25: Understanding MS PowerPoint window and its Applications,  
 Topic No:26: views of PowerPoint window, Working with Slides and slide layout,  
 Topic No:27: Inserting text, picture, graphics, charts in slides, Inserting audio and video in slides,  
 Topic No:28: Managing slide transitions and Animation, Printing slides, handouts and Notes.

**Spreadsheet using Microsoft Excel:**

Topic No:29: Working with Work Sheets, Working with cells and cell range,  
 Topic No:30: Working with Excel formulae, Cell referencing, Using Conditional formatting,

Topic No:31:Using Autofill options, Sorting and filtering of data, Working with charts and graphs,  
Topic No:32: Managing page layouts and printing of excel sheets, managing worksheet header and footer,  
Topic No:33: Adding security passwords to excel sheets,

**TEXT BOOKS/REFERENCE BOOKS:**

1. Rajaraman V, "Fundamental of Computers" (2nd edition), Prentice Hall of India, New Delhi. 1996.
2. Sanders, D.H. "Computers Today" McGraw Hill. 1988.
3. Trainer T., et al, "Computers" (4th edition) McGraw Hill, 1994.
4. Alex Leon and Mathews Leon, "Fundamentals of Information Technology", Leon  
5. Techworld, 2007.
6. P. K. Sinha and Priti Sinha, "Computer Fundamentals", BPB Publications, 2007. Malvi No and Leach, "Digital Principles and Application", TMH, 1999.
7. Ramesh S. Gaonkar, "Microprocessor Architecture Programming and Application with 8085", PHI, 2001.
8. Norton Peter, "Introduction to computers", TMH, 4th Ed., 2006.
9. Simon Haykins, "Communication System", John Wiley & Sons, 2006.
10. R. Gabriel Gurley, "A Conceptual Guide to OpenOffice.org3, 2nd Edition".

**Note: Examiner will be required to set NINE questions in all. Question Number 9 will be compulsory (short-answer type questions), covering the entire syllabus and carrying 15 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus carrying 15 marks. Student will be required to attempt FIVE questions in all. Question Number 9 will be compulsory. In addition, student will have to attempt four more questions selecting one question from each Unit.**



**Semester – Ist**
**Subject: Programming in ‘C’**
**Subject Code: BCA103C**

| Study Scheme      |   |   |         | Evaluation Scheme   |                                   |               | Total Marks |
|-------------------|---|---|---------|---------------------|-----------------------------------|---------------|-------------|
| Lectures per week |   |   |         | Internal Assessment | External Assessment (Examination) |               |             |
| L                 | T | P | Credits | Max. Marks          | Max. Marks                        | Exam Duration |             |
| 3                 | - | - | 3       | 25                  | 75                                | 3 hours       | 100         |

**COURSE CONTENT UNIT I**

Topic No:1: Programming language, Features of programming language,

Topic No:2:Structured programming, modular programming Programming Process

Topic No:3:Steps in developing of a program.

Topic No:4:Overview of C Language: History of C, Character set, C tokens, Identifiers, Keywords,

Topic No:5: Data types, Variables, Constants, Operators in C, Hierarchy of Operators,

Topic No:6: Library Functions, Structure of a C program , Compilation and Execution.

**UNIT II**

Topic No:7:Managing Input and Output Operation: Formatted and Unformatted I/O Functions.

Topic No:8:Decision Control Structure: if Statement, if–else statement, nesting of if-else statements,

Topic No:9: else–if ladder, switch statement .Loop Control Structure:

Topic No:10: While and do-while, for loop and Nested for loop, break, continue, and goto statements.

**UNIT III**

Topic No:11:Arrays: Defining and processing, Passing array to a function, Multi dimensional arrays.

Topic No:12: Strings: Strings, operations on strings. Functions: Defining and accessing:

TopicNo:13:passing arguments, Function prototypes, Recursion, Use of library functions,

Topic No:14: Storage classes: automatic, register, external and static variables.

**UNIT IV**

Topic No:15:Structure and Unions: Defining and processing a structure, user defined data types,

Topic No:16: structure and Pointers, nested structure, unions,

Topic No:17:Pointers: Declaration, operations on pointers.

Topic No:18:C-programming applications: Sorting (Bubble sort, Selections ort),

Topic No:19:Searching (Binary search, Linear Search)

**TEXT AND REFERENCE BOOKS:**

1. E. Balaguruswami, Programming in ANSI C, Tata Mcgraw Hill.
2. YashwantKanetker, Let us C, BPB Publications.
3. Gottfried, Programming with C, Tata McGraw Hill.
4. Brian W. Kernighan, Dennis M. Ritchie, The C Programming Language, 2nd Ed., Prentice Hall ofIndia.
5. S.S. Bhatia and Vikram Gupta, Computer Fundamentals, Kalayani Publication.
6. Dennis P. Curtin, Kim Foley, KunalSen, Cathleen Morin, Information techNology, TMH.
7. Hutchison, R., "Programming in C". McGraw Hill, New York, 1990.
8. Johnsonbaugh, R., and Kalin, M., "Applications Programming in C", Prentice Hall of India, 1989. Rajaraman, V, "Computer Programming in C", Prentice Hall of India, New Delhi, 1995.

Note: Examiner will be required to set NINE questions in all. Question Number 9 will be compulsory (short-answer type questions), covering the entire syllabus and carrying 15 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus carrying 15 marks. Student will be required to attempt FIVE questions in all. Question Number 9 will be compulsory. In addition, student will have to attempt four more questions selecting one question from each Unit.

**COURSE OUTCOME**

By the end of the course the students will be able to:

1. Illustrate the basic kNnowledge of C like identifiers, datatypes & operators
2. Develop conditional and iterative statements to write C programs
3. Inscribe C programs that use arrays and functions.
4. Trace the given C program manually and Write C program for simple applications of real life using Structures and unions.

## MATHS111C – MATHEMATICS-I

### BCA Semester - I

|   |   |   |         |
|---|---|---|---------|
| L | T | P | Credits |
| 3 | 0 | - | 3       |

|                         |             |
|-------------------------|-------------|
| Class Work              | : 25 Marks  |
| Examination             | : 75 Marks  |
| Total                   | : 100 Marks |
| Duration of Examination | : 03 Hours  |

#### COURSE OBJECTIVES:

This course aims at providing the understanding of the basic concepts of mathematics and statistics. Upon completion of this course the student should be able to:

1. understand the basic concepts of sets & their applications.
2. develop an understanding of functions and relations.
3. understand matrices and operations on the matrices.
4. organize and analysis of data using basic theory of statistics.
5. understand sequence and series

#### COURSE OUTCOMES:

By the end of the course the students will be able to:

1. demonstrate an understanding of relations and functions and determine their properties and able to determine when a function is one to one, onto, many to many and so on.
2. learning of different types of sets and their applications.
3. determine patterns in sequences and series.
4. learn matrix operations.
5. describe the data in terms of mean, median and mode.

#### COURSE CONTENT

##### UNIT I

**SETS:** Sets, Subsets, Equal Sets Universal Sets, Finite and Infinite Sets, Operation on Sets, Union, Intersection and Complements of Sets, De-Morgan's laws, Cartesian Product, Equivalent sets, Countable and uncountable sets, Cardinality of a Set, Simple Applications.

**RELATIONS AND FUNCTIONS:** Properties of Relations, Equivalence Relation, Partial Order Relation, Function: Domain and Range, Onto, Into and One to One Functions, Composite and Inverse Functions.

##### UNIT II

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Chairman 13/3/2020  
Deptt. of Mathematics  
D.C.R. University of Sc. & Tech.  
Murthal, Sonapat (Hr.)

**MATRICES:** Definition, Types of Matrices, Addition, Subtraction and Multiplication of Matrices, Adjoint, Inverse of a Matrix, solving system of linear equations using inverse of a Matrix.

**DETERMINANTS:** Definition, Minors, Cofactors, Properties of Determinants, Applications of determinant and Cramer's Rule.

### UNIT III

**Sequence and Series:** Arithmetic Progression (A.P.), sum of  $n$  terms of a A.P, Arithmetic Mean (A.M.), Geometric Progression (G.P.), sum of  $n$  terms of a G.P., Arithmetic-geometric series (AG series), infinite G.P. and its sum, geometric mean (G.M.). Relation between A.M. and G.M.

### UNIT IV

**Basic Statistics:** Measure of Central Tendency, Preparing frequency distribution table, **Mean, Median:** Methods of Calculating Median in case of Individual, Discrete series and continuous series, **Mode:** Methods of Calculating Mode in case of Individual Series, Discrete series and continuous Series, **Range:** Computation of Range, Inter Quartile Range, Computation of Inter Quartile Range, Percentile Range and Computation of Percentile Range. Mean Deviation, Standard Deviation.

### TEXT/ REFERENCE BOOKS:

1. 11<sup>th</sup>& 12<sup>th</sup> NCERT Mathematics books.
2. Lipschutz, Seymour: Discrete Mathematics, Schaum's Series
3. Babu Ram: Discrete Mathematics, Vinayek Publishers, New Delhi.
4. Elementary Engineering Mathematics- B S Grewal

**Note:** Examiner will be required to set NINE questions in all. Question Number 9 will be compulsory (short-answer type questions), covering the entire syllabus and carrying 15 marks. In addition to the compulsory question there will be four units, i.e., Unit-I to Unit-IV. Examiner will set two questions in each Unit. Students will be required to attempt FIVE questions in all, selecting one question from each of Unit I-IV and the compulsory question.

  
Chairman (2/2/2020)  
Deptt. of Mathematics  
D.C.R. University of Sc. & Tech.  
Murthal, Sonapat (Hr.)

**Semester – Ist**
**Subject: Communication Skill-I**
**Subject Code: HUM101BC**

| Study Scheme      |   |   |         | Evaluation Scheme   |                                   |               | Total Marks |
|-------------------|---|---|---------|---------------------|-----------------------------------|---------------|-------------|
| Lectures per week |   |   |         | Internal Assessment | External Assessment (Examination) |               |             |
| L                 | T | P | Credits | Max. Marks          | Max. Marks                        | Exam Duration |             |
| 3                 | - | - | 3       | 25                  | 75                                | 3 hours       | 100         |

**UNIT I: INTRODUCTION**

Topic No:1:Communication: Definition, Characteristics of the communication,  
 Topic No:2: Process, Communication Models and Theories. Essentials of Good Communication,  
 Topic No:3: Principles of communication, Channels of Communication,  
 Topic No:4:Barriers of communication Verbal and Non-Verbal communication,  
 Topic No:5:Formal and Informal communication

**UNIT II: ORAL COMMUNICATION**

Topic No:6: Principles, Importance of Oral Communication Art of listening:  
 Topic No:7: Nature, Principles & Importance. Barriers in listening

**UNIT III: LITERARY COMMUNICATION:**

Topic No:8:1. Alice Walker: “Am I Blue”  
 Topic No:9:2. Anton Chekov: “The Bet”  
 Topic No:10:3. Leo Tolstoy: “Three Questions”

**UNIT IV:MECHANICS OF COMMUNICATION**

Topic No:11: Usage: Verbs, adjectives, adverbs, proNouns, conjunctions Punctuation

**NOTE:** \*\* From this unit, i.e. Unit III, two questions of 15 marks each based on literary texts prescribed in the unit will be set. Both the questions will have parts. A student will have to choose one question out of two. The questions may be in the form of comprehension passage, long/short answer question, explanation of lines/passage from the text with reference to the context or on the vocabulary and grammar items as prescribed in the Unit IV.

**TEXT/REFERENCE BOOKS**

1. Bande Usha and Krishan Gopal, editors. The Pointed Vision. Oxford UP, 2009.
2. Bhatnagar, Nitin and Mamta Bhatnagar. Communicative English for Engineers and Professionals. Pearson Education, 2013.
3. Konar, Nira. English Language Laboratories: A Comprehensive Manual. PHI, 2011.
5. Ludlow, R., and F. Panton. The Essence of Effective Communication. PHI, 1995.
6. Rizvi, M. Ashraf. Effective Technical Communication. McGraw Hill Education, 2014

**SCHEME OF END SEMESTER THEORY EXAMINATION**

1. The duration of the exam will be 3 hours.
2. The Question Paper shall have nine questions.
3. Each question will be of 15 marks.
4. The student is required to attempt five questions in all.
5. Questions No. 1 to 8 will be set in such a manner that two questions is set from each unit of the syllabus. A student will have to attempt four questions selecting one question from each unit. The questions on Unit III may be in the form of comprehension passage, long/short answer question, explanation of lines/passage from the text with reference to the context or on the vocabulary and grammar items.
7. Question number 9 will be compulsory covering the entire syllabus and it will be in the form of short-answer type questions.

**Semester – Ist**

**Subject: Software Lab-I(Based on BCA101C )**

**Subject Code: BCA121C**

| Study Scheme      |   |   |         | Evaluation Scheme   |                                   |               | Total Marks |
|-------------------|---|---|---------|---------------------|-----------------------------------|---------------|-------------|
| Lectures per week |   |   |         | Internal Assessment | External Assessment (Examination) |               |             |
| L                 | T | P | Credits | Max. Marks          | Max. Marks                        | Exam Duration |             |
| 3                 | - | - | 3       | 25                  | 75                                | 3 hours       | 100         |

**Topics to be covered:-**

Familiarizing with PC and Various options in MS WINDOWS. File creation, editing and directory creation, Learning to use MS office: MS WORD, use of database and spread sheet. Slide creation with PowerPoint.

Assignments should be given for each MS WORD, spread sheet and PowerPoint.



**Semester – Ist**
**Subject: Software Lab-II(Based on BCA103C)**
**Subject Code: BCA123C**

| Study Scheme      |   |   |         | Evaluation Scheme   |                                   |               | Total Marks |
|-------------------|---|---|---------|---------------------|-----------------------------------|---------------|-------------|
| Lectures per week |   |   |         | Internal Assessment | External Assessment (Examination) |               |             |
| L                 | T | P | Credits | Max. Marks          | Max. Marks                        | Exam Duration |             |
| 3                 | - | - | 3       | 25                  | 75                                | 3 hours       | 100         |

**Topics to be covered:-**

1. Write a program to find the largest of three numbers. (if-then-else).
2. Write a program to find the largest number out of n numbers (for-statement).
3. Calculate the salary of an employee given his basic pay, HRA = 10% of basic pay, TA=5% of his basic pay and deductions IT = 2.5% of his basic pay
4. Write a program to find the average male height & average female heights in the class (input is in form of sex code, height).
5. Write a program to find roots of quadratic equation using functions and switch statements.
6. Write a program to multiply two matrices.
7. Write a program to implement bubble sort.
8. Write a program to implement selection sort.
9. Write a program to implement linear search.
10. Write a program to implement binary search.
11. Write a program to check that the input string is a palindrome or Not.
12. Write a program to read a string and write it in reverse order.
13. Write a program to concatenate two strings.
14. Write a C program to swap two integers using pointers. You have to write a swap function that will accept the address of two integer and swap their values
15. Define a structure called student having the properties of student\_id, student name and branch of the student with a sub structure of marks of 3 subjects. Write a Menu Driven C Program to
  - a. Add new student detail.
  - b. Delete a student detail.
  - c. Display all student details.
  - d. Display the student name with best mark.

**Semester – Ist****Subject: Soft Skill Seminar I(Based on HUM101BC)****Code: HUM121BC**

| Study Scheme      |   |   |         | Evaluation Scheme   |                                   |               | Total Marks |
|-------------------|---|---|---------|---------------------|-----------------------------------|---------------|-------------|
| Lectures per week |   |   |         | Internal Assessment | External Assessment (Examination) |               |             |
| L                 | T | P | Credits | Max. Marks          | Max. Marks                        | Exam Duration |             |
| 3                 | - | - | 3       | 25                  | 75                                | 3 hours       | 100         |

**COURSE OBJECTIVE**

- To enable students speak English comfortably in a wide variety of day-to-daysituations.

**COURSE CONTENT**

- Practice of short simple exchanges like introduction, greetings, requests, apologies; telephone talks and situational dialogues; Practice of informal discussion, formal talk, Role Plays, Speeches, Practice of listening to speeches, English songs etc.

**NOTE: Conversation in English will be mandatory for all the students.**

**Students will be made to practice English language through simulations and practice sessions with the help of language lab software, CDs and BBC's online language learning modules. This drilling method would certainly give them a feel of real life situations and make them confident and comfortable with the basic use of English language.**

**RECOMMENDED READING**

1. Konar, Nira. English Language Laboratories: A Comprehensive Manual. PHI, 2011.
2. Sadannad, Kamlesh, and Susheela Punitha. Spoken English: A Foundation Course. Orient Longman, 2008

**SCHEME OF END SEMESTER EXAMINATION (Practical)**

An external Practical exam of 75 marks of 2 hour duration for the course will be conducted by an external examiner appointed by the university's Controller of Exams.

**NOTE:** Students will be tested for their oral and written communication competence by making them participate in talks, formal exchanges, narrating people, places etc. They may be asked to infer, interpret selected extracts from audio-books/tracks. Students will also be evaluated through a viva-voce exam conducted by an external examiner.

