

Detailed Course Scheme  
**Bachelor of Computer Applications (BCA)**

**Semester I- Examination**

**July 2016**

**(2016-19)**

DOC201607130008



**RNB GLOBAL UNIVERSITY**

RNB Global City, Ganganagar Road,  
Bikaner, Rajasthan 334601

## **OVERVIEW**

RNB Global University follows Semester System along with Choice Based Credit System as per latest guidelines of University Grants Commission (UGC). Accordingly, each academic year is divided into two semesters, **Odd (July-December) and Even (January-June)**. Also, the university follows a system of continuous evaluation along with regular updating in course curricula and teaching pedagogy.

The curriculum for BCA Program for (July-December) Semester, 2016 along with examination pattern is as follows:

### **Course Scheme**

#### **Semester - I**

<b>S. No</b>	<b>Course Code</b>	<b>Course Name</b>	<b>Credits</b>
1.	13004200	Mathematics-I	4
2.	13004100	Introduction to Computers and IT	4
3.	13004300	Fundamentals of Programming with C	4
4.	13004500	System Analysis and Design	3
5.	99002200	Business Communication (AECC)	4
6.	13004600	Lab for Office Automation and PC hardware	2
7.	13004400	Programming with C Lab	2
8.	13002700	Ability & Skill Enhancement Module - I	3
9.	99002000	NSS/NCC/ Similar Activities	-
10.	99002100	Club Activities	-
<b>Total Credits</b>			<b>26</b>

### **EVALUATION SCHEME - THEORY**

The evaluation of the theory paper of BCA program would be based on Internal and External Assessments. Internal Assessment would consist of 50% of the marks (50 marks) and external assessment (in form of End Term Exam) would consist of remaining 50% marks (50 marks). Detailed scheme of Internal and External Assessments as follows:

### **Internal Assessment**

The distribution of Internal Assessment Marks is as follows:

Type	Details	Marks
Sessional I	As per marks obtained	10
Sessional II	As per marks obtained	10
Marks obtained in various, assignments, presentations, quizzes etc.	Average of marks obtained	15
Discipline	To be decided by concerned faculty	5
Attendance	80% - 5 marks and 0.25 percent for every one percent above 80 %	10
<b>TOTAL</b>	<b>50</b>	

### **External Assessment**

Type	Marks
Theory	50

### **EVALUATION SCHEME - PRACTICAL**

The evaluation of the practical paper of BCA program would be based on Internal and External Assessments. Internal Assessment would consist of 50% of the marks (50 marks) and external assessment (in form of End Term Exam) would consist of remaining 50% marks (50 marks). Detailed scheme of Internal and External Assessment is as follows:

### **Internal Assessment**

Type	Details	Marks
Marks obtained in various manuals, practical file, participation, any model prepared, output of practical, etc.	Average of marks obtained	35

Discipline	To be decided by concerned faculty	5
Attendance	80% - 5 marks and 0.25 percent for every one percent above 80 %	10
<b>TOTAL</b>	<b>50</b>	

### **External Assessment**

Type	Marks
Practical	50

### **EVALUATION SCHEME - NSS/NCC AND CLUB ACTIVITIES**

1. NSS/NCC /Similar activities prescribed by University will be completed from Semester I – Semester IV. It will be evaluated internally by the respective institute. The credit for this will be given after IV<sup>th</sup> Semester.
2. The students have to join club/clubs with the active participation in different activities of club. The students would be continuously assessed from Semester I – Semester IV and credits and marks would be given after IV<sup>th</sup> Semester.

### **CURRICULUM**

**Course Name: Mathematics-I**

**Course Code: 13004200**

#### **Course Outline**

**Unit I Determinants** Definition, Minors, Cofactors, Properties of Determinants **MATRICES:** Definition, Types of Matrices, Addition, Subtraction, Scalar Multiplication and Multiplication of Matrices, Adjoint, Inverse, Cramers Rule, Rank of Matrix Dependence of Vectors, Eigen Vectors of a Matrix, Caley-Hamilton Theorem (without proof).

**Unit II Limits & Continuity** Limit at a Point, Properties of Limit, Computation of Limits of Various Types of Functions, Continuity at a Point, Continuity Over an Interval, Intermediate Value Theorem, Type of Discontinuities

**Unit III Differentiation** Derivative, Derivatives of Sum, Differences, Product & Quotients, Chain Rule, Derivatives of Composite Functions, Logarithmic Differentiation, Rolle's Theorem, Mean Value Theorem, Expansion of Functions (Maclaurin's& Taylor's),

Indeterminate Forms, L' Hospitals Rule, Maxima & Minima, Curve Tracing, Successive Differentiation & Leibnitz Theorem.

**Unit IV Integration** Integral as Limit of Sum, Fundamental Theorem of Calculus( without proof.), Indefinite Integrals, Methods of Integration Substitution, By Parts, Partial Fractions, Reduction Formulae for Trigonometric Functions, Gamma and Beta Functions(definition).

**Unit V Vector Algebra** Definition of a vector in 2 and 3 Dimensions; Double and Triple Scalar and Vector Product and physical interpretation of area and volume.

**Suggested Readings:**

1. B.S. Grewal, "Elementary Engineering Mathematics", 34th Ed., 1998.
2. Shanti Narayan, "Integral Calculus", S. Chand & Company, 1999
3. H.K. Dass, "Advanced Engineering Mathematics", S. Chand & Company, 9th Revised Edition, 2001.

**Course Name: Introduction to Computers and IT**

**Course Code: 13004100**

**Course Outline**

**Unit I Introduction to Computers:** The evolution of computers: Computer Generation from First Generation to Fifth Generation. Classifications of Computers: Micro, Mini, Mainframe and super computers, Distributed Computer System, Parallel Computers. Computer Hardware: Major Components of a digital computer, Block Diagram of computer Input-output devices, Description of Computer Input Units, Output Units. CPU. Computer Memory: Memory Cell, Memory Organization, Read Only Memory, Serial Access, Memory, Physical Devices Used to construct Memories, Magnetic Hard disk, floppy Disk, Drives, Compact Disk Read Only Memory, Magnetic Tape Drives.

**Unit II Interaction With Computers:** Computer Software: System software, assemblers, compilers, interpreters, linkers Elementary Operating System concepts, different types of operating systems, Application Software: Introduction to MS Office (MS-Word, MS PowerPoint, MS-Excel) Computer Programming and Languages: Algorithms, flow chart, decision tables, pseudo code, Low level languages and introduction to high level languages.

**Unit III Computer Number System:** Decimal, Binary, Octal, Hexa-decimal. **Conversion:** Decimal to all other number systems, Binary to octal and hexa decimal, Addition of binary numbers, Binary subtraction, Use of complements to represent negative numbers, Conversion of a binary fraction to a decimal fraction and decimal to binary fraction, Binary Coded Decimal(BCD), ASEII Codes, EBCDIC codes, Gray codes, Unicode's.

**Unit IV Computer Network & Internet:** Basic elements of a communication system, Data transmission modes, Data Transmission speed, Data transmission media, Digital and Analog Transmission, Network topologies, Network Types (LAN, WAN and MAN), Client and Servers , Intranet, Extranet. **Internet:** Terminologies related to Internet: Protocol,

Domain name, IP address, URL, Worldwide Web. Overview of various services on Internet: E-mail, FTP, Telnet, Chat, Instant Messaging.

### **Suggested Readings:**

1. P. K. Sinha & Priti Sinha, "Computer Fundamentals", BPB Publications, 1992.
2. Anita Goel "Computer Fundamentals", Pearson.
3. B. Ram Computer fundamentals Architecture and Organization, New Age Intl.
4. Alex Leon & Mathews Leon, "Introduction to Computers", Vikas Publishing.
5. Norton Peter, "Introduction to computers", 4th Ed., TMH, 2001.
6. Vikas Gupta, "Comdex Computer Kit", Wiley Dreamtech, Delhi, 2004.

## **Course Name: Fundamentals of Programming with C**

**Course Code: 13004300**

### **Course Outline**

**Unit I** C basics, C character set, Identifiers and keywords, Data types, constants, variables and arrays, declarations, expressions statements, symbolic constants, compound statements, arithmetic, operators, unary operators, relational and logical operators, assignment operators, conditional, operators, bit operators. C constructs: If statement, if...else statement, if....else if....else statement, while statement, do....while statement, for statement, switch statement, nested control statement, break operator, continue operator, comma operator, go to statement.

**Unit II** C Functions: Functions: declaration, definition & scope, recursion, call by value, call by reference. Storage Classes: automatic, external (global), static & registers.

**Unit III** Arrays: Arrays, pointers, array & pointer relationship, pointer arithmetic, dynamic memory allocation, pointer to arrays, array of pointers, pointers to functions, array of pointers to functions, Pre-processor directives: #include, #define, macro's with arguments, the operators #and ##, conditional compilations.

**Unit IV** Structures: Structures, unions, passing structure to functions, bit fields, file handling [text (ASCII), binary]

**Unit V** String manipulation functions and other standard library functions from stdio.h, stdlib.h, conio.h, ctype.h, math.h, string.h, process.h. Usage of command line arguments.

### **Suggested Readings:**

1. Ashok N. Kamthane, "Computer Basics and C Programming", Pearson Education.
2. E. BalaGuruswamy, "Programming in ANSI C", 2008.
3. V Rajaraman, "Computer Basics and C Programming", PHI.
4. Herbert Schildt, "C The Complete Reference" Fourth Edition, 2000.
5. Yashwant Kanetkar, "Let us C" eighth edition, 2002.
6. Kernighan and d. Ritchie, "The ANSI C Programming Language", 2000.
7. StephennPrata, "C Primer Plus" Fourth Edition, 2001.

8. Schaum's Outline Series, "Programming with C", 2nd Edition, 1996.

**Course Name: System Analysis and Design**

**Course Code: 13004500**

**Course Outline**

**Unit I** System Concepts: Definition, characteristics, elements & types of system. System development life cycle: Recognition of need: Feasibility study, system analysis-introduction, information collection, interviews, questionnaires, observation, record searching and document analysis

**Unit II** Analysis tools, data flow diagram, data dictionary, decision tree, structured English and decision table. System Design: The process and stages of systems design input/output and file design

**Unit III** System Implementation: System implementation, system testing: Black box, White Box, Alpha, Beta Testing, Unit Testing and System Testing, implementation process and implementation methods: Parallel Run, Phased Adoption;

**Unit IV** system maintenance: Corrective maintenance, Adaptive maintenance and Perfective maintenance.

**Suggested Readings:**

1. Awad Elias N., System analysis and design (Galgotia)
2. Sen James A., Analysis and design of information system (Tata McGraw)
3. Burd, Stephen. D System architecture (PHI)
4. Shelly Garry, B Rosan Belt System analysis and Design-9<sup>th</sup>(Tata McGraw)

**Course Name: Business Communication (AECC)**

**Course Code: 99002200**

**Course Outline**

**Unit I** Introduction: Theory of Communication, Types and modes of Communication Fundamentals of Communication: Communication defined, Models of Communication, barriers in communication, perception and communication, essentials of good communication.

**Unit II** Language of Communication: Verbal and Non-verbal (Spoken and Written) Personal, Social and Business Barriers and Strategies Intra-personal, Inter-personal and Group Communication Modes of human communication: Basic differences in the principal

modes of human communication – reading, writing, listening, speaking and non-verbal communication. Spoken communication: Importance of spoken communication, designing receiver-oriented messages, comprehending cultural dimension. Speaking Skills Monologue Dialogue Group Discussion Effective Communication/ Mis- communication Interview Public Speech

**Unit III** Making Oral presentations: Functions of presentations, defining objective, audience analysis, collection of materials, organization of materials, body language, effective delivery techniques. Written communication: Fundamentals of sentence structure, writing as a process. Reading and Understanding Close Reading Comprehension Summary Paraphrasing Analysis and Interpretation Translation (from Indian language to English and vice-versa) Literary/Knowledge Texts Writing Skills Documenting Report Writing Making notes Letter writing

**Unit IV** Fundamental of technical writing: Special features of technical writing, the word choice, developing clarity and conciseness, Report writing, Business letters, Applications and resumes. Transactional Analysis: Three human ego states, 4 life positions, different types of transactions.

**Unit V** The significance of communication in a business organization: Channels of communication – Downwards, Upwards, Horizontal, Consensus, and Grapevine. Literary discussions: Analysis and discussion of the novel The Funda of Mix-ology and short stories from the books Under the banyan tree and other stories and Popular short stories.

### **Suggested Readings:**

1. Sen, L., Communication Skills. Prentice Hall of India (2004), Dhar, M., The Funda of Mixology: What bartending teaches that IIM does not, Srishti Publications (2008).
2. Narayan, R. K., Under the banyan tree and other stories. Penguin Classics. (2007).
3. Lesikar R. V., and Flatley M. E., Basic Business Communication Skills for empowering the internet generation. Tata McGraw Hill (2004) 10th ed.
4. Sharma R. C., and Mohan K., Business Correspondence and Report Writing. Tata McGraw Hill (1994).
5. Rodriques, M. V., Effective Business Communication. Concept Publishing Company. (2003).

**Course Name: Lab for Office Automation and PC hardware**

**Course Code: 13004600**

### **Course Outline**

#### **Part-I**

**MS Word**



- a. Adding text, editing text, finding and replacing text, formatting text, character/line/paragraph spacing, working with styles and text indentation.
- b. Saving document with and without password.
- c. Working with page layout, page setup i.e. setting margins, changing page size, changing page orientation and applying page background.
- d. Printing a document.
- e. Inserting page numbers, headers and footers, footnote, endnote, date and time, pictures, objects, shapes etc.
- f. Creating bulleted and numbered lists.
- g. Working with tables, paragraphs and columns.
- h. Reviewing (track changes, adding comments etc.) and proof reading a document i.e. spell check, grammar etc.
- i. Creating and working with table of content.
- j. Mail merge.

### **MS Excel**

- a. Entering data, formatting data i.e. applying borders, various formats (currency formats, number formats etc.), fonts etc.
- b. Creating custom lists, using auto fill, find and replace and editing text (cut, copy, paste and paste special).
- c. Working with formulae and functions.
- d. Applying conditional formatting to data.
- e. Sorting and filtering data (auto and advanced filter).
- f. Performing Subtotals.
- g. What-if-analysis using goal seek, scenarios and solver.
- h. Pivot tables and data tables (one and two table input)
- i. Working with charts (2D and 3D).
- j. Adding comments, applying password protection to the workbook.
- k. Working with page layout and printing options.

### **MS Power Point**

- a) Creating and formatting slides in a presentation.
  - b) Create a master slide with a logo, footer, and font.
  - c) Add notes to each slide.
  - d) Insert a graphic or picture.
  - e) Implement a background.
  - f) Place a text box in the title slide with your name.
  - g) Insert transitions for each slide.
  - h) Applying various effects (custom animation and transitional effects) in a presentation.
  - i) Adjust text alignment in the title slide so it is centered.
- Printing the slides of a presentation

## **Part-II:**

### **PC Hardware**

1. Identification of the peripherals of a computer.
2. To prepare a report containing the block diagram of the CPU along with the configuration of each peripheral and its functions.
3. Installation of MS windows and LINUX on a PC.
4. Exposure to Basic commands and system administration in Linux including: Basic Linux commands in bash, Create hard and symbolic links.

**Course Name: Programming with C Lab**

**Course Code: 13004400**

### **Course Outline**

#### **List of Experiments (Not limiting to)**

1. Write a program sum of two numbers
2. Write a program to check either the number is even or odd
3. Write a program calculate simple interest.
4. Write a program to calculate the marks of four subject and percentage.
5. Write a program to check either the year is leap year or not.
6. Write a program to find out the grade using if/else if statement.
7. Write a program to find out the greater number between two number.
8. WAP to read base and height of a triangle, calculate the area using formula :  
 $\text{Area} = 1/2 * \text{base} * \text{height}$
9. WAP to read marks obtained and maximum marks of a student and calculate its percentage and display it.
10. Write a program to print even number up to n.
11. Write a program to print odd number up to n.
12. Write a program to print table.

**Note:** The review of Syllabus happens on periodic basis for the benefit of the students. In case there are changes in curriculum due to review, students would be intimated in writing.

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