Detailed Program

Bachelor of Computer Applications

(BCA)

Semester-I

(2023-27)

DOC202306080065

RNB GLOBAL UNIVERSITY

Educating stars for tomorrow

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 for Odd Semester (July-December) 2023 along with examination pattern is as follows:

Semester –I

S. No.	Course Code	Course Category	Course Name	L	T	P	Credits
1	13004300	DSC 1 (a)	Fundamentals of Programming with C	3	1	0	4
2	13004400	DSC 1 (b)	Programming with C Lab	0	0	4	2
3	13004200	DSC 2	Mathematics- I	3	1	0	4
4	13011100	DSC 3	Software Engineering	3	0	0	3
5.	99002200	GE 1	Business Communication	3	1	0	4
6	13002700	SEC -1	Ability and skill enhancement-I	2	0	0	2
7	13004100	VAC -1	Introduction to Computers and IT	3	1	0	4
8	99003300		Workshops & Seminars/ Human Values & Social Service/NCC/NSS	-	-	-	1
			Total	**17**	**4**	**4**	**24**

DSC – Discipline specific Course
DSE – Discipline Specific Elective
SEC – Skill Enhancement Course
VAC – Value addition course
GE – General Elective

EVALUATION SCHEME- THEORY

The evaluation of the theory paper of BCA 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

Type	Details	Marks
Mid Term	One Mid-term Sessional	25
Marks obtained in various Tests, Assignments, Presentations, Quiz, Tutorials, etc.	Average of marks obtained	20
Attendance	75% + : 5 marks	5
TOTAL	**50**	

External Assessment

Type	Marks
Theory	50

EVALUATION SCHEME -PRACTICAL

The evaluation of the practical paper of BCA 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	Average of marks obtained	45
Attendance	75%+ : 5 marks	5
TOTAL	**50**	

External Assessment

Type	Marks
Practical	50

EVALUATION SCHEME- WORKSHOPS & SEMINARS AND HUMAN VALUES & SOCIAL SERVICE/NCC/NSS

1. The evaluation of Workshops & Seminar and Human Values & Social Service/NCC/NSS will be completed from Semester I – Semester VI. It will be evaluated internally by the various Forums & Schools Concerned. The credit for this will be given at the end of each Semester.

2. The students have to join club/clubs/Forums with the active participation in different activities of club. The students would be continuously assessed from Semester-I to Semester-IV and credits and marks would be given after the end of each Semester.

1. Vision

To create an environment where a holistic education is given in order to ignite an inquisitive mind, inculcate the qualities of excellence, perceive the intricacies of research, seek out obstacles, overcome them, and carve out a niche for oneself.

2. Mission

- Enabling students to maximize their potential and use their professional standards throughethics and education to raise their level of competence and become change agents.
- Fostering a scholarly culture that fosters the phenomenon of giving back to society via researchand creative endeavors.
- To integrate partnerships that enhance knowledge in order to create a dynamic intellectualcapital.
- To employ emerging technology to create an inclusive learning environment that is integratedwith an improved educational process.
- To create a teaching-learning atmosphere that fosters resilience, sensitivity, and critical thinking,ultimately leading to the development of a strong personality.

3. Programme Educational Objectives (PEOs)

PEO1: To facilitate in development of basic fundamentals of Computer Applications that fit as aperfect foundation towards a beginning a professional career in industry.

PEO2: To develop programming skills of students by using fundamental knowledge of computerscience

PEO3: To apply new designs and solutions to complex real life problems using technologies.

PEO4: To play a creative role during professional life through turning problems to opportunities.

4. Program Outcomes (POs)

PO1: Technical understanding: Solve complicated problems using mathematics, physics, technical foundations, and a specialization in technology.

PO2: Problem analysis: Identify, formulate, analyze research materials, and analyse complex engineering problems using foundational principles of mathematics, natural sciences, and sciences to reach justifiable conclusions.

PO3: Application of modern technologies: Create, select, and apply appropriate approaches, tools, and advanced engineering and IT tools, such as predictions and modelling, to technically challenging processes while taking into account the constraints.

PO4: Expert Principles and Cyber Systems: The ability to use and provide expert principles andcyber systems in a global monetary environment.

PO5: Ultimate Education: Determine the demand for and expand the capacity to work as a Computing certified in permanent education.

PO6: The expert and society: Apply reasoning informed by contextual information to evaluate societal, health, safety, legal, and cultural issues, as well as the obligations that come with them, in the context of professional engineering activity.

PO7: Environmental and sustainable development: Display knowledge of the need for sustainable development by identifying the implications of professional technological solutions in society and the environment contexts.

PO8: Personality and Cooperative Learning: Ability to work as a member or manager in a varietyof diverse teams.

PO9: Ethics: Adhere to professional ethics, duties, and automotive technology norms by adoptingethical ideas.

PO10: Communication: Interact well with the technical community and society at large on associated technical activities, such as being able to understand and write effective reports and design documentation, give and receive clear directions.

PO11: Finance and project management: Demonstrate knowledge and understanding of technicaland professional principles and apply those to one's own work, as a member of the team andleader, to manage projects and in multidisciplinary domains.

PO12: Life-long learning: With socio-technological advancements, students will be able to engage in independent and life-long learning.

5. Program Specific Outcomes (PSOs)

PSO1: Prepare for a potentially lucrative and employable profession of computer applications.

PSO2: Continue your education in Computer Science/Applications.

PSO3: Work **f**or yourself in the Indian and worldwide software markets.

PSO4: Comply with all applicable industrial standards.

6. Course Outcomes (COs)

1. Course Outcomes		
Course Codes & Course Names	**After completion of these courses' students should be able to**	
13004300-Fundamentals of Programming with C	**CO1**	List the fundamentals of computer programming vocabulary.
	CO2	Apply the concepts of Arrays and Strings in 'C' language for user defined problems. Develop software with decision structures, loops, and functions.
	CO3	Apply the concept of functions and pointers.
	CO4	Associate the programs with structure using 'C' language
	CO5	Discuss to read and write data from/to files in 'C' Programs.
13004400-Programming withC Lab	**CO1**	Define advanced C-language ideas to write programmed.
	CO2	Apply the concept of conditionals and loops in C programs Choose C to create graphical programmers.
	CO3	Develop the C programs with arrays and strings
	CO4	Classify different functions, unions and pointers
	CO5	Examine the use of sequential and random-access file processing
13004200-Mathematics- I	**CO1**	Demonstrate proficiency in the subjects that make up themathematics major's core.
	CO2	Demonstrate an understanding of and ability to construct mathematical proofs.
	CO3	Solve mathematical issues using appropriate technology.
	CO4	Build relevant mathematical models to handle a number of actual situations.
	CO5	Explain common matrix operations such as addition, scalar multiplication, multiplication, and transposition
13011100 - Software Engineering	**CO1**	Relate the importance of the stages in the software life cycle.
	CO2	Infer the various process models.
	CO3	Develop the design software by applying the software engineering principles.
	CO4	Analyse new software models, techniques and technologies to bring out innovative and novelistic solutions for the growth of thesociety in all aspects and evolving into their

		continuous professional development.
	CO5	Enhances value and is valued by their professional teammates
99002200 - Business Communication	**CO1**	Explain historical background and the development of communication; Importance and role of communication in everyday life.
	CO2	Understand Mechanics behind the communication process, difficulties experienced in communication. Different types of communication, impedance due to extraneous factors called "barriers"
	CO3	Apply different types of communication, impedance due to extraneous factors called "barriers".
	CO4	Analyse the Important non-verbal parameters in communication. So, to make communication effective and attractive.
	CO5	Apply the appropriate body language for making presentation more effective
13002700 - Ability & Skill Enhancement– I	**CO1**	Understand the relevance and method of writing impactful and structured resume.
	CO2	Explain the need for right etiquettes to be followed in the professional world.
	CO3	Develop confidence in public speaking and expressing their opinions and ideas clearly and effectively.
	CO4	Build employability skills like critical thinking, team work, conflict management and leadership skills.
	CO5	Communicate effectively in English
13004100- Introduction to Computers and IT	**CO1**	Discuss the evolution of computers in different generations, computer hardware, memories and peripherals.
	CO2	Illustrate about system software and software applications
	CO3	Implementation of computer number system
	CO4	Classify basic documents, workbooks, and presentations andunderstand their properties.
	CO5	Explain Computer network and internet protocols

7. CO PO Mapping

13004300	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	1	3	2	1	-	3		3	2	2
CO2	2	-	3	1	2	3	2		2	2	1	3
CO3	3	3	3	2	-	3	2	-	3	1	2	2
CO4	-	3	-	3	3	2	1	2	3	-	2	3
CO5	2	-	2	-	3	3	3	3	-	-	-	-

13004400	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	3	1	-	3	3	2	1	-	2	2
CO2	3	3	3	-	3	2	1	3		-	3	3
CO3	-	3	3	3	2	2	1	-	3	-	2	3
CO4	3	2	2	-	2	1	-	3	2	-	2	1
CO5	3	-	3	3	3	-	3	-	3	-	-	3

13004200	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	2	-	2	1	-	3	2	-	2	1
CO2	2	-	3	1	2	3	2	-	2	2	1	3
CO3	3	3	3	-	3	2	1	3	-	-	3	3
CO4	3	2	1	3	2	1		3	-	3	2	2
CO5	-	3	-	3	-	3	3	-	3	3	-	-

13011100	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	3	-	3	-	3	-	3	2	2	3
CO2	2	-	2	3	2	2	2	3	-	-	2	3
CO3	2	2	2	2	2	3	3	1	3	3	3	3
CO4	1	3	1	-	-	-	2	2	2	1	-	3
CO5	-	3	3	3	-	3	3	3	-	3	3	-

13004100	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	-	2	3	2	3	2	3	2	-	3	3
CO2	2	3	2	3	2	3	2	3	2	3	2	3
CO3	3	2	3	2	-	3	2	3	3	3	3	3
CO4	2	3	2	2	3	2	2	-	2	3	2	3
CO5	2	3	2	2	3	2	3	3	2	2	2	3

13002200	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	3	3	3	2	2	3	1	2	-	3
CO2	-	2	3	3	2	1	-	-	2	2	-	3
CO3	2	-	1	3	3	2	-	3	2	-	2	3
CO4	2	1	2	2	1	-	-	-	-	2	2	1
CO5	3	2	3	2	3	-	-	2	-	2	2	2

13002700	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	3	1	-	3	3	3		3	3	3
CO2	3	2	2	1	1		3	3	3	3	3	2
CO3	3	2	3	2	3	3	-	-	3	2	2	3
CO4	2	3	3	-	2		3	1	2	-	-	2
CO5	-	3	3	3	-	3	-	3	2	3	3	-

8. Curriculum

Course Name: Fundamentals of Programming with C

Course Code: 13004300

Objectives

- To be able to build own logic for a given problem and finally develop one's own programs.
- To understand the syntax and the semantics of C programming language.

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(ASEII), 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. Bala Guruswamy, "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. Stephenn Prata, "C Primer Plus" Fourth Edition, 2001.
8. Schaum's Outline Series, "Programming with C", 2nd Edition, 1996.

Course Name: Programming with C Lab

Course Code: 13033100

Objective

- To learn problem solving through procedural language programming technique and
- Understand fundamentals of programming such as variables, conditional and iterative execution,methods, etc

Course Outline

List of Lab Experiments:

Sr.No	Name of the program
1	C programming basics & structure of C programs
2	Program to find area of circle.
3	Program to find Simple Interest.
4	Program to perform Arithmetic operations
5	Program to find area of a triangle using three sides
6	Program to find the largest of three numbers.
7	Program to perform the Sum of N natural numbers.
8	Program to find day of the week.
9	Program to perform factorial of a given number.
10	Program to find the given number is palindrome or not.
11	Program to reverse the given number.
12	Program to find the given character is vowel or not.
13	Program Compute Their Sum Using Function Addnums ()
14	Program to Illustrate Passing Array as An Argument To A Called Function.
15	Program to Illustrate A Call by Value Parameter Passing Mechanism
16	Program to Compute Its Factorial By Recursive Function
17	Program to Accept the Information of A C_Book Such As Number,Author, Publisher And Price And Also Display It.
18	Program to Illustrate The Call_By_Value Method To InterchangeThe Contents Of Two Integer Variable
19	Program to Create A File Called Emp.Rec And Store InformationAbout Person, Interms Of His Name, Age And Salary
20	Program to Illustrate The Function fputc () And fputs () ToWrite A Single Character And String To A Data File

Course Name: Mathematics-I

Course Code: 13004200

Objective

- To get the knowledge about the matrices, determinants and limits.
- To study the basics of differential and integral calculus

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 & Liebnitz 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
4. Edition, 2001.

Course Name: Introduction to Computers and IT

Course Code:13004100

Objectives

This is an elementary course in computers and information technology. Upon completion of this course the student should be able to:

- Discuss the evolution of computers in different generations.
- Classify computers in different categories based on their capabilities.
- Describe the major components of computers and information technology applications:
- Hardware, software, data, processes, computer networks and people.
- Demonstrate an understanding of the importance of algorithms in the development of IT applications.

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), ASE II Codes, EBCDIC codes, Gray codes, Unicodes.

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, World Wide 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: Software Engineering

Course Code: 13011100

Objectives

- To provide the knowledge regarding the software requirement process, designing process, testing and coding process so that students should get to know that how we are developing a complete software.

Course Outline

Unit I: Introduction
Introduction to Software Engineering, importance of Software, The Software Evolution, Software Characteristics, Software Applications, Software Crisis: Problem and Causes
Software Development Life Cycle: Waterfall model, Incremental and Evolutionary process models, Personal Software process (PSP) and Team Software process (TSP), Overview of agile process and aspect-oriented programming

Unit II: Software Requirement Specification
Problem Analysis, Requirement elicitation and Validation, Requirements modeling: Scenarios, Information and analysis classes, flow and behavioral modeling, documenting Software Requirement Specification (SRS).

System Design: Design Concepts, design models for architecture, component, data and user interfaces; Problem Partitioning, Abstraction, Cohesiveness, Coupling, Top Down and Bottom Up design approaches; Functional Versus Object Oriented Approach, Design Specification, 4GL.

Unit III: Coding

TOP-DOWN and BOTTOM-UP structure programming, Information Hiding, Programming Style, and Internal Documentation, Verification. Software Testing: Levels of Testing, Functional Testing, Structural Testing, Test Plan, Test Case Specification, Software Testing Strategies, Verification & Validation, Unit, Integration Testing, Top Down and Bottom Up Integration Testing, Alpha & Beta Testing, White box and black box testing techniques, System Testing and Debugging.

Software Quality Assurance: Software Configuration Management, Overview of Software Quality Control and Quality Assurance, ISO 9000 Certification for Software Industry, SEI Capability Maturity Model (CMM) and Comparison between ISO & SEI CMM.

Unit IV: Technical Metrics for Software

A Framework for Technical Software Metrics, Metrics for the Analysis Model, Metrics for Design Model, Metrics for Source Code, Metrics for Testing, Metrics for Maintenance.
CASE (Computer Aided Software Engineering): CASE and its Scope, CASE support in Software Life Cycle, Documentation Support, Architecture of CASE Environment. Exposure to CASE tools like Rational Software suit, Turbo Analyst, Silk Suite.

Suggested Readings:

1. Roger S. Pressman, Software Engineering, A Practitioner's Approach, McGraw Hill International Edition (2009) 7th edition.
2. Ian Sommerville, Software Engineering, Addison-Wesley Publishing Company, (2006) 8th ed.
3. Watts Humphery, A discipline for Software Engineering, Addison Wesley, Massachusetts (1995).
4. James F. Peter, Software Engineering - An Engineering Approach, John Wiley (2004).
5. Pankaj Jalote, An integrated Approach to Software Engineering, Narosa (2005).

Course Name: Business Communication

Course Code: 99002200

Objectives:

- To equip students of the BCA course effectively to acquire skills in reading, writing, comprehension and communication, as also to use electronic media for business communication.
- To provide an overview of the various business communication skills and groom students professionally.

Course Outline

Unit I: Nature of Communication
Process of Communication, Types of Communication (Verbal & Non-Verbal), Importance of Communication, Different forms of Communication Barriers to Communication Causes, Linguistic Barriers, Psychological Barriers, Interpersonal Barriers, Cultural Barriers, Physical Barriers, Organizational Barriers.

Unit II: Business Correspondence
Letter Writing, presentation, Inviting quotations, Sending quotations, Placing orders, Inviting tenders, Sales letters, claim & adjustment letters and social correspondence, Memorandum, Inter -office Memo, Notices, Agenda, Minutes, Job application letter, preparing the Resume.

Unit III: Report Writing
Business reports, Types, Characteristics, Importance, Elements of structure, Process of writing, Order of writing, the final draft, check lists for reports.

Unit IV: Vocabulary
Words often confused Words often misspelt, common errors in English.

Unit V Oral Presentation: Importance, Characteristics, Presentation Plan, Power point presentation, Visual aids.

Suggested Readings:

1. Bovee, and Thill, Business Communication Today, Pearson Education.
2. Lesikar, R.V. & Flatley, M.E. Kathryn Rentz; Business Communication Making. Connections in Digital World, 11th ed., McGraw Hill Education.
3. Shirley Taylor, Communication for Business, Pearson Education.
4. Locker and Kaczmarek, Business Communication: Building Critical Skills, TMH.

Course Name: Ability & Skill Enhancement I

Course Code: 13002700

Objective

To sensitize students to the nuances of the four basic communication skills – Listening,

Speaking, Reading and Writing.

- To enable students to convert the conceptual understanding of communication into everyday practice. Besides making English Learning an interesting activity, the curriculum aims to develop and enhance creativity of the students.

Course Outline - Final Assessment – Written Paper

Unit I: Ice Breaking Session & Recap of Language Skills
Ice Breaking Session, Phrase, Clause, Sentence, Word Classes (Parts of Speech).

Unit II: Recap of Language Skills
Tenses (Present, Past Future), Modals, Articles (a, an, the).

Unit III: Reading Skills & Fluency Building
Reading Process, Importance & Types of Reading, Techniques of Reading, and Strategies to Improve Reading Abilities, Comprehension, Reading Aloud, Reading News.

Unit IV: Writing Skills
Generating ideas/gathering data, organizing ideas, Note taking, Outlining, drafting, Editing, and Proof Reading, Story Writing (through pictures/videos), Dialogue Writing, Email Writing.

Unit V: Listening & Speaking Skills
Types and Essentials of good listening, Listening Process, Barriers to Listening and Strategies to improve Listening, Listening to Inspirational Movies/Clips, Listening News Techniques of Effective Speaking, Introducing Oneself and others, Extempore, Situational Conversations (Practicing Short Dialogues).

9. Lesson Plans

13004300 – Fundamentals of Programming with C

Unit	Particulars	Class No.	Pedagogy of Class
Unit- I	C basics, C character set	C-1	Lecture
Unit- I	Identifiers and keywords, Data types	C-2	Lecture
Unit- I	constants, variablesand arrays	C-3	Lecture
Unit- I	declarations, expressions statements, symbolicconstants, compound statements	C-4	Lecture
Unit- I	arithmetic, operators, unary operators, relationaland logical operators,	C-5	Lecture
Unit- I	assignment operators, conditional, operators, bitoperators.	C-6	Lecture
Unit- I	C constructs: If statement, if…. else statement, if…..else if….else statement	C-7	Lecture
Unit- I	C constructs: If statement, if…. else statement, if…..else if….else statement	C-8	Lecture
Unit- I	while statement, do…. while statement,	C-9	Lecture
Unit- I	while statement, do…. while statement,	C-10	Lecture
Unit- I	For statement, switch statement	C-11	Lecture
Unit- I	Home Assignment		Home Assignment
Unit- I	For statement	C-12	Lecture
Unit- I	switch statement	C-13	Lecture
Unit- I	nested control statement, break operator,	C-14	Lecture
Unit- I	continueoperator, comma operator	C-15	Lecture
Unit- I	Tutorial	C-16	Lecture
Unit- I	go to statement.	C-17	Lecture
Unit- I	Lab based Mini Project	C-18	Lecture
	Class room Assignment	C-19	Class room Assignment
	Clarification Class	C-20	Clarification Class
Unit -II	C Functions:	C-21	Lecture
Unit -II	Functions: declaration	C-22	Lecture
Unit -II	definition & scope, recursion	C-23	Lecture
Unit -II	call by value, call by reference.	C-24	Lecture
Unit -II	Storage Classes: automatic, external (global),	C-25	Lecture
Unit -II	static & registers; Recursion	C-25	Lecture
Unit -II	Presentations	C-26	Lecture
Unit -II	Class Room Assignment	C-27	Class room Assignment
	Clarification Class	C-28	Clarification Class

Unit -III	Arrays: Arrays	C-29	Lecture
	Home Assignment		Home Assignment
Unit -III	pointers	C-30	Lecture
Unit -III	pointers	C-31	Lecture
Unit -III	array & pointer relationship	C-32	Lecture
Unit -III	pointer arithmetic, dynamicmemory allocation,	C-33	Lecture
Unit -III	pointer to arrays	C-34	Lecture
Unit -III	array of pointers	C-35	Lecture
Unit -III	pointers to functions	C-36	Lecture
Unit -III	pointers to functions	C-37	Lecture
Unit -III	array of pointers to functions,	C-38	Lecture
Unit -III	Pre-processor directives: #include	C-39	Lecture
Unit -III	Pre-processor directives: #define	C-40	Lecture
Unit -III	macro's with arguments	C-41	Lecture
Unit -III	the operators # and ##, conditional compilations	C-42	Lecture
	Clarification Class	C-43	Clarification Class
	Presentations	C-44	Presentations
Unit-IV	Structures: Structures	C-45	Lecture
Unit-IV	Structures: Structures	C-46	Lecture
Unit-IV	unions	C-47	Lecture
Unit-IV	passing structure to functions	C-48	Lecture
Unit-IV	bit fields,	C-49	Lecture
Unit-IV	File handling [text(ASEII), binary]	C-50	Lecture
Unit-IV	File handling [text(ASEII), binary]	C-51	Lecture
	Home Assignment		Home Assignment
	Class Room Assignment	C-52	Class Room Assignment
	Clarification Class	C-53	Clarification Class
Unit-V	String manipulation functions and	C-54	Lecture
Unit-V	other standard library functions from stdio.h stdlib.h, conio.h	C-55	Lecture
Unit-V	ctype.h,	C-56	Lecture
Unit-V	math.h, string.h, process.h	C-57	Lecture
Unit-V	Usage of command line arguments	C-58	Lecture
Unit-V	Usage of command line arguments	C-59	Lecture
	Clarification	C-60	Clarification

13004400 – Programming with C Lab

S. No.	Particulars	Class No.	Pedagogy of Class
1.	Write a program sum of two numbers	P-1,2	Practical/Demo
2.	Write a program to check either the number is evenor odd	P-3,4	Practical/Demo
3.	Write a program calculate simple interest.	P-5,6	Practical/Demo
4.	Write a program to calculate the marks of foursubject and percentage	P-7,8	Practical/Demo
5.	Write a program to check either the year is leap year or not.	P-9,10	Practical/Demo
6.	Write a program to find out the grade using if/elseif statement.	P-11,12	Practical/Demo
7.	Write a program to find out the greater numberbetween two number.	P-13,14	Practical/Demo
8.	WAP to read base and height of a triangle, calculatethe area using formula: i. Area =1/2*base*height; CIRCLE Area=PI*(R*R);SQUARE = SIDE*SIDE;	P-15,16	Practical/Demo
9.	WAP to read marks obtained and maximum marksof a student and calculate its percentage and display it.	P-17,18	Practical/Demo
10.	Write a program to print even number up to n.	P-19,20	Practical/Demo
11.	Write a program to print odd number up to n.	P-21,22	Practical/Demo
12.	Write a program to print table.	P-23,24	Workshop
13.	Workshop	P-25,26	Practical

13004200 – Mathematics-I

Unit	Particulars	Class No.	Pedagogy of Class
Unit-I	Determinant -Definition with Example	C-1	Lecture
Unit-I	Minors and Cofactors with Example and Properties of Determinant	C-2,3	Lecture
Unit-I	Matrice And Types of Matrices with	C-4,5	Lecture
Unit-I	Types of Matrices	C-6	Lecture
Unit-I	Addition, Subtraction And	C-7	Lecture
Unit-I	Multiplication of Matrices with Example	C-8	Lecture
Unit-I	Adjoint And Inverse of Matrix with Example	C-9	Lecture
	Cramer's Rule Dependence	C-10	Lecture
Unit-I	Independence of Matrix with Example	C-11	Lecture
Unit-I	Rank of Matrix and Eigen Value and Eigen Vectors with Example	C-12	Lecture
Unit-I	Cayley-Hamilton Theorem with Example	C-13	Lecture
	Class Room Assignment	C-14	Class Room Assignment
	Quiz	C-15	Quiz
	Clarification Class	C-16	Clarification Class
Unit-II	Limit at A Point and Properties of Limit	C-17,19	Lecture
Unit-Ii	Computation of Limits of Various Typesof Function	C-20,21	Lecture
Unit- II	Continuity at A Point and ContinuityOver an Interval	C-22,24	Lecture
Unit- II	Intermediate Value Theorem	C-25,26	Lecture
Unit-II	Types Of Discontinuities	C-27,28	Lecture
Unit-II	Derivative Of Sum, Difference	C-29	Lecture
Unit-II	Clarification Class	C-30	Clarification Class
Unit-III	Derivative, Product And Quotient, Chain Rule.	C-31,33	Lecture
Unit-III	Derivative Of Composite Function,	C-34	Lecture

	Logarithmic Differentiation.	C-35	Lecture
Unit-III	Rolle's Theorem	C-36	Lecture
Unit-III	Presentation	C-37	Presentation
Unit-III	Mean Value Theorem	C-38	Lecture
Unit-III	Expansion Of Function	C-39	Lecture
Unit-III	Maclaurin's Theorem And Taylor's Theorem.	C-40	Lecture
Unit-III	Indeterminate Forms	C-41	Lecture
Unit-III	L' Hospital Rule,	C-42	Lecture
Unit-III	Maxima And Minima	C-43	Lecture
	Class room Assignment	C-44	Class room Assignment
Unit-III	Curve Tracing, Successive Differentiation And	C-45	Lecture
Unit-III	Leibnitz Theorem.	C-46	Lecture
	Home Assignment		Home Assignment
Unit-III	Clarification Class	C-47	Clarification Class
Unit-IV	Integral as Limit Of Sum	C-48	Lecture
Unit-IV	Presentation	C-49	Presentation
Unit-IV	Fundamental Theorem of Calculus (Without Proof)	C-50	Lecture
Unit-IV	Indefinite Integrals and Method Of Integration Substitution by Parts and Substitution Rule	C-51	Lecture
Unit-IV	Reduction Formulae for Trigonometric Function, Beta and Gamma	C-52	Lecture
Unit-IV	Home Assignment		Home Assignment
Unit-IV	Function (Definition) Definition of Vector In Two And Three Dimensions	C-53	Lecture
Unit-IV	Clarification Class	C-54	Clarification Class
Unit-V	Double and Triple Scalar	C-55	Lecture

Unit-V	Double and Triple Scalar and Vector Product	C-56	Lecture
	Class Room Assignment	C-57	Class Room Assignment
	Quiz	C-58	Quiz
Unit-V	Physical Interpretation Of Area And Volume	C-59	Lecture
Unit -V	Clarification Class	C-60	Clarification Class

13011100 – Software Engineering

Unit	Particulars	Class No.	Pedagogy of Class
Unit- I	Introduction to Software Engineering, importance of Software	C-1	Lecture
Unit- I	The Software Evolution, Software Characteristics	C-2	Lecture
Unit- I	Software Applications, Software Crisis: Problem and Causes	C-3	Lecture
Unit- I	Software Development Life Cycle: Waterfall model,	C-4	Lecture
Unit- I	Incremental	C-5	Lecture
Unit- I	Evolutionary process models	C-6	Lecture
Unit- I	Evolutionary process models	C-7	Lecture
Unit- I	Personal Software process (PSP)	C-8	Lecture
Unit- I	Team Software process (TSP)	C-9	Lecture
Unit- I	Overview of agile process, Aspect oriented programming	C-10	Lecture
Unit- I	Clarification Class	C-11	Lecture
	Class Assignment	C-12	Clarification Class
	Presentation	C-13	Presentation
Unit -II	Software Requirement Specification & System Design, Problem Analysis	C-14	Lecture
Unit -II	Requirement elicitation and Validation	C-15	Lecture
Unit -II	Requirements modelling: Scenarios, Information and analysis classes	C-16	Lecture
	Home Assignment		Home Assignment
Unit -II	Guest Lecture	C-17	Guest lecture
Unit -II	Flow and behavioral modelling	C-18	Lecture
Unit -II	Documenting Software Requirement Specification (SRS)	C-19	Lecture
Unit -II	System Design: Design Concepts, design models for architecture	C-20	Lecture
Unit -II	Component, Data and user interfaces, Problem Partitioning	C-21	Lecture
Unit -II	Abstraction, Cohesiveness	C-22	Lecture
Unit -II	Coupling, Top Down	C-23	Lecture
Unit -II	Bottom Up design approaches	C-24	Lecture
Unit -II	Functional Versus Object Oriented Approach	C-25	Lecture
Unit -II	Design Specification, 4GL	C-26	Lecture
	Clarification Class	C-27	Clarification Class
	Class Room Assignment	C-28	Class Assignment
	Home Assignment		Home Assignments
Unit-III	Coding, Software Testing & Quality Assurance, Top-Down And Bottom-Up structure programming	C-29	Lecture

Unit-III	Information Hiding, Programming Style	C-30	Lecture
Unit-III	Internal Documentation, Verification	C-31	Lecture
Unit-III	Software Testing: Levels of Testing	C-32	Lecture
Unit-III	Functional Testing, Structural Testing	C-33	Lecture
Unit -III	Test Plan, Test Case Specification	C-34	Lecture
Unit- III	Webinar	C-35	Webinar
Unit- III	Software Testing Strategies, Verification & Validation	C-36	Lecture
Unit-III	Unit, Integration Testing, Top Down and Bottom Up Integration Testing	C-37	Lecture
Unit-III	Class Room Assignment	C-38	Class Assignment
Unit-III	Guest Lecture	C-39	Guest lecture
Unit-III	Alpha & Beta Testing, White box and black box testing techniques	C-40	Lecture
Unit-III	System Testing and Debugging	C-41	Lecture
Unit-III	Software Quality Assurance: Software Configuration Management	C-42	Lecture
Unit-III	Overview of Software Quality Control and Quality Assurance	C-43	Lecture
Unit-III	ISO 9000 Certification for Software Industry	C-44	Lecture
Unit-III	Capability Maturity Model (CMM) and Comparison between ISO & SEI CMM	C-45	Lecture
	Clarification Class	C-46	Clarification Class
	Presentation	C-47	Presentation
	Activity	C-48	Activity
	Seminar	C-49	Seminar
	Home Assignment		Home Assignments
Unit-IV	Technical Metrices for Software & CASE Tools, A Framework for Technical Software Metrics	C-50	Lecture
Unit-IV	Metrics for the Analysis Model, Metrics for Design Model	C-51	Lecture
Unit-IV	Metrics for Source Code, Metrics for Testing, Metrics for Maintenance.	C-52	Lecture
Unit-IV	Case (Computer Aided Software Engineering): Case And Its Scope	C-53	Lecture
Unit-IV	Webinar	C-54	Webinar
Unit-IV	Case Support in Software Life Cycle, DocumentationSupport	C-55	Lecture
Unit-IV	Architecture of Case Environment	C-56	Lecture
Unit-IV	Exposure to Case Tools Like Rational Software Suit	C-57	Lecture
Unit-IV	Turbo Analyst, Silk Suite	C-58	Lecture
	Clarification Class	C-59	Clarification Class
	Quiz	C-60	Quiz

99002200 – Business Communication

Unit	Particulars	Class No.	Pedagogy of Class
Unit-I	Business Communication and its nature	C-1	Lecture
Unit-I	Communication definition	C-2	Lecture
Unit-I	Types of Communication	C-3	Lecture
Unit-I	Types of communication verbal and nonverbal	C-4	Lecture
Unit-I	Types of communication Non-Verbal and verbal	C- 5	Discussion
Unit-I	Types of communication verbal and nonverbal	C- 6	Lecture
Unit-I	Different forms of communications	C- 7,8	Lecture
Unit-I	Forms of communications	C-9	Lecture
Unit-I	Organizational barriers	C -10,11	Lecture
Unit-I	Communication Barriers	C -12,13	Lecture
Unit-I	Linguistic barriers, cultural Barriers	C- 13	Lecture
Unit-I	Physical barriers, Organizational barriers	C- 14	Activity
Unit-I	Clarification class	C- 15	Clarification class
Unit-II	Quiz	C- 16	Quiz
Unit-II	Class Assignment	C -17	Class Assignment
Unit-II	Presentation of Business letter writing	C -18,19	Lecture
Unit-II	format of sales letters	C -20	Lecture
Unit-II	how to write sales letters	C -21,22	Lecture
Unit-II	Assignments on sales letters	C -23	Lecture
Unit-II	Notices	C -24	Lecture
Unit-II	Home Assignment	C- 25	Home Assignment
Unit-II	Job Application letter	C -26	Lecture
Unit-II	Job Application letter	C- 27	Lecture
Unit-II	Job Application letter assignment	C -28	Lecture
Unit-II	How to prepare Resume	C -29,30	Lecture
Unit-II	Resume preparation	C -31,32	Lecture
Unit-III	Format of Report writing	C- 33	Lecture
Unit-III	Business report writing	C- 34	Lecture
Unit-III	Types and characteristic of report writing	C -35	Lecture
Unit-III	Assignment on Report writing	C- 36	Lecture
Unit-III	Vocabulary words often confused	C- 37	Lecture
Unit-III	Vocabulary words often confused assignment	C- 38,39	Lecture
Unit-III	Words often misspelt	C- 40,41	Lecture
Unit-III	Common errors in English	C- 42,43	
Unit-III	Quiz	C- 44	Quiz
Unit-III	Clarification	C- 45	Clarification
	Home Assignment		Home Assignment
Unit-IV	Oral presentation importance	C-46,47	Lecture
Unit-IV	Oral presentation importance	C-48,49	Lecture
Unit-IV	Characteristics of oral presentation	C-46,47	Lecture

Unit-IV	Characteristics of oral presentation	C-48	Lecture
Unit-IV	Presentation plan	C-49,50	Lecture
Unit-IV	Power point presentation	C-50,51	Lecture
Unit-IV	Class room Assignment	C-52,53	Class room Assignment
Unit-IV	Assignment	C-54,55	Lecture
Unit-IV	Lecture	C-56,57	Lecture
Unit-IV	Visual aids	C-59,58	Lecture
Unit-IV	Clarification	C-60	Clarification

13002700 – Ability & Skill Enhancement – I

S. No.	Particulars	Class No.	Pedagogy of Class
Unit-I	Ice Breaking Session: Introduction to ASE, Introduction and overview of the course	C-1	Lecture
Unit-I	Phrase, Clause, Sentence, Word Classes (Parts of Speech)	C-2	Lecture
Unit-I	Word Classes (Parts of Speech)	C-3	Lecture
Unit-II	Tenses - Present Tense	C-4	Lecture
Unit-II	Present Tenses: Written & spoken exercise	C-5	Activity
Unit-II	Tenses – Past Tense	C-6	Lecture
Unit-II	Take Home Assignment	C-7	Take Home Assignment
Unit-II	Past Tenses: Written & spoken exercise	C-8	Activity
Unit-II	Tenses – Future Tense	C-9	Lecture
Unit-II	Future Tenses: Written & spoken exercise	C-10	Lecture
Unit-II	Modals & Exercises	C-11	Activity
Unit-II	Articles: Exercise	C12	Activity
Unit-II	Quiz	C-13	Activity
Unit-III	Reading Skills: Reading Process, Importance & Types of Reading, Techniques of Reading, and Strategies to Improve Reading Abilities	C-14	Activity
Unit-III	Reading aloud, Reading News, Reading Comprehension	C-15	Activity
Unit-III	Clarification Class	C-16	Clarification Class
Unit-IV	Writing Skills: Generating ideas/gathering data, organizing ideas, Note taking, Outlining, drafting, Editing, and Proofreading,	C-17	Activity
Unit-IV	Presentation	C-18	Activity
Unit-IV	Story Writing (through pictures/videos)	C-19	Lecture
Unit-IV	Email Writing	C-20	Activity
Unit-IV	Dialogue Writing, News Writing	C-21	Activity
Unit-IV	Presentation	C-22	Presentation
Unit-V	Types and Essentials of good listening, Listening Process, Barriers to Listening and Strategies to improve Listening	C-23	Activity
Unit-V	Listening to Inspirational Movies/Clips/Listening News	C-24	Activity
Unit-V	Techniques of Effective Speaking	C-25	Lecture
Unit-V	Class Room Assignment	C-26	Activity
Unit-V	Introducing Oneself and others Situational Conversations (Practicing Short Dialogues)	C-27	Activity
Unit-V	Public Speaking	C-28	Lecture
Unit-V	Extempore	C-29,30	Activity

13004100 – Introduction to Computers and IT

Unit	Particulars	Class No.	Pedagogy of Class
Unit-I	Syllabus & Objectives of the Course Introduction toComputers	C-1	Lecture
Unit-I	The evolution of computers: Computer Generationfrom First Generation to Fifth Generation.	C-2	Lecture
Unit-I	Classifications of Computers: Micro, Mini, Mainframeand super computers.	C-3	Lecture
Unit-I	Computer Hardware: Major Components of a digital computer,	C-4	Lecture
Unit-I	Block Diagram of Computers, Control Module, ALU, Input/output functions	C-5	Lecture
Unit-I	Description of Computer Input-output devices	C-6	Lecture
Unit-I	Computer Memory: Memory Cell, Memory Organization, Read Only Memory, Serial Access	C-7	Lecture
Unit-I	Physical Devices Used to construct Memories, Drives Floppy Disks, Magnetic Hard disks	C-8	Lecture
Unit-I	Compact Disk Read Only Memory, Magnetic Tape Drives. Distributed Computer System, Parallel Computers.	C-9	Lecture
Unit-I	Clarification Class	C-10	Clarification Class
Unit-I	Class Room Assignment	C-11	Class Room Assignment
Unit-I	Presentations	C-12	Presentations
Unit-II	Computer Software: System software & ApplicationSoftware, System Software: assemblers, compilers, interpreters, linkers, BIOS	C-13	Lecture
Unit-II	Elementary Operating System concepts, differenttypes of operating systems, Functions of operating System	C-14	Lecture
Unit-II	Booting process of a Computer, Application Software: Introduction to MS Office, Page & Paragraph Formatting; Indentations	C-15	Lecture
	Home Assignment		Home Assignment
Unit-II	Character Formatting in Word Processor, Formula & Basic, Cell Reference, Use of Excel, Computer Programming and Languages: Algorithms	C-16	Lecture
Unit-II	Flow charts, pseudo code, Low level languages Group Presentation by Students On assigned Topics	C-17	Presentations
Unit-III	Introduction to high level languages. Computer Number System: Decimal & Binary, Octal, Hexa-decimal	C-18	Lecture
Unit-III	Conversion: Decimal to all Binary number systems, Octal & Hexa-Decimalnumber systems	C-19	Lecture

Unit-III	Conversion: Decimal to all Octal & Hexa-Decimal number systems	C-20	Practice Session
Unit-III	Conversion: Binary to octal and Hexa-decimal	C-21	Lecture
Unit-III	Addition of binary numbers, Binary subtraction	C-22	Lecture
Unit-III	Class Room Assignment	C-23	Class Room Assignment
Unit-III	Use of complements to represent negative numbers,	C-25	Lecture
Unit-III	Conversion of a binary fraction to a decimal fraction and decimal to binary fraction	C-25	Lecture
	Home Assignment		Home Assignment
Unit-III	Clarification Class	C-26	Clarification Class
Unit-III	Binary Coded Decimal (BCD), ASCII Codes, EBCDIC codes, Gray codes, Unicode's	C-27	Lecture
Unit-IV	Introduction of Computer Network Basic elements of a communication system, Data transmission modes, Data Transmission speed, Data transmission media,	C-28	Lecture
Unit-IV	Digital and Analog Transmission, Network topologies, Network Types (LAN, WAN and MAN), Client and Servers, Origin & Overview of Internet, Intranet, Extranet	C-29	Lecture
Unit-IV	Protocol, Domain name, IP address, URL, Worldwide Web, E-mail, FTP, Telnet, Chat, Instant Messaging.	C-29	Lecture
	Clarification Class	C-30	Clarification Class

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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