



SCHEME OF STUDIES & EXAMINATIONS

Department: Bachelor of Computer Applications – 2nd Semester

Sr. No	Course No.	Course Title	Teaching Schedule			Marks of class work	Examination Marks		Total	Credit	Exam Duration
			L	T	P		theory	practical			
1	BCA-102 B	Digital Circuits and Logic Design	3	1	-	25	75	-	100	4	3
2	BCA-104 B	Programming in C	3	1	-	25	75	-	100	4	3
3	BCA-106 B	Mathematics - II	3	1	-	25	75	-	100	4	3
4	BCA-108 B	Desktop Publishing	3	1	-	25	75	-	100	4	3
5	HUM- 502 B	ENGLISH – II	2	1	-	25	75	-	100	3	3
6	BCA-124 B	SOFTWARE LAB.-II (BASED ON BCA-104)	-	-	2	20	-	30	50	1	3
7	BCA-128 B	SOFTWARE LAB.-III (BASED ON BCA-108)	-	-	2	20	-	30	50	1	3
8	HUM- 504 B	ENGLISH PRACTICE LAB-II	-	-	2	20	-	30	50	1	3
Total			14	5	6	185	375	90	650	22	

COLLEGE OF
ENGINEERING



SYLLABUS BCA

Department: Computer Science & Engineering – 2nd Semester

SUBJECT: Digital Circuits & Logic Design

SUBJECT CODE: BCA-102 B

DETAILED CONTENTS

Unit No.1 :

- Topic No.1 : Number Systems
- Topic No.2 : Binary Arithmetic
- Topic No.3 : Fixed Point & Floating Point Representation
- Topic No.4 : BCD CODES
- Topic No.5 : Error Detecting & Correcting codes
- Topic No.6 : ASCII, EBCDIC, UNICODE.

Unit No.2 :

- Topic No.7 : Boolean Algebra & Theorems
- Topic No.8 : Boolean functions & truth tables
- Topic No.9 : Canonical & Standard Form
- Topic No.10: Karnaugh Maps
- Topic No.11: Venn Diagrams

Unit No.-3

- Topic No.12: Logic gates
- Topic No.13: Universal Gates
- Topic No.14: Multilevel Nand & Nor Circuits
- Topic No.15: Combinational Logics

Unit No.-4

- Topic No.16: Half adder ,Full adder
- Topic No.17: Half Subtractor, Full subtractor
- Topic No.18: Encoder, Decoder
- Topic No.19: Multiplexer, Demultiplexer
- Topic No.20: Comparators & Code converters
- Topic No.21: BCD to seven segment decoder

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	1	-	4	25	75	3 hours	100

TEXT BOOKS:

1. Digital logic & Computer Design by M. Mano, Prentice-Hall.

NOTE:

Eight questions will be set by the examiners taking at least two questions from each unit. Students will be required to attempt five questions in all taking at least one question from each unit



SYLLABUS: BCA

Department: Bachelor of Computer Applications – 2ND Semester

Subject: Programming In C (Theory)
104B

Subject Code: BCA-

Detailed Content

Unit No.1 Elements Of C

- Topic No.1 : Problem analysis
- Topic No.2 : Need for programming languages
- Topic No.3 : Introduction to algorithms
- Topic No.4 : Algorithmic representations
- Topic No.5 : Flow charts & decision tables
- Topic No.6 : Structured programming & modular programming
- Topic No.7 : C character set
- Topic No.8 : Identifiers & Keywords
- Topic No.9 : Data types: Declaration & definition
- Topic No.10: Type conversion
- Topic No.11: Types of error
- Topic No.12: Preprocessor directives
- Topic No.13: C macro
- Topic No.14: macro vs function
- Topic No.15: Unformatted & Formatted I/O function in C
- Topic No.16: Input functions: scanf(), getch(), getche(), getchar(), gets()
- Topic No.17: Output functions: printf(), putchar(), puts()

Unit No.2 Operators

- Topic No.18: Operators: Arithmetic, Relational, Logical, Bitwise, Unary, Assignment, Conditional
- Topic No.19: Hierarchy of Operators & associativity
- Topic No.20: Sequencing
- Topic No.21: Selection: If and switch statement
- Topic No.22: Alternation
- Topic No.23: Repetition: for, while, do-while loop
- Topic No.24: break
- Topic No.25: continue
- Topic No.26: goto
- Topic No.27: Definition of function
- Topic No.28: Prototypes
- Topic No.29: Passing parameters
- Topic No.30: Recursion
- Topic No.31: Standard Library/User-defined functions

Unit No.3 Arrays And String

- Topic No.32: Defining & processing an array
- Topic No.33: one dimensional arrays
- Topic No.34: Multidimensional arrays
- Topic No.35: Passing arrays to functions



- Topic No.36: Handling of character strings
- Topic No.37: Declaration of pointers
- Topic No.38: Operations on pointers
- Topic No.39: Array of pointers
- Topic No.40: Pointer to arrays
- Topic No.41: Defining & processing a structure
- Topic No.42: User defined data types
- Topic No.43: Structure & Pointers
- Topic No.44: Nested structure
- Topic No.45: Self-referential structures
- Topic No.46: Unions

Unit No.4 Program Structure

- Topic No.47: Storage classes
- Topic No.48: Automatic variable
- Topic No.49: External variable
- Topic No.50: Static variable
- Topic No.51: Opening of file
- Topic No.52: Closing of file
- Topic No.53: Creating a file
- Topic No.54: Processing & unformatted data field
- Topic No.55: File management in C
- Topic No.56: Sorting: Bubble sort, Selection sort
- Topic No.57: Searching: Binary search, Linear search

Study Scheme				Evaluation Scheme			Total Marks
L	T	P	Credits	Internal Assessment	External Assessment (Examination)		
				Max. Marks	Max. Marks	Exam Duration	
3	1	-	4	25	75	3 hours	100

TEXT/REFERENCE BOOKS:

1. Gottfried, Byron S., Programming with C, Tata McGraw Hill
2. Balagurusamy, E., Programming in ANSI C, 4E, Tata McGraw-Hill

NOTE:

Eight questions will be set by the examiners taking at least two questions from each unit. Students will be required to attempt five questions in all taking at least one question from each unit.



SYLLABUS BCA

Department: Computer Science & Engineering – 2nd Semester

SUBJECT: Mathematics-II

SUBJECT CODE: BCA-106 B

DETAILED CONTENTS

UNIT 1: Set Theory

- Topic No.1 : Sets and their representations. . Empty set. Finite and Infinite sets. Equal sets.
- Topic No.2 : Subsets. Subsets of the set of real numbers
- Topic No.3 : Power set.
- Topic No.4 : Universal set.
- Topic No.5 : Venn diagram
- Topic No.6 : Union and intersection of sets
- Topic No.7 : Difference of sets
- Topic No.8 : Complement of a set.

UNIT 1: Relation and Functions

- Topic No.9 : Ordered pairs,
- Topic No.10: Cartesian product of sets
- Topic No.11: Number of elements in the Cartesian product of two finite sets
- Topic No.12: Definition of relation
- Topic No.13: pictorial diagrams
- Topic No.14: domain, domain and range of a relation
- Topic No.15: Function as a special kind of relation from one set to another
- Topic No.16: Pictorial representation of a function
- Topic No.17: domain, co-domain and range of a function
- Topic No.18: Real valued function of the real variable
- Topic No.19: domain and range of these functions

UNIT 2: Determinants:

- Topic No.20: Basic definition
- Topic No.21: Properties of determinants
- Topic No.22: Creamer Rule.

UNIT 2: Matrices

- Topic No.23: Definition
- Topic No.24: addition of matrices
- Topic No.25: subtraction of matrices
- Topic No.26: multiplication of matrices
- Topic No.27: Computation of inverse (by matrix method).

UNIT 3: Differentiation

- Topic No.28: Elementary results on limits and continuity (without proof).
- Topic No.29: Derivative of functions,
- Topic No.30: product rule of differentiation
- Topic No.31: differentiation of implicit function and parametric forms.

UNIT 3: Integration

- Topic No.32: Integration of simple functions
- Topic No.33: integration by parts
- Topic No.34: integration by partial fraction



Topic No.35: definite integration (simple problems only without properties).

UNIT 4: Complex Numbers:

Topic No.36: Definition

Topic No.37: Representation of Complex Numbers

Topic No.38: Argand plane

Topic No.39: Sum, subtraction

Topic No.40: product and division of complex numbers

Topic No.41: Magnitude of complex numbers.

Topic No.42: argument of complex numbers.

Topic No.43: square root of complex numbers.

UNIT 4: Statistics

Topic No.44: Measure of dispersion; mean deviation, variance and standard deviation of ungrouped/grouped data.

Topic No.45: Analysis of frequency distributions with equal means but different variances.

Topic No.46: Measure of dispersion

Topic No.47: mean deviation ungrouped/grouped data

Topic No.48: variance of ungrouped/grouped data

Topic No.49: standard deviation of ungrouped/grouped data

Topic No.50: Analysis of frequency distributions with equal means but different variances.

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	100
3	1	-	4	25	75	3 hours	

TEXT BOOKS:

1. 11th & 12th NCERT Mathematics books.
2. Elementary Engineering Mathematics- B S Grewal

NOTE:

Eight questions will be set by the examiners taking at least two questions from each unit. Students will be required to attempt five questions in all taking at least one question from each unit.



SYLLABUS: BCA

Department: Bachelor of Computer Applications – 2ND Semester

Subject: Desktop Publishing (Theory)

Subject Code: BCA-

108B

Detailed Content

Unit No.1 Introduction to the Print Medium

Topic No.1 : History of Print and Printing Processes

Topic No.2 : Types of Printing

Topic No.3 : Letterpress Printing, Lithography, Offset Printing

Topic No.4 : Different Printing Process

Unit No. 2 Elements and Principles of Design and Visual Communication

Topic No.5 : Elements: line, shape, value, texture, color

Topic No.6 : Principles: harmony, variety, balance, movement, proportion

Topic No.7 : Emergence of graphic design as visual communication

Unit No. 3 Photoshop

Topic No.8 : Introduction to Graphics

Topic No.9 : Vector Graphics & Bitmaps

Topic No.10: Understanding Image Size & resolution, Relation between resolution

Topic No.11: File Sizes & Output, Menu & Palettes

Topic No.12: Concept of Path(Segment, Anchor, Curved, Closed, Open, Subpath)

Topic No.13: Photoshop Tools

Topic No.14: Concept of Layers, Channels & Path, Filters, Rendering Effects, Transformation

Topic No.15: Strokes, Acquiring & Importing Images, Image Modes, Canvas & Images

Unit No. 4 Corel Draw

Topic No.16: An Overview, Menus & Tools, Concepts of Vector Graphics

Topic No.17: Color palate, Pasteboard & Print Page, Using Ruler

Topic No.18 : Corel Tools(Pick, Shape, Knife, Eraser, Zoom, Freehand , Natural Pen, Dimensions, Ellipse, Polygon etc.)

Topic No.19: Transformations, Weld, Intersection of Objects, Snapping, Giving Effects

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	1	-	4	25	75	3 hours	100

TEXT/REFERENCE BOOKS:

1. HTML & CSS: The Complete Reference, Thomas Powell, Fifth Edition
2. Sams Teach Yourself HTML and CSS in 24 Hours Julie C. Meloni & Michael Morrison, Eighth Edition

NOTE:

Eight questions will be set by the examiners taking at least two questions from each unit. Students will be required to attempt five questions in all taking at least one question from each unit.



SYLLABUS: BCA

Department: Bachelor of Computer Applications – 2nd Semester

Subject: English-II (Theory)

Subject Code: HUM-502B

Detailed Content

Unit No.1 Sentence

- Topic No.1 : Conditional Clauses
- Topic No.2 : Relative Clauses
- Topic No.3 : Adverbial Clauses
- Topic No.4 : Voice

Unit No.2 Word

- Topic No.5 : Vocabulary of character description
- Topic No.6 : Vocabulary of behavior
- Topic No.7 : Vocabulary of body language
- Topic No.8 : Vocabulary of hobbies
- Topic No.9 : Vocabulary of Friends
- Topic No.10: Vocabulary of enemies,
- Topic No.11: Vocabulary of computers.

Unit No.3 Speech

- Topic No.12: Standard pronunciation
- Topic No.13: Familiarity with British accent
- Topic No.14: Familiarity with American accents
- Topic No.15: Familiarity with Indian accents
- Topic No.16: Accepting and declining invitations
- Topic No.17: Making short formal public speeches and talk shows
- Topic No.18: Making telephonic conversation

Unit No.4 Sound

- Topic No.19: Implications of effective listening
- Topic No.20: Note-taking
- Topic No.21: Review of TV/Radio talk shows
- Topic No.22: Understand and appreciate the lyrics of a song
- Topic No.23: Understand and appreciate the dialogues in a movie

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
2	1	-	4	25	75	3 hours	100

TEXT/REFERENCE BOOKS:

1. Lynch, Tony. Study Listening. Delhi: Foundation Books (Cambridge University Press), 2004.
2. Gangal, J.K. A Practical Course in Spoken English. New Delhi: PHI, 2011
3. Anderson, Kenneth, Joan Maclean and Tony Lynch. Study Speaking. CUP, 2004
4. Harmer, Jeremy. Just Right. (British edition) Marshall Cavendish, 2007 (Indian distributor: Orient Blackswan/ Viva Books)



SYLLABUS: BCA

Department: Bachelor of Computer Applications – 2nd Semester

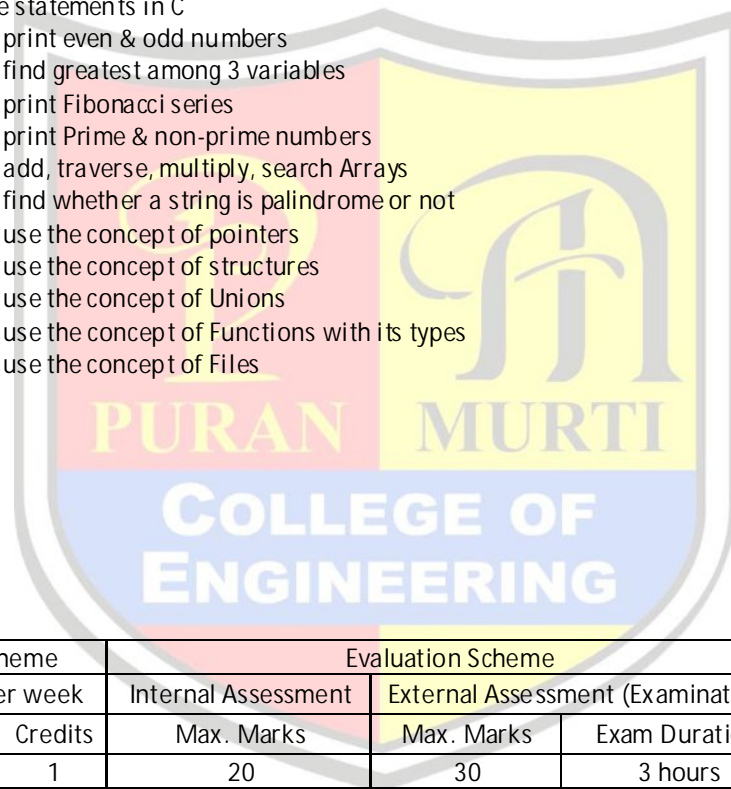
Subject: Programming in C LAB

Subject Code: BCA-124B

Detailed Content

List of Programs:

1. How to use Turbo C
2. How to create hello world program in C
3. How to use conditional statements in C
4. How to use Iterative statements in C
5. Write a program to print even & odd numbers
6. Write a program to find greatest among 3 variables
7. Write a program to print Fibonacci series
8. Write a program to print Prime & non-prime numbers
9. Write a program to add, traverse, multiply, search Arrays
10. Write a program to find whether a string is palindrome or not
11. Write a program to use the concept of pointers
12. Write a program to use the concept of structures
13. Write a program to use the concept of Unions
14. Write a program to use the concept of Functions with its types
15. Write a program to use the concept of Files



Study Scheme				Evaluation Scheme			Total Marks
Lectures per week		Credits	Internal Assessment	External Assessment (Examination)			
L	T		P	Max. Marks	Max. Marks	Exam Duration	
		2	1	20	30	3 hours	50

NOTE:

Students are required to attempt at least 10 exercises based on the syllabi of subject "Programming in C"



SYLLABUS: BCA

Department: Bachelor of Computer Applications – 2nd Semester

Subject: Desktop Publishing LAB

Subject Code: BCA-128B

Detailed Content

List of Programs:

1. How to use Corel Draw and Photoshop
2. How to create Line, shape, value, Texture, color
3. How to create vector graphics & bitmaps in Photoshop
4. How to use Image size & Resolution in Photoshop
5. How to use the concept of Path in Photoshop
6. How to use Photoshop tools
7. How to use the concept of layers in Photoshop
8. How to use filters, transformation, strokes in Photoshop
9. How to use Image modes, canvas & Images in Photoshop
10. How to use menus & tools in Corel Draw
11. How to use color palate, pasteboard & print page in Corel Draw
12. How to use Ruler in Corel Draw
13. How to use Corel tools

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
		2	1	20	30	3 hours	50

NOTE:

Students are required to attempt at least 10 exercises based on the syllabi of subject “Desktop Publishing”



SYLLABUS: BCA

Department: Bachelor of Computer Applications – 2nd Semester

Subject: English Practice Lab – II

Subject Code: HUM-504

Detailed Content

List of Programs:

1. Self-introduction in standard pronunciation
2. Politely accepting invitations in English
3. Declining invitations in English
4. Making recommendations in English
5. Practice of informal discussion
6. Mini formal talk, speeches
7. Practice of listening to speeches
8. Practice of listening to English songs

NOTE: Students will be tested for their oral and written communication competence 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 may also be evaluated through a viva conducted by an external examiner.

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week		Internal Assessment	External Assessment (Examination)		Total Marks		
L	T	P	Credits	Max. Marks		Max. Marks	Exam Duration
		2	1	20	30	3 hours	50

NOTE:

Students are required to attempt at least 10 exercises based on the syllabi of subject "BCA-205"