GUJARAT UNIVERSITY-F.Y.BCA SYLLABUS (REVISED)
Effective from June ,2006

TEACHING AND EXAMINATION SCHEME

SUB NO	SUBJECT	TEACHING		EXAMINATIONS				
		HRS PER WEEK		INTERNAL		EXTERNAL 3HRS		
		THEORY	PRACT	SESSIONAL	TERM WORK	THEORY	PRACT	TOTAL
	Passing Marks			7	4	25	18	
BCA101	Communicative English	3	-	20	10	70	--	100
BCA102	Programming in 'C' language	3	3	20	10	70	50	150
BCA103	Advanced Mathematics	3	-	20	10	70	--	100
BCA104	Financial Accounting & Management	3	-	20	10	70	--	100
BCA105	Introduction to Internet and HTML Scripting	3	2	20	10	70	50	150
BCA106	PC Software	2	4	20	10	70	50	150
BCA107	Computer Fundamentals and Data Processing	3	2	20	10	70	50	150
TOTAL		20	11	140	70	490	200	900

BCA 101 COMMUNICATIVE ENGLISH

TEACHING		EXAMINATIONS				
HRS PER WEEK		INTERNAL		EXTERNAL 3HRS		
THEORY	PRACT	SESSIONAL	TERM WORK	THEORY	PRACT	TOTAL
3	-	20	10	70	--	100

1. What is Effective Communication? (10%)

- Types and Forms of Communication
- Media and Modes of Communication
- Process of Communication and Importance of feedback
- Barriers to Effective Communication and Features of Effective Communication
- Importance of Listening and Empathy in Communication
- Communicating effectively in the International Context

2. Oral Communication (20%)

(A) Interpersonal
- Discussing Difficult (Negative) Issues with others effectively
- Delivering negative news effectively
- Counseling
- Giving effective feedback

(B) Inter-group
- Effective Speech
- Effective Presentations
- Conducting Meetings Effectively
- Conducting Negotiations Effectively
- Participating in Group Discussions

3. Written Communication (20%)

- Letters: General, Positive
- Letters: Bad News, Negative
- Writing Memos
- Writing Notices/Circulars
- Writing Reports
- Writing Proposals

- Writing Reviews (Book/Performance)
- Writing Summaries/Abstracts
- Writing Emails
- Writing Bio-data

4. Core Grammar   (20%)

- Time and Tense
- Voice
- Prepositions
- Common Errors

5. Composition   (10%)

- Paragraph Writing
- Expansion of idea

6. Comprehension   (5%)

7. Vocabulary Building   (5%)

- Idioms
- Phrasal verbs
- One-word substitutes
- Synonyms and Antonyms

8. Elements of Spoken English   (10%)

- Vowels
- Consonants
- Stress (Elementary level)

NOTE: Methodology of Teaching this subject will be

- Class Room Discussions
- Individual Exercises
- Group Exercises
- Group Projects and visits to organizations
- Guest Sessions

TEXT BOOK:

- Selections from English Prose, Oxford
- Technical Communication: Principles and Practice, Meenakshi Raman & Sangeeta Sharma, Oxford

REFERENCE BOOKS

- English Online, Mohanraj & Mohanraj, Orient Longman
- The Good Grammar Book Swan M & Catherine Walter, Oxford
- Basic Communication Skills for Technology, Andrea Rutherfoord, Pearson
- English Grammar Composition and Effective Business Communication, Pink and Thomas, S Chand
- Business Communication, Meenakshi Raman & Sangeeta Sharma, Oxford
- Basic English Usage, Michael Swan, Oxford
- Oxford Business English Dictionary, Oxford
- New Avenues, Orient Longman

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BCA 102 PROGRAMMING IN 'C' LANGUAGE

TEACHING		EXAMINATIONS				
HRS PER WEEK		INTERNAL		EXTERNAL 3HRS		
THEORY	PRACT	SESSIONAL	TERM WORK	THEORY	PRACT	TOTAL
3	3	20	10	70	50	150

Introduction to programming languages   **(10%)**

Introduction to machine level language, Assembly language and Higher level language. Their limitations and features.
Classification of Computer Languages – Procedural language, Non-procedural language and problem oriented.

Tools and Techniques of Problem Analysis   **(20%)**

Algorithm Development, Flowcharting. Numerous examples in algorithm development and Flowcharting.

Programming in C language

Introduction to C, Program characteristics, Character set, Constants and   **(25%)**
Variables,Operators and Expressions, Bit level manipulations, Data Types, I/O operations, Control/conditional Statement, Looping statements, Nested structures.

Arrays and strings, User defined Functions, Storage Classes, Structures and **(40%)**
Unions,Concept of bit-fields, Pointers, File handling in C
Concept of Dynamic memory allocation and linked list. C preprocessors-   **(5%)**
Macro substitution directive and file inclusion directive.

Text Book:

- Programming in ANSI C, Balagurusamy, TMH

References:

- Fundamentals of Computers, V. Rajaraman, Prentice Hall of India.
- Computer fundamentals and Programming in C – Pradip Dey, Manas Ghosh, Oxford press.

- Programming with C, Gottfried, McGraw-Hill Internationals.
- Programming with C, Venugopal & Prasad, TMH.
- Let us C – Kanetkar, BPB.

Algorithms and flowchart based on sample examples enclosed with syllabus.
'C' programs based on sample examples of practical enclosed with syllabus.
Practicals based on 'C'
Term Work should be based on syllabus

List of sample algorithms and flowcharts

Introduction
- Read and print single value
- Interchanging/swapping values of two variables.

Formula based
- Find area of circle, rectangle etc.
- Find simple interest.
- Conversion of temperature.

Condition/decision based
- Find maximum/minimum from two/three numbers.
- Check for odd/even.
- Check for +ve, -ve, zero.
- Find grade for given total marks.

Loop based
- Addition of first 10 successive numbers.
- Addition of first 10 odd/even numbers.
- Find summation of successive numbers ranging from n1 to n2.
- Find factorial of n.
- Find power (X^N)
- Find total marks of 5 subjects for 10 students.

Counting
- Count odd and even numbers from given range
- Count +ve,-ve, zeros from given range
- Given salary of 100 employees, count number of employees having salary in following categories:
    1. Less than 2000
    2. between 2000 to 5000
    3. between 5000 to 10000
    4. above 10000

Series
- 21 + 24 + 27 + ………… N terms
- 1, 11, 111,……….N terms
- $1^2 + 2^2 + 3^2 +$ …………………. N terms
- 1, 1, 2, 3, 5, 8, …………. N terms (Fibonacci)
- $R + R^2 + R^3 +$…………… N Terms
- $AR - AR^2 + AR^3 – AR^4$…………… N Terms
- 1/1 + 1/2 +1/3 + ………… N Terms

Including all above topics
- Find ^nC_r.
- Check for prime
- Find factorial for given range of values
- Check for palindrome
- Find reverse of given integer number
- Sum of digits of an integer number
- Minimum/maximum from N numbers
- Average of any N numbers
- Conversion from decimal to hex/octal/binary.
- Conversion from hex/octal/binary to decimal.

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BCA103 ADVANCED MATHEMATICS

TEACHING		EXAMINATIONS				
HRS PER WEEK		INTERNAL		EXTERNAL 3HRS		
THEORY	PRACT	SESSIONAL	TERM WORK	THEORY	PRACT	TOTAL
3	-	20	10	70	--	100

Unit 1: SET THEORY (15%)

Introduction to set theory, Methods of representation of a set, Operations on set / Properties(with logical & Venn-diagrammatic proofs), examples related to Venn-diagrams, Cartesian product.

Unit 2: FUNCTIONS (10%)

Definition of function, Classification of functions, Domain and range of functions, Introduction to Linear, Quadratic, Higher degree functions, Exponential, logarithmic functions examples related to logarithmic and exponential functions, Introduction to trigonometric functions, Break-Even Analysis.

Unit 3: INTRODUCTION TO MATRICES (10%)

Definition of Matrix, Types of Matrices (Square, Row/Column, Identity, Null, Triangular, Transpose, Symmetric, Skew-symmetric, Scalar, Diagonal Matrix.), Arithmetic operation on Matrices (Addition, Subtraction, Multiplication of Matrices)

Unit 4: CO-ORDINATE GEOMETRY (15%)

Introduction to Co-ordinates, Quadrants and Lines .Distance between two points in R2 (without proof), Section formula (without proof), Area of the triangle (without proof).Co-linearity of points, Equation of Straight line, General Equation of line, Angle between two lines (without proof), Parallel and Perpendicular Lines and related examples.

Unit 5: LIMIT AND CONTINUITY (10%)

LIMIT: Definition of Limit, Some Standard Limits (without proof).
CONTINUITY: Definition of Continuity, Condition for the function to be Continuous, Discontinuity.

Unit 6: DIFFERNTIATION AND ITS APPLICATIONS   (15%)

DIFFERNTIATION: Definition of Derivative, Rules of Differentiation (Without Proof). Derivatives of Algebraic, Trigonometric, Parametric, Logarithmic, Explicit / Implicit Functions, Second order Derivative with examples.
APPLICATIONS OF DERIVATIVE: Maxima / Minima of Functions, Business Applications.

Unit 7: INTEGRATION AND ITS APPLICATIONS   (15%)

INTEGRATION: Definition of Integration, Standard Formulas, Method of Substitution, Integration by parts, Partial fraction, Reduction Formulas (Without Proof) ($\int$ Sinnx dx, $\int$ Cosnx dx)
APPLICATIONS OF INTEGRATION: Area Bounded by the Curve (Excluding volume). Business Application examples

Unit 8: DIFFERENTIAL EQUATIONS   (10%)

Introduction to Differential equation, Order / Degree of Differential equations, Solution of Differential equations, Variable Separable Method ,Exact Differential Equation method,General and particular solution.

Text Book:

- Business Mathematics By DR. D.C. Sancheti & V.K.Kapoor.
- S.CHAND & SONS PUBLICATIONS

Reference Books:

- Shantinarayan (for Differentiation).
- Schaum Series (for Basic Maths).
- Shantinarayan (for Coordinate Geometry)
- Shantinarayan   (for Integration)

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BCA104 FINANCIAL ACCOUNTING AND MANAGEMENT

TEACHING		EXAMINATIONS				
HRS PER WEEK		INTERNAL		EXTERNAL 3HRS		
THEORY	PRACT	SESSIONAL	TERM WORK	THEORY	PRACT	TOTAL
3	-	20	10	70	--	100

1. **Accounting : Principles, Concept and Conventions (testing through objective questions only)**

   Double entry system of Accounting : types of Accounts; Journalising :   (15%)
   Introduction of Basic Books of Accounts of sole proprietary concern (i.e. subsidiary books excluding bank book but including three columnar cash book , ledgers. Closing of Books of Accounts and Preparation of Trial Balance.

   Accounting Cycle (the full cycle upto trial balance should be covered and   (10%)

   explained with illustrations covering around 10 sample transaction, using vouchers. Preparing Account from vouchers.

2. **Final Accounts :**   **(15%)**
   Preparation of Trading Account, Profit and Loss Account and Balance Sheet of a sole proprietary concern and partnership firm, with simple adjustments. Closing entries should be explained and clarified.

   Balance sheet of a limited company (Only Vertical formats) (The formats and its importance should be explained to the students) (In the examples/problems, the detailed presentation of Gross/Net block Assets is not expected.)

3. **Computerised Accounting :**
   Overview of Financial Accounting software (e.g. Tally, Ex, Microsoft Financial) Minimum 5 hours hands on training on the package software is compulsory. (out of 25 marks, 5 marks will be allotted to this chapter in term work)

4. **Financial Management : Meaning and Role**   **(20%)**

5. **Ratio Analysis :**
   Meaning ; Advantages; Limitations, Types of ratios i.e classification of ratios from different angles. Computation of the following ratios is expected from the direct data provided:
   (i) Gross Profit Ratio; Net Profit Ratio ; Operating Ratio

(ii) Current Ratio ; Liquidity Ratio (also known in general as Acid Test Ratio)

(iii) Stock Turnover Ratio; Debtors turnover (including calculation of average no of days credit is allowed) ; Creditors Turnover (including calculation of average number of days credit is available from suppliers)

(iv) Debt-Equity Ratio (Total Debt/Equity and Long Term Debt/Equity Ratios)

6. Cash Budget :   **(10%)**

Preparation of simple cash budget.

7. Costing :

Nature ; importance and basic principles of costing ; method of costing (only a brief theoretical explanation is expected)

Elements of Costs : i.e. materials,labour,overheads(including explanation of Direct and Indirect costs; Fixed, Variable and Semi-fixed/Semi-variable costs')

8. Unit Costing :

Preparation of simple Cost Sheet/Statement, Covering various element of cost and also indicating Prime cost; Factory or Production or Manufacturing cost; Cost of Production ; Total Cost ; Profit ; Sales.

(30%)

9. Marginal Costing :

Nature , scope, and importance – Break-even Analysis : Its uses and limitations-simple sums on computation of BEP in terms of units and sales (even when data regarding unit is not provided) and sales required to earn an expected amount of profit (in terms of unit and sales even without unit data being provided)- explaining Break-even Chart (in theory only).

References :

- Principles and Practice of Accountancy,R.L.Gupta-V.K.Gupta, S. chand & Sons
- Cost Accountancy(Theory,Problems and Solutions),P.V.Rathuam & D. Hanumantha Raju, Himalaya Publishing House
- Principles and Practice of Accountancy, Tulsian
- Financial Accounting, Inamdar S.M.
- Element of Book-Keeping and Accountancy for Std. XIth, XIIth, Guj. State Text Book Board.

No Practicals
Term Work should be based on syllabus

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BCA105 INTRODUCTION TO INTERNET AND HTML SCRIPTING

TEACHING		EXAMINATIONS				
HRS PER WEEK		INTERNAL		EXTERNAL 3HRS		
THEORY	PRACT	SESSIONAL	TERM WORK	THEORY	PRACT	TOTAL
3	2	20	10	70	50	150

INTERNET CONCEPTS **(30%)**

Introduction to Internet: **(15%)**

> Network: its types and topologies, About Internet, Internet connections: Dial Up connection, Direct connection and broadband connection, Internet Address, URL, ISP, Intranet, Extranet, VPN.

Applications of Internet: **(15%)**

> WWW, Search Engines, News-group, E-mail and its Protocols, Web portals, Chat, Audio and Video conferencing, FTP, Remote login, Introduction to e-commerce, e-learning, e-governance, e-banking

Getting connected onto internet and visit popular web sites. (to be covered in Laboratory)

STATIC WEB PAGE DEVELOPMENT **(40%)**

> Introduction to HTML, HTML Document structure tags, HTML comments, text formatting, inserting special characters, anchor tag, adding images and sound, Lists: types of lists, Tables, Frames and floating frames, Developing forms.
> Introduction to Front Page. **(5%)**

DYNAMIC WEB PAGE DEVELOPMENT **(25%)**

Cascading style sheets: (5%)

> Introduction to CSS, Types of style sheets, Implementation of font , color, text and border attributes in CSS.

JavaScript: (20%)

Introduction to JavaScript, Using operators, control statements, user defined functions, Working with built-in objects: window object, document object, string object, array object and date object. Handling events in JavaScript

Text-Book

- Web Enabled Commercial Applications development using… HTML, DHTML, JavaScript, PERL CGI., by Ivan Bayross, BPB Publication

Reference books

- The Internet Book, by Douglas E Comer, PHI Publications
- Internet an Introduction , CIStems School of computing, TMH publication
- The complete reference HTML, by Thomas A Powell, TMH publications.
- Mastering HTML 4.0 by Deborah S. Ray and Erich J. Ray, BPB Publication.

Practicals based on Syllabus and Development of web site based on above concepts.
Term Work should be based on Syllabus

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BCA106   PC SOFTWARE

TEACHING		EXAMINATIONS				
HRS PER WEEK		INTERNAL		EXTERNAL 3HRS		
THEORY	PRACT	SESSIONAL	TERM WORK	THEORY	PRACT	TOTAL
2	4	20	10	70	50	150

Operating Systems:

Concept of operating system, examples of operating system **(10%)**
What is an operating system? Why is it required ? Different types of operating system available.

CUI Operating System
DOS

Booting Process, DOS features, comparison with GUI, file naming conventions, wildcard characters, purpose of commands: DIR, MD, RD, CD, COPY, TYPE, DEL, REN, PROMPT, DATE, TIME , CLS, VER, MOVE.

GUI Operating System **(15%)**
WINDOWS 98/2000

Concept of Windows, General features of windows: Desktop, Icon, My computer, My Document, Network neighborhood, Recycle bin, Start menu, Taskbar, Windows explorer, Control panel, creating folder, finding files and folders, copying and moving files, deleting files, creating shortcuts, Scan disk, Defragmentation, Importance of DOS within Windows, Difference between Server and Workstation, Introduction to Client /Server.

Word Processing Package: **(20%)**

Create, edit, save, print , navigating documents, different views, formatting, cut-copy-paste, find and replace, word wrap, alignment, tabs, inserting-tables-hyperlink-pictures-charts-AutoText-header-footer-footnote- endnote-comments-bookmark, Autocorrect, spell checking, thesaurus, protecting a document, mail merge, macros, templates.

Presentation Package :   **(15%)**

Creating-editing-printing slides, different views, using text, drawings, tables, pictures, charts and other objects in slides, Custom and Preset animation, Slide transition effects, Running slide show, Custom shows, Rehearse timing, Pack and Go, Speaker notes, Pen

Spreadsheet Packages :   **(30%)**

Concept of workbook-worksheet-workspace, Cell, Range, Types of data, formatting, Conditional formatting, Fill series, Entering formula, Absolute-Relative-Mixed addressing, cut-copy-paste-paste special, Hyperlink, Functions: SUM, COUNT, MIN, MAX AVERAGE, TODAY, NOW, IF, SUMIF, COUNTIF, UPPER, LOWER, ROUND, VLOOKUP, HLOOKUP, DAYS360, Creating Charts, Protecting and hiding data, data filtering: Autofilter-Advance filter- Dataforms-Validation-Consolidation, Whatif Analysis: Goal Seek-Scxenario-Data table, import-export of data, Charts, Types of Errors.

Outlook Express :   **(5%)**

Introduction, Creating account, Sending, Receiving, Managing and Organizing e-mail, Address Book.

Computer Viruses   **(5%)**

Introduction to Computer Virus, Types of Virus, Prevention and Cure.

Text Book :

- PC Software for Windows Made Simple, R.K.Taxali, TMH

References:

- Microsoft Office 2000 No experience required, Courter Marquis, BPB Publications
- MS Office 2000 for everyone, Sanjay Saxena, Vikas Publishing House Pvt Ltd.
- The complete reference Office 2000, Stephen L Nelson, TMH

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BCA107 Computer Fundamental & Data Processing

TEACHING		EXAMINATIONS				
HRS PER WEEK		INTERNAL		EXTERNAL 3HRS		
THEORY	PRACT	SESSIONAL	TERM WORK	THEORY	PRACT	TOTAL
3	2	20	10	70	50	150

Part A: **(5%)**
Computer Fundamentals

Defination and Block Diagram of Computers
Types of Computers : Personal Computer, Laptop Computer, Palmtop
Computers

Basic Concept of S/W and H/W **(10%)**

Introduction to H/W
Input Devices
KeyBoard, Mouse, OCR, MICR, BCR, Scanner, Touch Screen, Electronic
Pen, Digital Camera, Web Cam
Output Device
VDU, Printer(dot Matrix, Ink – Jet, Laser), LCD Projector, Multi
Functioning Device
Introduction to Software
Types of S/W
Application Software
System Software
Utility Software

Memory Organization **(10%)**

Primary Memory
Ram , Rom, Cache
Secondary Memory
Hard Disk, Floppy Disk, CD, DVD, Pen Drive, Zip Drive
Introduction to Emerging Technologies
USB, Blue Tooth, Infrared

Part- B (30%)
Introduction to Electronic Data Processing (15%)

Data, Information and data processing cycle
Methods of data processing –manual& electronic

Introduction to Online Processing, Batch Processing, Realtime Processing,Time Sharing, Multiprogramming Systems, Multi Processing Systems, Distributed Data Processing ,Concept of Grid Computing Spooling Modular Programming, Advantages and disadvantages of electronic data processing

Files (15%)

Types of files :
Master and transaction file, back-ups
File Operations
File Sorting, Searching, Merging, Matching, Summarizing
File Organization
Sequential file organization, Direct Access file organization ,
Index sequential file organization, Advantages and Disadvantages of different file organization.

Part-C DBMS Package (MS ACCESS/ Star Office/ Open Office) : (45%)

DBMS concepts, creating database, tables, fields and its properties, data types, primary key, adding/editing data, navigating, sorting, filtering, designing queries in design view & SQL view (Select, where , group by, having , order by, Aggregate functions: max, min , sum , count) using forms, report generation facilities, relationships, macro.

Text Books :

- Fundamentals of Computers, P.K. Sinha, BPB
- Introduction to Computer Data Processing & Systems Analysis, V.K.Kapoor, Sultan Chand & Sons
- Teach yourself ACCESS 97, Seigal, BPB.

References :

- Fundamentals of Information Technologies , S. Jaiswal, Galgotia
- Fundamentals of Computers , V. Rajaraman, PHI

- Data Processing & Information Technology , C.S.French BPB
- ABC of MSACCESS, Cowart, BPB.
- Working in MS OFFICE ,Ronmansfield, TMH
- ACCESS 2000 – The Complete Reference , Anderson, TMH

Practical Based on MS ACCESS

Term Work should be based on syllabus.

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H. L. INSTITUTE OF COMPUTER APPLICATIONS

FY / SY / TY – BCA

CLASS TEST / ON-LINE TEST

- Class test / On line test for each subject will be conducted periodically.
- For each term, there will be minimum 5 tests for each subject.
- Presence is compulsory in each test. If student is absent for the test, he / she will be given zero mark.
- Marks of all class test has due weight age in the internal marks of the respective subject.

TERM WORK

- Students have to submit term work of respective subjects to the faculty member as per schedule.
- Late submission will not be allowed and for that term work, the marks will be given zero.
- Weight age of each term work will be decided by the faculty.
- Clearly write Name, Class, Division and Roll No. on the file.
- Use Spring files and A4 size ruled papers.
- Index page should be filed properly.
- Collect the evaluated term work file from the faculty as per schedule.