GUJARAT UNIVERSITY – T.Y. BCA SYLLABUS

TEACHING AND EXAMINATION SCHEME

SUB NO	SUBJECT	TEACHING		EXAMINATIONS				
		HRS PER WEEK		INTERNAL		EXTERNAL		TOTAL
		THEORY	PRACT	SESSIONAL	TERM WORK	THEORY 3 HRS	PRACT 3 HRS	
	Passing Marks			7	4	25	18	
BCA301	Data Communication And Networks	3	-	20	10	70	-	100
BCA302	Database Management System	3	2	20	10	70	50	150
BCA303	Internet Technologies	3	2	20	10	70	50	150
BCA304	Multimedia And Applications	3	2	20	10	70	Viva 50	150
BCA305	Web Site Development And E-Com	3	2	20	10	70	50	150
BCA 306	Optional Subjects							
ELECTIVE	1. Software Project Management.	3	2	20	10	70	-	100
	2. Enterprise Resource Planning.	3	-	20	10	70	-	100
	3. Data Security.							
	4. Object Oriented.			20	10	70	-	100
		3	- 2	20	10	70	-	100
	Passing Marks				18	-	54	
BCA 307	System Development Project	-	4	-	50	-	150	200
TOTAL		18	14	120	110	420	350	1000

BCA 301 DATA COMMUNICATION AND NETWORKS

DATA COMMUNICATION   (15%)

Introduction, Ancient methods of communications, Electronic method of communication, computerised communication, Digital and Analog data, Communication System and Channel, Multiplexer, Asynchronous and Synchronous Data, Data Transmission modes.

TRANSMISSION MEDIA   (15%)

Introduction, Twisted pair wire, Coxial cable, Radio,VHF, Microwave & Satellite Link, Infrared and Millimeter waves, Optical Fibers.

DATA MODEMS   (10%)

Introduction, Concept of Modulation, Amplitude,Frequency and Phase ShiftKeying, Base & Broad Band Transmission.

MULTICHANNEL DATA COMMUNICATION   (15%)

Introduction, Circuit channel and concept of multichannelling, Time Division Multiplexing (TDM), Frequency Division Multiplexing(FDM), Pulse Code Modulation,Codecs.

DATA NETWORKS   (10%)

Introduction, Packet & Circuit Switching, Private Branch Exchange, Topology, Different Topology, Logical Types of Topology.

NETWORK PROTOCOLS   (15%)

Introduction, Protocol,OSI Model, Data Link Protocol, Error detection and correction, LAN(Ethernet & Token Ring), X.25 Protocol, Satellite Network, Satellite Polarised Transmission, ISDN, ARCNET, TCP/IP,SONET, SWITCHING.

FIBER OPTIC COMMUNICATION   (10%)

Introduction, Optical Source, Propagation in Fiber, Light Detector, Fiber Distributed Data Interface, Advantage of Fiber Optic Cables, Fiber Optics Networks.

DATA COMMUNICATION SYSTEM   (10%)

Introduction, Fascimile(FAX), Satellite Communication, Multiple Access Techniques, HUB & VSAT Equipments, Digital Exahange.

TEXT BOOK :

- Data Communication And Networking, By Dr. M.Jain, Satish Jain, (BPB).

REFERENCE:

- Data Communications and Networking, 2nd Edition, By Forouzan, (TMH)

NO PRACTICALS :
TERM WORK SHOULD BE BASED ON SYLLABUS ONLY.

BCA 302 *SYSTEM ANALYSIS AND DESIGN*

INFORMATION AND MANAGEMENT

Types of Information, Need of Computer Based Information Systems, Management Structure, Management and Information Requirements, Qualities of Information.

EXAMPLES OF INFORMATION SYSTEMS

Various Functions in Organisations, Information Processing for a Store, Varieties of Information Systems.

INFORMATION SYSTEMS ANALYSIS OVERVIEW

Overview of Design of an Information System, The Role and Tasks of a Systems Analyst, Attributes of a Systems Analyst, Tools Used by Systems Analyst.

INFORMATION GATHERING

Strategy to Gather Information, Information Sources, Methods of Searching for Information, Interviewing Techniques,Questioners, Other Method of Information Search, Case Example – Hostel Information System

25%

SYSTEM REQUIREMENTS SPECIFICATION

System Requirement Specification, Data Dictionary, Steps in Systems Analysis, Modularizing Requirement Specifications

FEASIBILITY ANALYSIS

Deciding on Project Goals, Examining Alternative Solutions, Evaluating Proposed Solution, Cost-Benefit Analysis, Payback Period, Feasibility Report, System Proposal

DATA FLOW DIAGRAMS

Symbols Used in DFDs, Describing a System with a DFD, Good Convention in Developing DFDs, Levelling of DFDs, Logical and Physical DFDs.

PROCESS SPECIFICATIONS

Process Specification Methods, Structured English , Some Example of Process Specification

35%

DECISION TABLES

Decision Table Terminology and Development, Extended Entry Decision Tables, Establishing the logical Correctness of Decision Tables, Use of Karnaugh Maps to Detect Logical Errors in Decision Tables, Eliminating Redundant Specifications

LOGICAL DATABASE DESIGN

Entity-Relationship Model, Relationship Cardinality and Participation, Relations, Normalizing   Relations, Second Normal Form Relation, Third Normal Form, Boyce-Codd Normal Form(BCNF), Forth and Fifth Normal Forms

DATA INPUT METHODS

Data Input, Coding Techniques, Detection of Error in Codes, Validating Input Data, Interactive Data Input

DATABASE MANAGEMENT SYSTEMS (DBMS)

Problem with File-based Systems, Database and Management Systems , Objective of Database Management Systems, Database Administrator, Database Design .

20%

OBJECT ORIENTED SYSTEM MODELLING

Object and their Properties, Implementation of Classes, Identifying Objects in an Application, Modelling Systems with Objects

DESIGNING OUTPUTS

Output Devices, Objective of Output Desing, Design of Output Reports, Design of Screens, Use of Business Graphics

CONTROL, AUDIT AND SECURITY OF INFORMATION SYSTEMS

Control in Information Systems, Audit of Information Systems, Testing of Information Systems, Security of Information Systems

ELECTRONIC COMMERCE

What is e-Commerce?, Advantage and Disadvantages of e-Commerce, e-Commerce System Architecture, Electronic Data Interchange, Security in e-Commerce, Electronic Payment Systems.

20%

SYSTEM DESIGN EXAMPLE

A System for Journal Acquisition, Document and Data Flow Diagrams, Feasibility of System, System Specification , Database Design , Control,Audit and Test Plan, Implementation Plan

TEXT BOOK:

- Analysis And Design Of Information Systems, 2nd Edition, By V Rajaraman, (PHI).
- Self Study Guide to Analysis and Design of Information Systems, By V Rajaraman, (PHI).

REFERENCE :

- Analysis And Design Of Information Systems By Senn J.A
- System Analysis and Design, 4th Edition, By Hawryszkiewycz, igor, (PHI).

NO PRACTICALS.
- TERM WORK SHOULD BE BASED ON SYLLABUS ONLY.

H. L. INSTITUTE OF COMPUTER APPLICATIONS, AHMEDABAD

BCA303   INTERNET TECHNOLOGIES

JAVA INTRODUCTION AND EVOLUTION   (10%)

Java History, Features of Java, Difference between Java and C/C++, Java in Internet and World wide web, Browsers, Hardware and Software requirements, Java environment.

JAVA LANGUAGE OVERVIEW   (10%)

Structure of a Java program, Java tokens, Statements, Java Virtual machine, Command line arguments, Constants, Variables, data types, Scope of variables, Symbolic constants, Type casting, Operators and expressions, Decision making and branching/looping.

CLASSES OBJECTS AND METHODS   (15%)

Defining a class, object and method, Constructor, Inheritance, Overriding methods, Final classes and methods, Visibility control, Arrays, Strings and Vectors, Multiple inheritance.

PACKAGES   (25%)

Java API Packages, System Packages, Using and hiding a package, Hiding a class.

MULTITHREADED PROGRAMMING AND EXCEPTION HANDLING

Creating Threads, Extending Thread Class, Stopping and Blocking method, Thread Lifecycle, Thread methods, Thread exceptions and Thread priority. Types of errors, exceptions, multiple catch statements, throwing our own exceptions.

APPLET & GAPHICS PROGAMMING   (15%)

Introduction to applets, difference between applets and applications, Applet codes, Applet life cycle, Designing a web page, Applet tag, Running the applet, Aligning the display, displaying numerical values, getting the input from the user. Introduction to graphics class, Lines, rectangles, circles, ellipses, arcs, polygons, line graphs, bar charts.

MANAGING INPUT/OUTPUT FILES IN JAVA   (15%)

Concept of streams, stream classes, byte stream classes, character stream classes, Other I/O classes, I/O exceptions, creation of files, interactive input and output.

ASP AND ECOMMERCE   (10%)

Introduction to ASP, ASP Objects, ActiveX Data Objects.

TEXT BOOK:

- Programming with Java, By E.Balagurusamy, (TMH).

- PRACTICALS. AND TERM WORK SHOULD BE BASED ON SYLLABUS ONLY.

REFERENCE:
- Complete Refrence Java 2 (Fourth Edition),By Schildt, H, TMH
- Using Java 2, By Weber J.L., (PHI).
- Masteing Active Server Pages 3, By Russell,(BPB).
- Practical ASP, By Bayross,(BPB).
- Teach Yourself Active Server Pages 3.0 in 21 Days, By Scott Mitchell and James Atkinson.

BCA 304 MULTIMEDIA AND APPLICATIONS

INTRODUCTION   (15%)

What is multimedia – definitions , Multiple Facets of Multimedia, Various Classifications.

MULTIMEDIA HARDWARE AND MULTIMEDIA SOFTWARE   (20%)

Introduction, Cards, Typical Multimedia System Configuration, Upgrade Kits, Plug and Play Revolution, Various types of Multimedia Softwares - Drivers, Players, Tools and Applications

MULTIMEDIA AUDIO   (20%)

Digital Audio Technology, Sound Card Fundamentals,Digital Audio Playback and Recording, MIDI Fundamentals.

MULTIMEDIA TEXTS   (20%)

Text as a part of Multimedia Project, Designing Texts for Multimedia, Fonts and there management, titling the text, Hyper Media, Hyper Text.

MULTIMEDIA GRAPHICS AND ANIMATION   (10%)

The world of colors, Digital Imaging Fundamentals, Digital Image Development and Editing,, Computer Animation fundamentals, Animation Software Tools and Techniques.

MULTIMEDIA PROJECT   (15%)

Multimedia Project Design Concepts, Multimedia Authoring, Project Planning and Costing, The Multimedia Team.

TEXT BOOK:

- Multimedia Magic, By S .Gokul, (BPB).

REFERENCE BOOK:

- Multimedia Making it Work(4th Edition), By Tay Vaughan, THM

- PRACTICALS AND TERMWORK SHOULD BE BASED ON SYLLABUS.

BCA 305   VISUAL AND WINDOWS PROGRAMMING

INTRODUCTION TO VISUAL PROGRAMMING   (10%)

Objectives, then windows environment, Programming in DOS v/s Programming in Windows, Editions in Visual Basic, Features of Visual Basic, Visual Basic Development Environment, Elements of a project, Control Categories, Commonly used standard controls, Creating a visual basic application.

PROGRAMMING CONSTRUCTS AND PROGRAMMING FUNDAMENTALS   (15%)

Data types, Variables, System Defined Functions,Control Structures, Loop Structures, With .... End With, Operators, Modules, Procedures, Some more controls, Errors, Debugging, Arrays, Control Arrays and Control Collections.

MENUS, USER INTERFACE CONTROLS, ERROR HANDLING   (15%)

Modifying menus at runtime, poup-up menus, Adding controls to toolbox, Microsoft windows common controls, Error-handling process, setting an error trap, exiting an error-handler.

UNIVERSAL DATA ACCESS   (15%)

ORACLE / SQL Server, Search based on conditions,, Joins, Data provider, service components, data consumers, ADO Objects, ADO Collections, Setting the data source, Data Reports, Microsoft Hierarchical FlexGrid Control.

PROGRAMMING WITH ADO   (10%)

Establishing a database connection, Multiple, Creating a connection object, multiple command objects, using a single connection, Stand-Alone connection object, executing stored procedure from command object, code for storing an output parameters, recordset types, different types of cursor locations, locks in ADO environment, navigating a recordset, data modifications.

ACTIVEX CONTROLS, EXE AND DLLS   (10%)

Creating Active X EXE and DLL's, Introduction to ActiveX Controls, Creating simple ActiveX Controls, The user control Object, Exposing the properties of ActiveX Control, Using ActiveX Control Interface Wizard, Property Pages, Adding Data Binding to ActiveX Controls, Distributing ActiveX Controls.

HELP FILES AND PACKAGING AND DEPLOYMENT   (5%)

Designing help files for an application, Help files, HTML help files, Deploying an application, distributing an application, deploying an Active X Control.

INTRODUCTION TO VC++ AND IDEA   OF BUILDING A BASIC   (10%)

APPLICATION IN VC++

(a)   Visual C++ basic
(b)   Looking at the interface elements
(c)   Idea of building a basic application in VC++ :

        1.   Understanding the application types.
        2.   Writing a console application.
        3.   Writing a dialog based application.
        4.   Writing a single document and HTML based document application.

UNDERSTANDING THE VC++ RESOURCES   (10%)

(a)   Wizard – supplied Resources – The About Box
(b)   Working with Accelerators, Menus and Toolbars

TEXT BOOK:

- Black Book Visual Basic, By Holzner S,(Dreamtech Press).
- VC++ 6.0 from GroundUp(2nd Edition), By John Paul Mueller,TMH(Chapters 1,2,3)

REFERENCE BOOK:

- Mastering Visual Basic 6, By Petroutsos,(BPB).
- Visual Basic 6 Programming Black Book, By Steven Holzner,(Dreamtech Press)
- Teach yourself Visual Basic in 21 Days, (Techmedia).
- Programming In Visual Basic 6.0, By Julia Case Bradley And Anita C. Millspaugh,(TMH).
- Practical VC++ 6.0, By Bates and Tompkins, TMH (Chapter 1,2,3,4)
- PRACTICALS AND TERM WORKS SHOULD BE BASED ON SYLLABUS ONLY

ELECTIVE – III   ADVANCED DATABASE MANAGEMENT SYSTEM

FILE SYSTEMS AND DATABASES   (5%)

Importance of database design, File system data management, structural and data
Dependence, field definitions and naming conventions, types of database systems,
Entity Relationship data model, the Object Oriented Database Model

THE RELATIONAL DATABASE MODEL   (15%)

Logical view of data, keys, integrity rules, indexes

STRUCTURED QUERY LANGUAGE(SQL)   (20%)

Introduction to SQL, DDL, DML,DCL, Advanced Data management commands,
complex queries and SQL functions, PL/SQL programming

TRANSACTION MANAGEMENT AND CONCURRENCY CONTROL   (15%)

Transaction, concurrency control, concurrency control with locking methods

DISTRIBUTED DATABASE MANAGEMENT SYSTEMS   (10%)

DDBMS system, Advantages and disadvantages, distributed processing and
distributed databases, DDBMS components

OBJECT ORIENTED DATABASES   (15%)

Object orientation and its benefits, object oriented concepts, characteristics of
Object oriented data model, OODM and previous model, Object oriented database
Management systems

DATABASE AND INTERNET   (10%)

Internet technologies and database, typical uses of internet databases,
intranets and extranets, Intranets architecture

          EXCLUDE 14.5.1 TO 14.6.3

DATABASE ADMINISTRATION   (10%)

Data as a corporate asset, the need for and role of databases in an organization,
Introduction of database (special consideration), the evolution of database
Administration function, the database environment's human component, the data dictionary

          EXCLUDE 15.6.2 TO 15.8.8

TEXT BOOK:

- Database Systems Fourth Edition, By Peter Rob and Carlos Coronel,
  (Course Technology Thomson Learning) – (Chapters 1,2,3,9,10,11,12,15)

REFERENCE:

- C.J.Date(7th Edition)

- PRACTICALS AND TERMWORK SHOULD BE BASED ON SYALLABUS

Guidelines - TYBCA - (BCA307 - SYSTEM DEVELOPMENT PROJECT) 2006-2007

Students of Third Year BCA have to undertake a *Systems Development Project* as part of study in third year. The following are the general guidelines for taking up this project and development of software:

1. Duration of this project will be from 1st August, 2006 to 31st January, 2007.

2. After classes, students can work on the project in an organization under the supervision of a qualified computer professional and internal faculty. Students may also use the Diwali and other holidays for completion of the project.

3. One copy of the complete and duly certified documentation of the project along with a soft copy of the software developed should be submitted to the institution by 31st January, 2007. Each student is required to keep one copy for him/her.

4. The Internal Guide from the institute will review the progress of the project periodically.

5. The students should try to get the projects in organizations of their choice, including Government and Semi-Government Departments, public sector organizations, educational institutions, small trading/business houses or private organizations.

6. The project must essentially be that of development of software and not of any study. The areas covered can be development of software for Web-based applications, business/administrative applications, scientific applications, systems/embedded software development or utility software development. Conventional projects like payroll, simple accounting applications, data storage and retrieval are not allowed.

7. Students may take up projects individually or in a group of 2 or 3 students only. Larger group size will not be permitted under any circumstances.

8. The documentation of the project should include Completion certificate obtained from the Organization and the respective Internal Guide, acknowledgement of help or support received from various individuals and organizations, introduction of the organization where project was undertaken, scope/description of the project, context diagram, detailed DFDs, data dictionary, coding scheme (if any), input forms, output forms and reports, sample outputs, comments on implementation etc.

9. The final evaluation of the project will be done internally as well as externally. Students will have to make presentation of the project and demonstration of the software before a panel of examiners and face the viva examination.

10. For Project Work, Internal marks are 50 and External Marks are 150. Total marks are 200.

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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.

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TYBCA - SEMINAR CIRCULAR

It is very important for our students to have sound knowledge of the IT related fields, including of the regular subjects. After completing graduation, when the students are facing interviews or taking up software development assignments, the additional knowledge will be of help. This is possible by way of reading technical journals and magazines, various IT related books, experimenting with the freeware available on the CD's, net surfing, attending technical lectures and seminars which most of the students must be doing.

It is preferred that students also share the technical information they have with their classmates. Considering this, it is planned that TYBCA students should prepare themselves for presenting a technical subject in classroom seminars. The seminar will be on any week day. The groups size will be of three to four students. The seminar topic will be assigned by the faculty member. The presentation should be rich in content and should be original, rather that a copy from a magazine or textbook.

Each group is allowed to present the topic in 20-30 minutes including question answer session. It is compulsory that each member of the group makes the some part of the presentation. The final document in the standard format should be submitted to the faculty before the presentation deadline (in soft and hard copy). The power point presentation using multimedia projector or OHP is allowed.

The presentation and the attendance in the seminar is compulsory for all the students. The presentation will be evaluated (out of 50 marks and will be appropriated in the internal marks) and the awards for the best three technical presentations in both the divisions will be announced at the end of the seminars.

The seminar paper should be strictly in the following format using MS Word 2000/XP.
Font size   : Times New Roman (12 points)
Paper size   : A4
Spacing   : Double

The cover page of each paper should include title, author name(s), abstract and each page should be properly numbered.

The group details and subjects assigned are displayed on the notice board.
Changes in the topics and groups are strictly not allowed.

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Marking Scheme

Roll No.	Name	Presentation skills (15)	Technical knowledge (20)	Q & A Session (10)	Presentation Manners (5)	Total (50)

The attendance in Seminar is compulsory. In case the group or group member fails to present the seminar, they are / member is required to give one more seminar on the topic given by the concerned faculty.