Bhavan's Vivekakanda College

Department of Computer Science

B.C.A I year/ ISEMESTER

Academic Organizer 2015-2016

Year-wise Lesson Plan

SUBJECT: FUNDAMENTALS OF INFORMATION TECHNOLOGY (BCA 143)

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a	Logical organization of Computer- Primary Memory-Organization, Central Processing Unit.	3	15
	b	Arithmetic and Logic Unit, registers, control unit, data and control paths between memory and CPU.	4	
	c	Instruction set, Instruction format, Instruction Execution, Memory technologies, Memory access time, cache memory	4	
	d	Input Output devices, Secondary storage media and devices, Types of Computers – PCs, Main frame, Parallel computers.	4	
II	a	Data, Information, Knowledge, Data Representation (BIT, BYTE, ASCII, UNICODE,EBCDIC)	3	15
	b	Communication ports, Instruction set, Instruction format, Instruction Execution, RISC versus CISC.	4	
	c	Application Software: Common features of software, window components (Desktop, My computer, Recycle bin, Internet Explorer, Windows Explorer) File, Folder.	4	
	d	word processing spread sheet, software for cyber space, Internet programming, HTML.	4	
III	a	Programming Languages-Introduction, Types (Machine Language, Assembly Language, High-level language), merits &demerits.	4	15
	b	Language Processors (Compiler, Interpreter, Assembler). Operating System-Introduction, Functions, types.	3	
	c	Popular operating Systems such as Windows and its versions, UNIX, OS/2. Dos-Introduction, Internal & External Commands.	4	
	d	General Software features-types of interfaces, Object Embedding and Linking.	4	
IV	a	File Concepts –Introduction, File, Record (Definitions only), File Management System.	3	15
	b	Sequential, Indexed Sequential &Direct Processing, Data Storage hierarchy.	3	
	c	Data Base Management System-Introduction, Advantages &disadvantages, applications, features, functions of DBA.	4	
	d	Information Systems -Introduction , CBIS , Components of CBIS , Types(Transaction Processing System. ,Management Information System) Management Levels , Phases in System Analysis and Design.	5	
		TOTAL NO OF PERIODS		60

Bharatiya Vidya Bhavan

BHAVAN'S VIVEKANANDA COLLEGE

OF SCIENCE, HUMANITIES AND COMMERCE

(Accredited with 'A' grade by NAAC)

Autonomous College, Affiliated to Osmania University

Department of Computer Science

B.C.A I Year/ I sem

BCA144 Programming in 'C' Language

Academic Organizer for 2015 - 2016

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	Introduction – Types of Programming Languages. Algorithms- Flow charts.	3	15
	b)	'C' Fundamentals: High Level Languages- Compiling programs – Integrated Development Environment – Language Interpreters –Running the program–Comments	2	
	c)	C-Tokens – Constants, Variable, Data Types, and Arithmetic Expressions. Operators.	4	
	d)	The printf and scanf functions – type casting.	1	
	e)	Decision making: The if statement – if else construct – Nested if statements – The else if construct – switch statement – conditional operator – go to statement.	5	
II	a)	Looping Statements: The while statement – The do statement – for statement, break statement, continue statement. Nesting of loops.	3	15
	b)	Working with Arrays: Defining an Array – Initializing Arrays - Multidimensional Arrays.	4	
	c)	Strings and string functions.	2	
	d)	Working with Functions: Defining a Function – Types of functions. Formal and Actual parameters. Function calling mechanisms – Call by value and Call by reference.	4	
	e)	Recursive Functions. Top down programming. Storage Classes.	2	
III	a)	Working with structures: Defining structure – Array of structures – Nested structures – Arrays within structure. Unions.	6	15
	b)	Enumerated Data types- The typedef statement.	3	
	c)	Pointers: Defining a pointer variable – using pointers in Expressions – Pointers with Memory allocation, de-allocation.	6	
IV	a)	The preprocessors: The # define statement. # include (user defined header files).	4	15
	b)	Input and output operations in 'C': character I/O – formatted I/O	4	
	c)	Input and Output operations with files – special functions for working with files (Sequential and Random).	7	
		TOTAL NO OF PERIODS		60

Department of Computer Science

B.C.A I year- I Sem .ISTA

Academic Organizer 2015-2016

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	Managerial View of IS – Functions of Management, Management role, Levels of Management, Frame work for IS, Sequence of development of IS.	8	15
	b)	Systems – Concepts, Boundaries, Structures, Inputs and Outputs, Subsystems, Interfaces, Environment. Working of a system,	7	
I&II	a)	Systems approach to problem solving, feedback, Control, Strategic uses of IS Impact of IT, Business process re-engineering.	8	18
	b)	IT and Business process. Applications of Information Systems to functional business areas: Operations and Transactions, The value and cost of information. Decision Levels, Data Capture, Data Quality, Role of Accounting	10	
II&III	a)	Transaction, Processing systems, Operational Information systems – Financial Accounting, Marketing, Production, Human Resource Management.	6	14
	b)	Organizational decision making supported by information systems: Decisions under Certainty, Uncertainty. Risk Models and Decision support, Introduction to Models-Physical process and business modeling.	8	
IV	a)	Business Modeling: Types of business models, processing undertaking, optimization, prediction, simulation, Group decision process. DSS and EIS	5	13
	b)	Decision in Business areas – accounting, finance, marketing, human resource management, production and design.	8	
		TOTAL NO OF PERIODS		60

Bhavan's Vivekakanda College

Department of Computer Science

B.C.A I year/ II SEMESTER

Academic Organizer 2015-2016

Lesson Plan

Subject : COMPUTER FUNDAMENTALS AND OFFICE(BCA243)

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a	Communication system elements. Communication modes-Analog and Digital, Synchronous and Asynchronous	5	15
	b	Simplex, Half duplex, full duplex, circuit switching, packet switching Communication media- twisted pair, coaxial, fiber optics.	4	
	c	wireless Common Network Components. Hosts and Servers, Work stations, modems, routers.	2	
	d	Network topologies, Network types, LAN, WAN, Distributed systems – processing, Databases, Client / Server, EDI	4	
II	a	IT applications – Business and Industry, Home, Education and Training, Entertainment, Science and Engineering, Medicine	4	15
	b	Types of browsers, Biometric techniques ,Security tips, Computer VIRUS.	3	
	c	Multimedia- Introduction, Applications, Virtual Reality: Introduction and Applications, Internet: World Wide Web, Addressing, Domain Names. Services.	3	
	d	Intranet: Office Communications. Electronic mail, Tele conferencing, Group Ware, Workflow. Electronic Commerce, Data warehousing, Data Marts, Online Analytical Processing, GIS.	5	
III	a	Word basics: Starting word, creating a new document, Opening preexisting Document.	2	15
	b	The parts of a Word window, Overview of Word Menu options Word Basic Tool Bar. Typing Text, Selecting Text, Deleting Text, Undo, Redo, Repeat, Inserting Text, Replacing Text, Formatting Text, Cut, Copy, Paste –	3	
	c	Printing. Formatting your Text and Documents- Working with Headers and Footers, Table operations, Macros, Mail Merge.	3	
	d	Power point: Creating Presentations- Using auto content wizard, Using Blank Presentation option, Using design template option, Adding Slides, Deleting a Slide.	3	
	e	Drawing in PowerPoint, Transition and Build effects, deleting a Slide, Numbering a Slide.	2	
	f	Saving Presentation, Closing Presentation, Printing Presentation elements	2	
IV	a	Excel Basics: Overview of Excel features, Getting started, Creating a new worksheet, Selecting cells entering and editing text.	2	15
	b	Entering and Editing numbers, Entering and Editing Formulas, Referencing cells,	3	
	c	Moving cells, Copying cells , Sorting cell data, Inserting rows, Inserting columns, Inserting cells, Deleting parts of a worksheet, Clearing parts of a worksheet. Excel Charts: Chart parts and terminology	3	
	d	Access : Creating a Simple Database and Tables: Creating a contacts Databases with the wizard,	2	
	f	The Access Table wizard, Creating Tables without the wizard, Field Names.	3	
	g	Data Types and Properties, Adding, Deleting fields, Renaming the fields in a table	2	
		TOTAL NO OF PERIODS		60

G.M

Bhavan's Vivekananda College

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Department of Computer Science

Academic Organizer for 2015 - 2016

BCA I YEAR/ II SEMESTER

BCA244: OBJECT ORIENTED PROGRAMMING WITH JAVA

Unit	Topic	Periods per Unit	Total Periods
I	**Java Evolution:** Java Features – How Java differs from C - Java and Internet – Java and World Wide Web – Web Browsers – Hardware and Software Requirements.	4	15
	Overview of Java Language: Simple Java Program – Java Program Structure – Java Statements – Implementing a Java Program – Java Virtual Machine – Command Line Arguments.	4	
	Java Tokens- Keywords, Constants , Variables – Data types – Declaration of Variables-Giving Values to Variables- Scope of Variables-Symbolic Constants-Type Casting-Operators	4	
	Operators-Arithmetic Operators – Relational Operators- Logical Operators – Assignment Operators – Increment and Decrement Operators – Conditional Operators – Bitwise Operators – Special Operators –Separators Expressions -Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Operators – Operator Precedence and Associatively.	3	
II	**Decision Making and Branching:** Decision Making with If statement – Simple If Statement-If else Statement-Nesting If Else Statement- the Else If Ladder-The Switch Statement – The?: operator. **Looping**: The while statement – The do statement – The for statement – Jumps in Loops.	7	15
	Fundamentals of Object Oriented programming: Object Oriented paradigm – Basic concepts of Object Oriented Programming – Benefits of OOP – Applications of OOP. Class, Objects and Methods: Defining a Class – Fields Declaration – Methods Declaration – Creating Objects – Accessing class members – Constructors – Methods Overloading – Static Members – Nesting of Methods – Inheritance – Overriding Methods – Final Variables and Methods – Final Classes – Abstract Methods and Classes – Visibility Control.	8	

III	**Arrays, Strings and Vectors:** One-dimensional Arrays-creating an Array, Two Dimensional Arrays.	3	
	Strings – Vectors – Wrapper Classes – Enumerated Types.	4	
	Interfaces: Multiple Inheritance: Defining Interfaces – Extending Interfaces – Implementing Interfaces – Accessing Interface Variables.	3	15
	Packages: Java API Packages – Using System Packages – Naming Conventions – Creating Packages – Accessing a Package – Using a Package – Adding a Class to a Package – Hiding Classes – Static Import	5	
IV	**Multithreaded Programming:** Creating Threads – Extending the Thread Class – Stopping and Blocking a Thread – Life Cycle of a Thread – Using Thread Methods – Thread Exceptions	7	15
	Thread Priority – Synchronization. Exception handling: Managing Errors and Exceptions: Types of Errors – Exceptions – Syntax of Exception Handling Code – Multiple Catch Statements – Using Finally Statement – Throwing our own Exceptions – Using Exceptions for debugging.Throwing our own Exceptions – Using Exceptions for debugging.	8	
			60

Department of Computer Science

B.C.A I year- II Sem .MIS

Academic Organizer 2015-2016

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	Unit-1: Group DSS: Decision making, Distributed DSS technologies, executing Information systems, EIS components, making EIS work. Planning and development of IS:IS planning. Determination of Information requirements.	8	15
	b)	Business systems planning, End/Means analysis. Organizing the IS plan. Systems Analysis and design – System Development Life Cycle, Prototyping.	7	
I&II	a)	Unit-1: SSAD project Management cost benefit analysis, Detailed Design and Implementation.	8	18
	b)	Unit-2 Marketing research process: Sources and methods of gathering marketing information, respondents, experiments, simulation (as a source of data generations) and panels.	10	
III	a)	Unit-3 Human Resource Management: Definition, evolution, objectives, scope and functions of HRM.HRM typology, system, strategy. Management of Information Systems: Management Control.	6	14
	b)	Control Theory, control of systems development, control of operation, auditing, management of technical environment.	8	
IV	a)	Unit-4 Management of information systems: CEO Responsibilities, allocation of responsibilities in distributed data processing.	5	13
	b)	IS Security risks, common controls, common threats, IS protection, Social Implications, Social responsibilities.	8	
		TOTAL NO OF PERIODS		60

Department of Computer Science
B.C.A II/I, Organization and Functions
Academic Organizer 2015-2016

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	Management - Definition, types of managers, responsibilities, tasks	2	14
	b)	Leadership and motivation - nature of leadership, leadership theories, delegation	3	
	c)	defining motivation, motivation theories, defining needs, motivation techniques	3	
	d)	time, characteristics of management tasks, determining time elements, time management techniques	3	
	e)	Organization - definition, structures, quality, organizational change, managing change	3	
II	a)	Financial Management - Financial environment- basics, financial accounts, inflation, profitability, Budgets and controls, Obtaining finance, valuing a company	3	12
	b)	Costing - cost accounting, valuation of stock, allocation of overheads, standard costing, variances, marginal costing	4	
	c)	Investment Decisions - definition, ranking process, payback period, average rate of returns, discounted cash flows	5	
III	a)	Project and operations management - Project planning and control - projects and management, network analysis	4	12
	b)	analysis, planning under uncertainity	3	
	c)	Manufacturing operations - manufacturing environment, experience curve, manufacturing technology, global operations, logistics, design, quality	5	

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
IV	a)	Marketing and Sales management- Markets and Marketing- market, marketing information, market segmentation, consumer and industrial markets	5	10
	b)	distribution - product management, pricing, marketing communications, sales, physical distribution	5	
V	a)	decisions, decision making process, decision making techniques	4	12
	b)	Mathematical models in decision making - Modeling, linear programming, inventory control, queues, competitive strategy	4	
	c)	Forecasting - Forecasting the future, qualitative methods, time series, casual methods	4	
		TOTAL NO OF PERIODS		60

Bhavans Vivekananda College

Department of Computer Science

B.C.A II/I Semester, Data Structures

Academic Organizer 2015-2016

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	Programming paradigms, Object Oriented Programming Concepts, Advantages and Applications of OOPs	3	12
	b)	Call by value, call by reference, Inline Functions, Function Overloading, Recursion	5	
	c)	Introduction to Arrays, Arrays in functions, Programming with Arrays and multidimensional Arrays	4	
II	a)	Classes, Abstract data types	3	12
	b)	Friend Functions and Member Functions	4	
	c)	Constructors, Destructors, Strings	3	
	d)	Pointers and Dynamic Arrays	2	
III	a)	The notation of inheritance, derived classes, overriding	4	12
	b)	Virtual Base Class, Virtual functions, Polymorphism	4	
	c)	Exception Handling, Function Templates, Class Templates	4	

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
IV	a)	Linear Lists, Stacks	4	12
	b)	Queues using Array Representation and Linked Representation, Applications of Stacks and Queues.	4	
	c)	Hashing, Collision Resolution	4	
V	a)	Binary Trees, properties, Representation, and Traversals	4	12
	b)	AVL Trees, Operations on AVL Trees, B-Trees	5	
	c)	Graphs: Definition, Representation, Traversals	3	
		Total		60

Department of computer science
BCA-II/I SEM. I.T HARDWARE
Academic Oragnizer 2015-2016

UNIT	Details	Periods	Total
	SUB TOPICS	**topic wise**	**classes**
UNIT-I	A)Overview of computer systems– features and components. Mother board – Types, Components; Form factors, interface connections,	5	12
	B)Bus-Introduction, types-ISA, MCA, EISA, Local Bus, Fire wire, USB, System resources	3	
	C)Microprocessor – Processor specification and latest Processors, Motherboard ROM BIOS, BIOS Basics	4	
UNIT-II	A)Memory – System logical memory, physical memory – RAM types, cache	3	12
	B)Power supply – Functions and operation, power protection systems	4	
	C)I/O devices – Keyboards, mice, Touch screen / Touchpad, Printers, Speakers, UPS	5	
UNIT-III	A)Video Display– Monitors and Types, Video cards-types,	4	12
	B)Communications – Serial ports, parallel ports, Fire Wire Port, USB, components of LAN, LAN cables, PCMCIA	5	
	C)Audio – sound card – Applications, concepts and terms, characteristics options, installation	3	
UNIT-IV	A)Hard disk drives– Definitions, Form – Factors, Operation, Components, Features, Hard Disk Interfaces – choices, IDE, SCSI;	6	12
	B)Removable Storage : DVD, Blue ray disk, USB flash drive specifications, disk and drive formats.	6	
UNIT-V	A)Building a system– Tools for maintenance. Disassembly and reassembly procedures, preventive maintenance. Active preventive maintenance, Hard disk maintenance,	4	12
	B)passive preventive maintenance.,Diagnostic tools – POST, IBM Diagnostics, general purpose diagnostic programs, Disk Diagnostics	4	
	C)Operating Systems software and troubleshooting - Input devices, Audio / Video cards, Motherboard, Memory, Processor	4	
	Total number of periods	**60**	**60**

Department of Computer Science
B.C.A II/IIYear, Operating Systems
Academic Organizer 2015-2016
Year-wise Lesson Plan

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	Operating Systems - functions, virtual computer Hardware Interface - CPU , memory and addressing, Interrupts, I/O devices	3	12
	b)	Operating System Interface - System calls, example system call interface, naming OS objects, Devices as files, Process concept, Communication between processes, standard input and output, OS examples, shell	3	
	c)	Processes - creation, states, dispatching, system stack, timer interrupts, System initialization, process switching, System call interrupt handling	3	
	d)	Disk driver subsystem, implementation of waiting, flow control, signaling, interrupt handling, event and table management, process tables and process descriptors	3	
II	a)	IPC pattern - Mutual exclusion, signaling, rendezvous, producer-consumer, client-server, database access and update	3	12
	b)	Deadlock - conditions for deadlock, dealing with deadlocks, two-phase locking	3	
	c)	Message passing variations - Synchronization, Semaphores, program language based synchronization primitives, IPC and Synchronization	3	
	d)	Thread - concept, system calls, advantages, uses, examples	3	
III	a)	Memory management - Linking and loading a process, dynamic linking, examples of dynamic memory allocation, multiprogramming issues, memory protection, memory management system	4	12
	b)	Virtual memory - dealing with fragmentation, virtual memory implementation, management, daemons and events, file mapping, page	4	
	c)	Segmentation, Sharing memory, examples of virtual memory systems	4	

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
IV	a)	I/O Devices - Devices and controllers, Disk drives, disk controllers ,I/O System software, Device driver access strategies	3	12
	b)	Unification of Files and devices, Generalized disk device drivers, Disk caching, Examples of I/O systems	3	
	c)	File System - need for files, file abstraction, file naming, file system objects and operations, implementation of file system, example of file system	3	
	d)	File System organization - file descriptors, locating file blocks, file system reliability, security and protection, examples of file systems	3	
V	a)	types of resources, protection of resources, user authentication, protecting hardware resources	4	12
	b)	Mechanisms for software protection, examples of protection attacks, protection examples. cryptography in computer	4	
	c)	Client-Server model - System processes, Micro-kernel OS, development towards a distributed system	4	
		TOTAL NO OF PERIODS		60

Bhavans Vivekananda College

Department of Computer Science

B.C.A II/II Semester, Database Design

Academic Organizer 2015-2016

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	Database environment: Basic concepts & Definitions, Traditional File based system, Limitation of file based approach	3	12
	b)	Database Approach, DBMS, Database applications, Components of DBMS environment, advantages & disadvantages of DBMS, Evaluation database systems	5	
	c)	Information Development process, SDEC, ANSI/SPARC, Three-schema architecture, 3-tier architecture, case studies.	4	
II	a)	E-R Model -Entities, attributes, Relationships, degree and cardinality, entity types versus entity instances - case studies	2	12
	b)	Enhanced E-R model-super type, sub type, specialization and generalization, constraints, disjointness	4	
	c)	Subtype discriminator, super type /subtype hierarchies, business rules, scope classification, structural constraints operational constraints, case study	3	
	d)	Relational model - Definitions, integrity constraints, transforming EER diagrams into relations, case study	3	
III	a)	Relational algebra and calculus-operators of relational algebra, relational calculus SOL -1 history, role, environment, defining databases in SOE	3	3

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
III	b)	inserting, updating and deleting data, Internal schema, processing single tables, processing multiple tables, view definition, transaction integrity, triggers and procedures, case study	4	9
	c)	Normalization: need for normalization, The normalization process: 1-NF.2-NF,3- NF, improving the design, Surrogate key consideration, Higher level normal form: CNF,4NF,normalization and Database design process, Demoralization, case study	5	
IV	a)	client/server architectures, three-tier architecture - partitioning, middleware, Security issues	3	12
	b)	Database access from client applications-using query by example, building a client applications, using OLE, COM and Active X controls, embedded SOL, VBA, building Internet Database Servers	5	
	c)	Distributed databases -Data replication, partitioning transparency, concurrency and commit protocol, distributed database products	4	
V	a)	Database Administration role of data and database Administrator, modeling and planning for database, managing data security backing up databases, controlling concurrent access, managing data quality and dictionaries and repositories, tuning the database, case study	5	12
	b)	DBMS selection and Implementation - analyzing information needs, DBMS functions and capabilities, future requirements, feature availability and performance, evaluation models, implementation issues	5	
	c)	Professional,Legal, and Ethical Issues in Data Management	2	
		Total		60

Department of Computer Science

B.C.A II year II Sem . WEB TECHNOLOGIES

Academic Organizer 2015-2016

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	**UNIT-I:** Introduction to World Wide Web, Web Browsers, Web Servers, Uniform Resource Locators, HTTP	6	11
	b)	Basic of HTML5, Adding the content: Links, Images, Multi Media, Lists, Tables, Creating Forms, Styling Forms.	5	
II	a)	**UNIT-II:**-Introduction to XML, XML document structure, Document Type Definition, Namespaces, XML Schemas,	6	13
	b)	Displaying raw XML documents, Displaying XML documents with CSS, X Path Basics, XSLT, XML Processors.	7	
III	a)	**UNIT-III** Introduction to Java script, java script and forms Variables, Functions, Operators, Conditional statements and Loops, Arrays DOM, Strings, Event and Event Handling, Java Script Closures.	5	11
	b)	Introduction to Ajax, Pre-Ajax java Script Communication techniques, XML Http Request Object,Data formats, Security Concerns, User Interface design for Ajax. Introduction to Python, Objects and Methods, Flow of Control, Dynamic web pages.	6	
IV	a)	**UNIT-IV** Java Servlets: Java Servlets and CGI Programming, Benefits of Java Servlet, Life cycle of Java Servlet, Reading data from client, HTTP Request header, HTTP Response header, working with cookies,	5	13
	b)	Tracking Sessions. Java Server Pages: Introduction to JSP, JSP Tags, Variables and Objects, Methods, Control Statements, Loops, Request String, User Sessions, Session Object, Cookies.	8	
V	a)	**UNIT-V** Introduction to PHP: Overview of PHP, General Syntactic Characteristics, Primitives, Operations, Expressions, Control Statements, Arrays, Functions, Pattern matching, Form handling, Files, Cookies, Session Tracking.	3	12
	b)	Database Access- Database access with Perl - Database access with PHP-Database access with JDBC.	5	
		TOTAL NO OF PERIODS		60

Department of Computer Science

B.C.A IIYear-IISem, Data Communications and Networking

Academic Organizer 2015-2016

Year-wise Lesson Plan

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	Introduction - Data communication, Networks, protocols and standards, standards organizations	2	12
	b)	Basic concepts - Line configuration, topology, transmission mode, categories of networks, internetworks	2	
	c)	OSI Model - layered architecture, functions of the layers	1	
	d)	Signals - Analog and digital, aperiodic and periodic signals, analog signals, digital signals	3	
	e)	Encoding - Digital to Digital, Analog to Digital, Digital to Analog, Analog to Analog	3	
	f)	Internal Exam -I	1	
II	a)	Interfaces and transmission - Digital data transmission, DTE - DCE interface, Interface Standards - EIA-449, EIA-530,X.21., Modems	3	12
	b)	Transmission Media - Guided media, Unguided media, performance	3	
	c)	Multiplexing - types, telephone system	2	
	d)	Error detection and correction - types of errors, detection, correction	3	
	e)	Internal Exam -II	1	
III	a)	Data Link control - Line discipline, flow control, error control	2	12
	b)	Data Link protocols - Asynchronous, Synchronous, Bit-oriented	3	
	c)	Local Area Networks - Project 802, Ethernet, Token bus, Token ring, FDDi	3	
	d)	Metropolitan Area Networks - IEEE 802.6, SMDS ,Switching - Circuit, packet, message, Network layer	3	
	e)	Internal Exam-III	1	

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
IV	a)	ISDN - Services, History, Subscriber access, layers, Broadband ISDN	3	12
	b)	X.25 - layers, packet layer protocol ,Frame Relay - layers, operation, implementation	3	
	c)	ATM - Design goals, topology, Protocol architecture	3	
	d)	SONET/SDH - physical configuration, layers, sonnet frame, multiplexing STS frames	3	
V	a)	Networking and Internetworking Devices - Repeaters, bridges, routers, gateways, routing algorithms	3	12
	b)	Transport Layer - duties, connection, OSI transport protocol	3	
	c)	Session layer, presentation layer, application layer	3	
	d)	TCP/IP - overview, network layer, transport layer, application layer	3	
		TOTAL NO OF PERIODS		60

Department of Computer Science

B.C.A III year I sem, Advanced Java

Academic Organizer 2015-2016

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	Java Beans- Concepts, using the bean box, properties,	3	6
	b)	events, bean info interface, bean customization, bean persistence	3	
II	a)	JDBC-Basics, JDBC API	7	12
	b)	Remote method invocation-Overview, RMI server, Client interface Java IDL	5	
III	a)	Servlets -overview, interfacing with clients, life cycle, saving client state,	6	12
	b)	servlet runner utility, exercises using servlets Java Server Pages	6	
IV	a)	Security -Overview ,Controlling applets,controlling applications,secure code and file exchange,	6	12
	b)	signing code and granting permissions,exchange files, generating and verfying signatures , JAR file formats	6	
V	a)	Java native interface -Overview, Writing java program with native methods, integrating java and native programs,	10	18
	b)	interfacing with java from native side, invoking JVM Reflection- Examining classes, Manipulation objects, Working with arrays	8	
		TOTAL NO OF PERIODS		60

Department of Computer Science

B.C.A III year- I Sem . Web Programming

Academic Organizer 2015-2016

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	Formatting, Logical HTML, Styles, Fonts, Headings, Presenting and Arranging text, Images	6	11
	b)	Links and lists, Tables, Frames, Multimedia, Style sheets	5	
II	a)	HTML -Forms and Controls	6	13
	b)	Java script - Programming Objects, Properties and Methods, Document ,Object, Window Events, object, Java script Location Object, History Object	7	
III	a)	Dynamic html-setting styles, Changing web pages, Mouse over effects,	5	11
	b)	Dynamic content, Animation, VML, Visual effects, Drag and drop, Data binding, MSHTML data source Control, Tabular data Control, XML data source	6	
IV	a)	XML- valid and Well-formed XML XML Documents, XML documents,	5	13
	b)	XML document type definitions, XML schemes, creation and specification of XML, Accessing XML data, parsing XML, handling events, Data binding, Record sets, XML applet, XML data islands	8	
V	a)	Perl .creating per! programs, Handling data, modules, objects, Statements and]Declarations,	3	12
	b)	Variables, Operators, Numbers, truth values, Strings, a list Arrays, Hashes, Control Structures, COT scripting	5	
	c)	Creating html controls in perl, Reading data from html controls, Image maps, Debugging	4	
		TOTAL NO OF PERIODS		60

Department of Computer Science

B.C.A III year-I Sem, OOSD & UML

Academic Organizer 2015-2016

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	Object oriented system development-Introduction, overview of the unified approach Object basics - Objects, classes, state and properties, behavior and methods, messages, encapsulation, class hierarchy, polymorphism, relationships and associations,	6	11
	b)	Aggregation and containment, object identify, static and dynamic binding, persistence, meta-classesObject-oriented system life cycle –Analysis, Design, Prototyping, Implementation, component based testing	5	
II	a)	Object-oriented methodologies- OMT, Booch methodology, Jacobson methodology, patterns, unified approach, Layered approach	4	12
	b)	UML- Introduction, UML class diagrams, Use-Case diagram. Interaction diagram, Sequence diagram, Collaboration diagram, Statement diagram, Activity diagram, component diagram	4	
	c)	Deployment diagram, packages, UML extensibility-Model constraints, note, stereotype, UML meta model	4	
III	a)	Object-oriented Analysis: Introduction, business Object analysis, use-case modeling, developing effective documentation, case studies	4	12
	b)	Object Analysis : Classifications theory ,Noun phrase approach, common class pattern approach, use-case driven approach, classes responsibilities and collaborators, naming classesObject Relationships, attributes and methods- associates, Super and sub classes relationships	5	
	c)	A-part-of relationship, class responsibilities, defining attributes, Object responsibility: Methods and Messages, case studies	3	

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
IV	a)	Corollaries .design patterns Design classes —Introduction, philosophy, class visibility, refining attributes, designing_methods_and	6	15
	b)	Access Layer -Object store and persistence, DBMS, logical and physical database organizations and access control, client-server computing, distributed objects computing, Object- relational systems, multi database systems, designing_access_layer,_classes,_case_studies	6	
	c)	View layer-User interface design, designing view layer, classes, macro level process,	3	
V	a)	Micro-level process, UI design rules, view layer interface, prototyping, case studies Software Quality Assurance-Quality Assurance tests, Testing strategies,Impact of object-oriented testing, test cases, test plan, continuous testing, Myer' s debugging principals, case studies	5	10
	b)	System Usability and Measuring user satisfaction-introduction, usability testing, user satisfaction test, user satisfaction test templates, case study, Document templates.	5	
		TOTAL NO OF PERIODS		60

Bhavans Vivekananda College
Department of Computer Science
B.C.A III Year / II Sem, Mobile Computing
Academic Organizer 2015-2016

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	Applications, history of mobile communications, reference model Wireless transmission .Frequencies, Signals, Antennas, Signal propagation, Multiplexing,	5	14
	b)	Modulation, Spread spectrum, cellular systems	4	
	c)	Medium access layer .Motivation, SDMA, FDMA, TDMA, CDMA Wireless LAN .Infrared vs. radio transmission, infrastructure, IEEE8O2. 11, HIPERLAN, Blue tooth	5	
II	a)	Key services for mobile internet. Mobile IP .Goals, assumptions, requirements, entities, IP packet delivery, Agent advertisement and discovery, Registration	5	13
	b)	Tunneling, Optimization, reverse tunneling, DHCP, Adhoc networks	3	
	c)	Mobile transport Layer .Traditional TCP, Indirect TCP, Snooping TCP, Mobile TCP, Fast transmit / Fast recovery, Transmission! timeout freezing, transaction oriented TCP	5	
III	a)	Wireless Application Protocol .Overview of WAP.WAP architecture, components, Network infrastructure, Design principles	5	11
	b)	WML .Document model, Basics, basic content, events, tasks and binding, variables, other content, controls, application security, other data	6	
IV	a)	Wireless binary extensible markup language WML Script .language basics,	6	12
	b)	Standard libraries. Script libraries. Script development User interface design .structured usability methods, design guidelines .user interface, selected WML elements	6	
V	a)	Tailoring content to client Push messaging	5	10
	b)	Wireless telephony applications Building and deploying End-to-End WAP services	5	
		TOTAL NO OF PERIODS		60

Department of Computer Science

B.C.A III year II Sem STM

Academic Organizer 2015-2016

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	Example test series first cycle, second cycle, subsequent cycles Objectives and limits of testing	5	14
	b)	Testing in software development process planning stage, design stage, glass box_code_testing,_regression_testing,_black_box_testing	4	
	c)	Software errors Reporting and analyzing bugs problem report: contents, characteristics; analysis of reproducible bug, tactics for analyzing a reproducible_bug,_making_a bug_reproducible	5	
II	a)	Problem tracking systems objectives, tasks, overview, users, mechanics, further thoughts on problem reporting	5	14
	b)	equivalence classes and boundary values, visible state transitions, race conditions, load testing	5	
	c)	error guessing, function equivalence testing, regression testing, executing the	4	
III	a)	Building a software testing strategy ,Establishing a software testing methodology	5	10
	b)	Determining software testing techniques ,Eleven steps of software testing process Overview, Assess project management	5	
IV	a)	Develop test plan, requirement phase testing, Design phase testing,	5	11
	b)	program phase testing, Test execution, Acceptance testing.	6	
V	a)	Test software changes Software maintenance definition, maintenance characteristics, maintainability, maintenance tasks, side effects,	5	11
	b)	Software configuration management configuration items, SCM process, version control, change control, configuration audit, status reporting.	6	
		TOTAL NO OF PERIODS		60

Department of Computer Science

B.C.A III year-II Sem, **E-Commerce**

Academic Organizer 2015-2016

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	Electronics Commerce - Overview, definitions, benefits, impact	5	10
	b)	Electronics commerce and the role of independent third parties	5	
II	a)	EDI - Traditional EDT, Data transfer and standards, EDT systems and internet	3	15
	b)	Risks of insecure systems - Overview, Internet associated risks, Intranet associated risks, social Engineering, Risks associated with business transaction, confidentiality, viruses	6	
	c)	Risk management - control weakness vs. control risk, Risk management paradigms, Disaster recovery plans	6	
III	a)	Internet Security standards - Standard setting committees, Security protocols and languages, messaging protocols	5	11
	b)	Secure Electronic Payment protocols Cryptography and authentication Messaging security issues, Encryption techniques, Key management	6	
IV	a)	Firewalls Electronic commerce payment mechanisms	6	11
	b)	Intelligent agents	5	
V	a)	Retailing in Electronic commerce - Business models of Electronic marketing, procedure for internet shopping	5	13
	b)	Advertisement in Electronic commerce - Web advertisement, Advertisement methods, strategies, push technology, online catalogs	4	
	c)	industries Business-to-Business Electronic commerce	4	
		TOTAL NO OF PERIODS		60

Department of Computer Science

B.C.A III year II Sem, EJB

Academic Organizer 2015-2016

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	Server-side component Architecture	4	9
	b)	Enterprise Java Beans Overview	5	
II	a)	Session Beans - Introduction, Stateless session bean, Stateful session bean	11	11
III	a)	Introduction, Bean managed Persistence, Container managed Persisten	11	11
IV	a)	Transactions COBRA and RMI-IIOP	8	13
	b)	Security Performance and Scalability	5	
V	a)	Designing considerations for J2EE Application Java Messaging Service, Building a complete J2EE Application	16	16
		TOTAL NO OF PERIODS		60