Department of Computer Science
B.C.A Iyear- 1st sem
FUNDAMENTALS OF INFORMATION TECHNOLOGY
Academic Organizer 2016-2017

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	Computer Basics : Introduction , Characteristics of a computers , applications of computers (Science , education ,medicine &health care entertainment ,banking)	5	18
	b)	classification of computers (Micro ,Mini , Mainframe, Super Computers), the computer system , Components of a computer system –input unit ,output unit , central processing unit (CPU),Arithmetic /Logic unit(ALU) ,	3	
	c)	registers ,Control unit(CU) ,main memory unit , cache memory, memory representation , Memory hierarchy –RAM & its types ,ROM & its types ,	5	
	d)	types of secondary storage devices, Instruction set , CISC &RISC(introduction, advantages and disadvantages only).	5	
II	a)	Programming languages: Introduction, program development cycle, characteristics of a good program, types of programming languages (Machine, Assembly, High-level languages),	3	18
	b)	Generations of programming languages, features of good programming language. Computer Software: Categories of software(System &Application Software)	5	
	c)	operating system: types & functions of O.S ,popular O.S like Windows &UNIX ,languages translators (Compiler , interpreter ,assembler).	5	
	d)	Data base fundamentals: Introduction ,data versus Information ,data base definition , File oriented approach Vs DBMS approach , physical data concepts(Sequential ,Direct ,indexed sequential) ,Data ware housing &data mining.	5	
III	a)	Data communications ,components , data transmission mode(Simplex ,half duplex ,full duplex modes) , analog and digital data transmission ,	4	15
	b)	, transmission media-guided media(twisted pair ,Coaxial cable ,optical fibre) & unguided media ,Asynchronous and synchronous transmission ,	6	

	c)	switching (circuit switching ,packet switching ,message switching) types of networks –LAN ,MAN, WAN .Network topologies(bus topology ,ring topology ,star topology ,tree topology, mesh topology)	5		
IV	a)	: Introduction ,basic internet terms(website ,website ,home page ,browsers) ,URL ,domain names, hyper text , getting connected to internet , types of internet connections (Dial-up ,ISDN ,cable modem ,leased line ,DSL, broad band)	3		
	b)	w.w.w , e-mail ,file transfer protocol(FTP) video conferencing , Computer Security: Definition ,Security threats ,malicious programs ,other destructive programs.	3	9	
	c)	Multimedia: introduction, building blocks of multimedia, desirable features of multimedia system, multimedia applications, virtual reality. E-commerce, advantages and disadvantages of e-commerce, Electronic Data Interchange (EDI).	3		
		TOTAL NO OF PERIODS		60	

Department of Computer Science
B.C.A Iyear- 1st sem ,PROGRAMMING IN 'C'
Academic Organizer 2016-2017

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	Introduction – Types of Programming Languages. Algorithms- Flow charts. 'C' Fundamentals: High Level Languages-	5	18
	b)	Compiling programs – Integrated Development Environment – Language Interpreters –Running the program	3	
	c)	Comments – C-Tokens – Constants, Variable, Data Types, and Arithmetic Expressions.	5	
	d)	. Operators – types of operators. The printf and scanf functions – type casting. – go to statement.	5	
II	a)	Decision making: The if statement – if else construct – Nested if statements	3	18
	b)	The else if construct – switch statement.	5	
	c)	Looping Statements: The while statement, do statement,	5	
	d)	for statement, break statement, continue statement, nesting of loops.	5	
III	a)	Working with Arrays: Defining an Array – Initializing Arrays – one dimensional Arrays, two dimensional Arrays. Strings and string functions(built-in functions).	4	15
	b)	Working with Functions: Defining a Function, Types of functions. Formal and Actual parameters.	6	
	c)	Function calling mechanisms - Call by value and Call by reference. Recursive Functions. Storage Classes(auto, register, extern)	5	
IV	a)	Working with structures: Defining structure, array of structures, nested structures, arrays within structure.	3	9
	b)	Pointers: Introduction to Pointers, Accessing the address of a variable, Declaring Pointer Variables, Initialization of Pointer Variables, Accessing a variable through its pointer.	3	
	c)	Dynamic Memory Allocation (Pointers with Memory allocation). The preprocessors: Macro Substitution (The # define statement), File Inclusion (# include - user defined header files).	3	
		TOTAL NO OF PERIODS	60	60

Department of Computer Science

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

Academic Organizer 2016-2017

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, Structure, 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 Reengineering, IT and Business Process.	8	18
	b)	Operations and Transactions, The value and cost of information, Decision Levels, Role of Accounting Transaction Processing Systems, Operational Information Systems - Financial Accounting, Marketing, Production. Human Resource Management.	10	
II&III	a)	Models and Decision Support: Introduction to Models- Physical, Process and Business modeling. Types of Business Models,Group Decision Process, DSS and EIS (Expert Information System).	6	14
	b)	Decision in Business Areas - Accounting, Finance, Marketing, Human resource Management, Production and Design.IS planning - Determination of Information requirements, Business systems planning, End /Means Analysis.	8	
IV	a)	Organizing the IS plan,Systems Analysis and Design - System Developmentlife cycle, proto typing, SSAD, project management cost benefit analysis, detailed Design, implementation.	5	13

b)		Management Control: Control theory. Control of systems development, control of operations,Auditing, management of technical environment, CEO responsibilities, Allocation ofResponsibilities in distributed data processingIS Security risks, common controls, common threats, IS protection, Ethical issues Societal implications, Social responsibilities.	8	
		TOTAL NO OF PERIODS		60

Department of computer science
BCA-IISEM. I.T HARDWARE
Academic Oragnizer 2016-2017

Unit	Details	Periods topic wise	Total classes
	SUB TOPICS		
UNIT-I	A)Overview of computer systems- features & components. Mother board-Form factors , interface connections	5	15
	B)Bus – Introduction, processor bus, memory bus, address bus, I/O Buses (PCI, PCI Express, AGP), Fire wire, USB, PCMCIA.	4	
	C)Microprocessor -Introduction – Processor specifications, Intel Processors basics (8008, 486, P4 & i4), Chipsets (North and south bridges)	6	
UNIT-II	memory layout, Physical memory- ROM types, RAM types	3	15
	B).Power supply -Power supply –Functions and operations, power protection systems (surge suppressors, line conditioners, backup power- UPS/SPS)	4	
	C).Input Devices -Input Devices – Keyboard, keyboard types, Keyboard switch design, interface connectors, mouse, mouse types and interfaces	4	
	D) Output devices – Touch screen/ Touch pad. Video Display – Monitors and types, Video card- types.	4	
UNIT-III	A).Communications - Serial ports, parallel ports, components of LAN, LAN cables, Network Topologies	2	15
	B)sound card - Applications, installation	3	
	C)Hard Disk Drives – components, operations, interfaces(IDE, SATA, SCSI).	4	
	storage capacities and drive formats, DVD- introduction, working principle, storage capacities and drive formats, BD- Blu-ray Disc introduction, buses of USB	6	
UNIT-IV	A).Building a system - Tools for maintenance, Disassembly and reassembly procedures, preventive maintenance-Active preventive maintenance	5	15
	B)passive preventive maintenance,Diagnostic tools - POST, IBM Diagnostics, .	5	
	C).General purpose diagnostic programs, Disk Diagnostics. Operating systems software, boot process-dos/windows, troubleshooting, Antivirus and trouble shooting	5	
	Total number of periods	60	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
BCA -I Year, II Semester (CBCS) 2016-2017
Programming in C++

Work Load: 60 Hrs.   **Credits: 4**

Unit	Topic	Periods per Subunit	Total Periods
I	**Beginning with C++:** Output operator, Input operator.	1	
	Structure of C++ program.	1	
	Tokens and Expressions: Tokens – Keywords, Identifiers, Constants.	1	
	Basic data types, Derived data types and User defined data types, Declaration of variables, Dynamic initialization of variables,	1	
	Types of Operators,	2	
	Manipulators, Type Cast Operator,	1	
	Expressions and their types and Operator precedence.		15
	Control Flow: Introduction, Statements and Block, Branching statements (if, if...else statement, nested if, switch),	2	
	Looping statements (while, do–while and for), break, continue statement.	2	
	Arrays and Strings: Introduction, Operations on Arrays:		
	Array definition, Accessing Array elements,	1	
	Accessing two-dimensional Array elements,	1	
	Strings, String Manipulations.	1	
		1	

II	**Modular programming with Functions:**		
	Introduction, Function components	1	
	Library functions		
		2	
	Parameter passing (Pass by Value, Pass by Address and Pass by Reference)		
	Recursive functions	1	
	Principles of OOP:		15
	Basic concepts of OOP	2	
	Benefits and applications of OOP	1	
	Classes and Objects: Introduction, Specifying a class	1	
	Creating objects, Accessing class members	1	
	Defining member functions, Inline functions, Nesting of member functions	2	
	Constructors and Destructors: Introduction, Constructors	1	
	Parameterized constructors	1	
	Constructors with default arguments	1	
	Copy constructors.		
	Destructors	1	
III			
	Inheritance: Introduction, Defining derived class	2	
	Single inheritance	1	
	Multilevel inheritance	1	
	Multiple inheritance	1	
	Hierarchical inheritance	1	15
	Polymorphism: Function overloading (**4 Ch**)	2	
	Defining Operator Overloading	1	
	Overloading with Unary Operator	2	
	Pointers(declaring and initializing pointers)	2	
	virtual functions	2	
	Ch-8, Ch-4, Ch-7, Ch-9 Refer Book 1		
IV	**Templates**: Introduction, Function Templates	2	
	Class Templates	2	
	Exception Handling: Introduction, Basics of Exception Handling,	2	
	Throwing Mechanism,	2	15
	Catching Mechanism	2	
	Multiple Catch Statements.	2	
	Revision	3	
TOTAL			60

Bhavans Vivekananda College

Department of Computer Science
B.C.A IISemester, Organizationsand Functions
Academic Organizer 2016-2017

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	Management - Definition, types of managers, responsibilities, tasks	3	15
	b)	Leadership and motivation - nature of leadership, leadership theories, delegation	3	
	c)	Defining motivation, motivation theories, defining needs, motivation techniques	3	
	d)	Time management - importance of 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. Budgets and controls, Obtaining finance, valuing a company	5	15
	b)	Investment Decisions - definition, ranking process, payback period, average rate of returns, discounted cash flows	7	
	c)	Decision making - The nature of decisions, decision making process, decision making techniques .	3	
III	a)	Project and operations management - Project planning and control - projects and management,	5	15
	b)	Network analysis,critical path, Gantt chart	5	
	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	7	15
	b)	Product management, sales and distribution - product management, pricing, marketing communications, sales, physical distribution	8	
		TOTAL NO OF PERIODS		60

Unit	Details	Periods	Total
	SUB TOPICS	topic wise	classes
UNIT-I	A)Overview of computer systems- features & components. Mother board-Form factors , interface connections, Motherboard Selection Criteria.	5	15
	B)Bus – Introduction, types – I/O Buses (ISA, Micro channel, EISA), Local Bus (VESA, PCI, PCI Express, AGP), Fire wire, USB.	4	
	C)Microprocessor -Microprocessor – Processor specifications, Intel Processors (8008, 80286, 386, 486, P1, P2, P3, P4).	6	
UNIT-II	A).Memory -Memory – Physical memory- ROM types, RAM types, Cache Memory	3	15
	B).Power supply -Power supply –Functions and operations, power protection systems (surge suppressors, line conditioners, backup power-UPS/SPS)	4	
	C).Input Devices -Input Devices – Keyboard, keyboard types, Keyboard switch design, interface connectors, mouse, mouse types and interfaces	4	
	D) Output devices – Touch screen/ Touch pad. Video Display – Monitors and types, Video card-types.	4	
UNIT-III	A).Communications - Serial ports, parallel ports, USB, IEEE1394, components of LAN, LAN cables, PCMCIA	2	15
	B).Audio - sound card - Applications, concepts and terms, characteristics options, installation	3	
	C)Hard Disk Drives – definitions, operations, form factors, components, features and interfaces (IDE, SCSI etc).	4	
	D).Optical storage – Introduction to CD-ROM, CD technology, capacities, drive formats, DVD-working principle, capacities, introduction to Blu-ray Disc, USB flash drive, types, comparison.	6	
UNIT-IV	A).Building a system - Tools for maintenance, Disassembly and reassembly procedures, preventive maintenance,	5	15
	B).Active preventive maintenance, Hard disk maintenance, passive preventive maintenance,Diagnostic tools .	5	
	C).General purpose diagnostic programs, Disk Diagnostics. Operating systems software, boot process-dos/windows, troubleshooting, Antivirus	5	
	Total number of periods		60

Bhavan's Vivekananda College
Accredited with 'A' Grade by NAAC
Department of Computer Science
Academic Organizer for 2016 - 2017
BCA III SEMESTER
GUI PROGRAMMING & DATA STRUCTURES (Using
LESSON PLAN

Unit	Sub Unit	Topic	Periods per subunit
I	a)	Applet class-two types applets,Appletbasics,Appletarchitecture,an Applet skeleton,simple Applet display methods,requestingrepainting,a simple Banner Applet,using Status window,<applet>tag,passing parameters to applets,improving Banner applet,getDocumentBase() and getCodeBase()-	4
	b)	Event Handling-Two Event handling mechanism-Delegation Event Model-Event Classes-KeyEvent Class-Event Listener InterfaceActionListener,ItemListener,KeyListener,MouseListener,MouseMotionListener,TextListener,FocusListener,WindowsFocusListerner,WindowListener,	4
	c)	Handling Mouse events,handling Keyboard events-Adapter classes Using AWT controlsLabels,Buttons,CheckBox,CheckboxGroup,TextField,TextArea	4
	d)	Understanding Layout Managers-FlowLayout,BorderLayout,GridLayout	3

Unit	Sub Unit	Topic	Periods per subunit
II	a)	Introducing GUI programming with Swing-The origin of Swing,Swing is Bulit on AWT,two key Swing features,MVCConnection,Componenets and Containers	5
	b)	Swing packages a simple Swing Application,EventHandling,create a Swing Applet,Painting in Swing	5
	c)	Exploring Swing -JLabel and ImageIcon,JTextField,Swing Buttons-JScrollPane, JButton,JToggleButton,JCheckBox,JRadioButton,JTabb edPanJList,JComboBox,JTable	5
III	a)	Data structures creation and manipulation in java –Introduction to Java Collections, Overview of Java Collection framework-Commonly used	4
	b)	Collection Interface,ListInterface,SetInterface,SortedSetInterfa ce,QueueInterface,Deque Interface-	3
	c)	Commonly used Collection classes – ArrayList, LinkedList,HashSet, LinkedHashSet	4
	d)	TreeSet, PriorityQueue, ArrayDeque, EnumSet,	4
IV	a)	Accessing a Collection via an Iterator -Iteration over Collections –Iterator interface, ListIterator interface-Legacy classes and Interfaces –Enumeration interface,Vector,Stack	4
	b)	Other Utility classes:StringTokenizer, Random, Formatter-constructors,methods,formatting strings and characters,formattingnumbers,formatting Time and Date,specifiers,specifying a minimum field width,specifyingprecision,using format flags,justifyingoutput,space, +,0, and (flags,comma flag,# flag,Uppercaseoption,closing a Formatter	4
	c)	Scanner-constructor,Scanningbasics,some Scanner examples,setting Delimiters-Introducing Graphics-Drawing lines, rectangles	4
	d)	Drawing Ellipses , Circles, Arcs,Polygons,working with color,working with Fonts,managing Text output using FontMetrics	3
TOTAL			60

Bhavans Vivekananda College

Department of Computer Science
B.C.A II/I, Organization and Functions
Academic Organizer 2016-2017

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	Management - Definition, types of managers, responsibilities, tasks	3	15
	b)	Leadership and motivation - nature of leadership, leadership theories, delegation	3	
	c)	defining motivation, motivation theories, defining needs, motivation techniques	3	
	d)	Time management - importance of 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. Budgets and controls, Obtaining finance, valuing a company	5	15
	b)	Investment Decisions - definition, ranking process, payback period, average rate of returns, discounted cash flows	7	
	c)	Decision making - The nature of decisions, decision making process, decision making techniques .	3	
III	a)	Project and operations management - Project planning and control - projects and management,	5	15
	b)	network analysis,critical path, Gantt chart	5	
	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	7	15
	b)	Product management, sales and distribution - product management, pricing, marketing communications, sales, physical distribution	8	
		TOTAL NO OF PERIODS		60

Department of Computer Science
B.C.A IIYear-IISem, Data Communications and Networking
Academic Organizer 2016-2017

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	Introduction - Data communication, Networks, protocols and standards, standards organizations	2	15
	b)	Basic concepts - Line configuration, topology, transmission mode, categories of networks, internetworks	2	
	c)	OSI Model - layered architecture, functions of the layers	4	
	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	4	
II	a)	Interfaces and transmission - Digital data transmission, DTE - DCE interface, Interface Standards - EIA-232	4	15
	b)	Transmission Media - Guided media, Unguided media	4	
	c)	Multiplexing - types of multiplexing.	4	
	d)	Error detection and correction - types of errors, detection, correction	3	
III	a)	Data Link control - Line discipline, flow control, error control	4	15
	b)	Data Link protocols - Asynchronous, Synchronous(Bit-oriented)	3	
	c)	Local Area Networks - Project 802, Ethernet, Token bus, Token ring, FDDI	5	
	d)	Switching - Circuit, packet,Network layer	3	

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
IV	a)	ISDN - Services, History, Subscriber access, layers, Broadband ISDN	3	15
	b)	X.25 - layers, packet layer protocol	3	
	c)	Frame Relay - layers, operation, implementation	3	
	d)	SONET/SDH - physical configuration, layers, sonnet frame, multiplexing STS frames	3	
	e)	Networking and Internetworking Devices - Repeaters, bridges, routers, gateways, routing algorithms	3	
		TOTAL NO OF PERIODS		60

Department of Computer Science
B.C.A IIyear- 4th sem (II/II)
OPERATING SYSTEMS
Academic Organizer 2016-2017

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	Operating Systems – functions, virtual computer. Hardware Interface –components of CPU, CPU registers (general- purpose and control registers), memory and addressing, interrupts, I/O devices.	5	17
	b)	Operating System Interface - system calls, examples of 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, disk driver subsystem, flow control, signaling, interrupt handling, event and table management, process tables and process descriptors.	5	
	d)	IPC patterns - mutual exclusion, signaling, rendezvous, producer-consumer, client-server, database access and update.	4	
II	a)	Deadlock - conditions for deadlock, dealing with deadlocks, two-phase locking. Message passing variations - synchronization, semaphores, program language based synchronization primitives.	3	21
	b)	Thread - concept, system calls, advantages, uses. Memory management - linking and loading a process, dynamic linking, multiprogramming issues, memory protection and memory management system calls.	8	
	c)	Virtual memory - dealing with fragmentation, virtual memory implementation, management, daemons and events, page replacement,	5	
	d)	trashing and load control, two level paging, Segmentation and sharing memory.	5	

III	a)	I/O Devices - devices and controllers, disk drives, disk controllers. I/O System software, device driver access strategies, unification of files and devices,	4	12
	b)	generalized disk device drivers, disk caching. File System - need for files, file abstraction, file naming, file system objects and operations.	4	
	c)	File System organization - file descriptors, locating file blocks, file system reliability, Security and protection.	4	
IV	a)	Resource Management – resources in OS, types of resources, protection of resources, user authentication, protecting hardware resources, representation of protection information,	5	10
	b)	mechanisms for software protection, examples of protection attacks, protection examples. Cryptography in computer security.	3	
	c)	Client-Server model - system processes, micro-kernel OS, development towards a distributed system.	2	
		TOTAL NO OF PERIODS		60

Bhavans Vivekananda College

Dept of Computer Science

BCA - IV Semester, Database Management and Design

Academic Organizer 2016-17

Unit	Sub Unit	Topic	No of Classes	Total Periods
I	a	Database environment, Basic Concepts and Definitions, Traditional File System,Database Approach, Range of Database Applications.	6	
	b	Advantages of Database Approach,Costs and Risks,Components of Database Environment-Three Schema Architecture of Database	6	
	c	E-R Model-Sample ER Model, ER Notation, Entities-Strong and Weak Entity, Attributes- Simple Vs composite attribute. Single valued attribute vs Multi valued attribute, stored vs derived attribute, Relationship- Degree of a Relationship, Cardinality Constraints-Minimum and Maximum,	4	20
	d	Enhanced ER Model- Representing Supertype and Sub type, Representing Specialization and Generalization, Specifying Completeness and Disjointness, Subtype Discriminators, Definiting Supertype/Subtype Hierarchies.	4	
II	a	Relational Model- Definition, Integrity Constraints, Transforming EER Model to Relations	6	
	b	Normalization- First Normal Form, Seconf Normal Form, Third Normal Form, Merging Relations, Denormalization	4	14

	c	Client/server and middle ware - client/server architectures, three-tier architecture - partitioning, middleware, Establishing Client/Server Security ,Client/Server issues.	4	
III	a	SQL: SQL Commands(DDL, DML, DCL), processing single tables(Using Expressions, Function, Wildcards, Comparison Operators, Boolean Operators, Distinct IN, NOT IN, Order By, Group By, Having clauses)	6	14
	b	Processing Multiple tables(Joins, Sub Queries), view Definitions, Transaction Integrity, Triggers and Procedures;	4	
	c	Distributed Databases-Distributed Database, Data Replication, Partitioning Transparency, Concurrency and Commit Protocol, Distributed Database Products	4	
IV	a	Database Administration: Role od Data and Database Administrator, Modelling and Planning for Database, Managing Data Security, Backing up Databases, Controlling Concurremt Access, Managing Data Quality, Data Dictionaries and Repositories, Tuning the Database	6	12
	b	DBMS Selection: DBMS Selection and Implementation, analyzing information needs, DBMS Functions, and capabilities, future requirements, feature availability and performance, evaluation models, scoring models, implementation issues	6	
Total No of Periods				60

Department of Computer Science

B.C.A II Year- II Sem

BCA444: WEB TECHNOLOGIES

Lesson Plan 2016-2017

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	HTML: Introduction, structure of HTML page, Formatting, Logical HTML, Styles, Fonts, Headings, Presenting and Arranging text, Images	5	15
	b)	Links and lists, Tables, Frames, Multimedia, Style sheets	4	
	c)	HTML -Forms and Controls	4	
	d)	Style sheets: Introduction and types of style sheets.	2	
II	a)	Java script Programming: Variables, Operators, Dialog Boxes, Branching statement, Looping statements,	6	15
	b)	Arrays, Functions (Built-in, Used-defined).	4	
	c)	Java script Objects: Document, Window, Location, History (each object Properties and Methods, Events).	5	
III	a)	DHTML (Dynamic Hyper Text Markup Language): Setting styles, Changing web pages	4	15
	b)	Mouse over effects, Dynamic content, VML	5	
	c)	Data binding, MSHTML data source Control, Tabular data control.	6	
IV	a)	XML: Introduction, Valid and Well-formed XML Documents, XML DTD (Document Type Definitions)	7	15
	b)	XML schemes, creation and specification of XML, Accessing XML data, XML applet, XML data source, XML data islands.	8	
		TOTAL NO OF PERIODS		60

Department of Computer Science

B.C.A IVSem -- SALD

Academic Organizer 2016-2017

Unit No.	Sub Unit	Details	Periods Per Sub Unit
I	a)	System Development Environment - Modern approach to SAD, Role and Organizational responsibilities, Types of Information systems, Database concepts: Definition, advantages, disadvantages .SDLC, approaches to system development	8
	b)	System Analysts - Analytical skills, Technical skills, Management skills, Interpersonal skills, System Analyst as a profession. Identifying and selecting systems development projects - Process, outcomes anddeliverables Corporate and Information System planning	8
II	a)	Initiating and planning System Development projects - process, outcomes and deliverables. Project feasibility - determining project benefits and costs, time value of money, technical feasibility, other feasibility concerns	8
	b)	Building Base Line project plan. Determining System Requirements - process, outcomes and deliverables, traditional methods, modern methods, radical methods.	10
III	a)	Process Modeling - DFD Mechanics, DFD types, DFD in the Analysis process, Logic Modeling - Structured English, Decision tables, Decision trees	5
	b)	Data Modeling - E-R models, relationships, business rules. Modeling - Object oriented life cycle, Unified Modeling Language, Use-Case modeling, Object modeling-class diagrams, Dynamic modeling-state diagrams, and sequence diagrams.	8
IV	a)	Rapid Application Development - Process, deliverables and outcomes, approaches to RAD, advantages and disadvantages. Forms and report design - process, deliverables and outcomes, formatting forms and reports, accessing usability.	5
	b)	Interface and dialog design - Process, outcomes and deliverables, interaction methods and devices, interface design, controlling user access, dialog design. Process Design - structure charts, transform analysis, coupling, cohesion, contents specification	8
		TOTAL NO OF PERIODS	60

Department of Computer Science
B.C.A IIIyear- 5th sem (III/I)
ADVANCED JAVA PROGRAMMING
Academic Organizer 2016-2017

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	Introducing JDBC: Describing Components of JDBC , Features of JDBC , JDBC Architecture: Types of Divers, Advantages and disadvantages of Drivers ,Use of Drivers	3	13
	b)	JDBC Statement and Methods: Statement ,Prepared Statement	5	
	c)	Callable Statement ,Working with Resultset interface , Working with Resultset with metadata	5	
II	a)	Introducing CGI , Introducing Servlet , Advantages of Servlet over CGI , Features of Servlet , Introducing Servlet API :Javax.servlet package , Javax.servlet.http package ,Servlet life	3	12
	b)	Working with GenericServlet and HttpServlet , RequestDispatcher interface ,Use of RequestDispatcher , Session in Servlet: Introducing session	8	
	c)	Session tracking mechanism ,Cookies : Advantages & disadvantages ,use of cookies , Hidden form filed ,URL rewritten , HttpSession.	1	
III	a)	Introduction to JSP: Advantages of JSP over Servlet , JSP architecture , JSP life cycle , Implicit objects in JSP,JSP tag elements- Declarative, Declaration	5	13
	b)	scriplet, expression, action. Java Bean- Advantages & Disadvantages,	4	
	c)	useBean tag- setProperty and getProperty , Bean In Jsp	4	
IV	a)	JSTL core tag: General purpose tag, conditional tag, networking tag ,JSTL SQL tags , JSTL formatting tags	5	13
	b)	JSTL xml tags ,Custom tag: empty tag, body content tag, iteration tag, simple tag ,	3	
	c)	Introducing internationalization & Java: local class, ResourseBundle class, web application	5	
V	a)	Working with JSF, Java Server Faces,	3	9
	b)	Web Design Patterns, Security in web Application	3	
	c)	Introduction to Other Frameworks in java: Struts, Spring, Hibernate.	3	
		TOTAL NO OF PERIODS		60

G. M

Department of Computer Science
B.C.A IIIyear- 5th sem (III/I)
INTERNET PROTOCOLS
Academic Organizer 2016-2017

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	Introduction, Protocols and Standards, Standard Organizations, Internet administration, OSI model Layers, TCP/IP- Protocol suite, addressing, versions IP Addressing -	3	15
	b)	Decimal notation, classes, special addresses, Unicast- multicast and broadcast addresses Sub netting - masking,	3	
	c)	examples, variable length sub netting) super netting Delivery and Routing of IP Packets	5	
	d)	Connection oriented Versus Connectionless services, Direct versus Indirect delivery, routing methods, static versus dynamic routing.	4	
II	a)	Error Detection - types of errors, detection. Internet Protocol - Datagram, Fragmentation, options, checksum ARP - Format, encapsulation, operation,	3	17
	b)	proxy ARP, RARP,TCMP - Types of messages, Message format, error reporting, query,	8	
	c)	checksum IGMP - Multicasting, IGMP	1	
	d)	Encapsulation, MBONE Encryption Decryption - DBS, RSA, authentication	5	
III	a)	UDP - Process to process communications, user datagram, checksum, operation, use. TCP - Process to process communication, services, segment,	4	12
	b)	, options, checksum, flow control, error control, timers, connection, state transition, congestion control,	4	
	c)	operations Routing Protocols - RIP, OSPF, BGP, multicast routing Client-Server model - concurrency, processes BOOTP, DHCP	4	
IV	a)	DNS - Name Space, DNS, Distribution, DNS in Internet, Resolution, messages, types of records, compression, examples, DDNS,TELNET - Concepts, NVT, OPTIONS, negotiation, sub options, control, out of band signaling,	3	8
	b)	escape character, mode of operation, examples, user interface, RLOGIN, security FTP-Connections, Communication, Command Processing, File transfer,	3	
	c)	User interface, anonymous FTP,TFTP- Messages, connection, data transfer, applications SNMP - Concept, SMI,MIB,SNMP, example	2	

V	a)	SMTP - User agent, addresses, delayed delivery, aliases, MTA, commands and responses, mail transfer phases, MIME, POP,HTTP - HTTP transactions,	3	8
	b)	request messages, response messages, header, examples Socket Interface - definitions, sockets, byte ordering, address transformation, socket system calls,Connectionless iterative server,	3	
	c)	, UDP client-server programs, connection oriented concurrent server, TCP,client-server programs Ipv6 - addresses, packet format, ICMPY6, transition from IPv4 to Ipv6	2	
		TOTAL NO OF PERIODS		**60**

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	I Object oriented system development - Introduction, overview of the unified approach Object basics - Objects, classes,	3	15
	b)	state and properties, behavior and methods, messages, encapsulation, class hierarchy,	3	
	c)	polymorphism, relationships and associations, aggregation and containment, object identity, static and dynamic binding, persistence,	5	
	d)	meta-classes Object-oriented system life cycle - Analysis, Design, Prototyping, Implementation, component based testing	4	
II	a)	II Object-oriented methodologies - OMT, Booch methodology, Jacobson methodology, Patterns, unified approach. Layered approach UML - Introduction,	3	12
	b)	UML class diagrams, Use-case diagram, Interaction diaqrarn., Sequence diagram, Collaboration diagram, Statechart diagram,	8	
	c)	Activity diagram, component diagram, deployment diagram, packages, UML extensibility - Model constraints, note, stereotype, UML meta model	1	
III	a)	Object oriented Analysis: Introduction, business object analysis, usecase modeling, developing effective documentation, case studies Object Analysis: classifications theory, Noun Phrase approach, Common class patterns approach,	4	12
	b)	usecase driven approach, classes, responsibilities and collaborators, naming classes Object Relationships, attributes and methods - Associations,	4	
	c)	Super and sub class relationships, Apart-of relationship, class responsibilities, defining attributes, Object responsibility: Methods and messages, case studies	4	
	a)	Object oriented design process and design axioms - Corollaries, design patterns Designing classes - Introduction, philosophy, class visibility, refining attributes,	3	

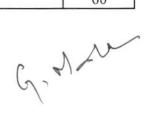|				
IV	b)	designing methods and protocols', case studies Access Layer - Object store and persistence, DBMS, logical and physical database organizations and access control, client-server computing,	3	8
	c)	distributed objects computing, object-relational systems, multi database systems, designing access layer classes, case studies.	2	
V	a)	V View Layer - User interface design, designing view layer classes, Macro level process, micro-level process, UI design rules, view layer interface, prototyping, case studies' Software Quality Assurance – Quality Assurance tests,	3	13
	b)	Testing strategies, Impact of object-oriented testing, test cases, test plan, continuous testing, Myer's debugging principles, case studies System Usability and Measuring user satisfaction - Introduction,	5	
	c)	usability testing, user satisfaction test, user satisfaction test template, case study Documentation template	5	
		TOTAL NO OF PERIODS		**60**

Bhavans Vivekananda College
Department of Computer Science
B.C.A III Year / I Sem, Mobile Application Development
Academic Organizer 2016-2017

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, E-Commerce
Academic Organizer 2016-2017

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 Regulatory environment	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

Bhavans Vivekananda College
Department of Computer Science
BCA III YEAR / II SEMESTER
SYSTEM AND NETWORK ADMINISTRATION
ACADEMIC ORGANIZER 2016 2017

Unit No.	Sub Unit	Details	Total Periods
I	a	Functions of System Administration	13
	b	**The UNIX : Files**	
		Process	
		Devices	
		File System	
	c	**Essential Administrative Tools:**grep and awk	
		Piping into grep and awk	
		Files and Directory Commands	
	d	Starting and Shutdown Process	
II	a	User Account and Security	12
	b	**Managing System Resources:** System Performance	
		Managing CPU Usage	
		Memory	
		Disk I/O Automating Tasks with Scripts	
III	a	**File System and Disks:** Mounting	11
		Adding Disks	
		CD-ROM Devices.	
	b	Backup and Restore terminals	
	c	Modems and Printers	
IV	a	**TCP / IP Networking:** TCP / IP Networking	12
		Adding a New Host	
		NFS / NIS	
		Monitoring the Network	
	c	Electronic Mail	
	d	Configuring and Building Kernel for LINUX.	
V	a	Windows 2003 Server	12
	b	Startup and Shutdown Windows 2003 Server	
	c	Server Configuration	
	d	User Accounts	
	e	Managing Process	
	f	Disks and File System Security	
Total			60

Department of Computer Science
B.C.A III/II Semester, Information Security
Academic Organizer 2016-2017

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
I	a)	Introduction to Information Security: History, What is Security?, CNSS Security Model, Components of an Information System	3	12
	b)	Balancing Information Security and Access, The SDLC, The security SDLC.	4	
	c)	The Need for Security: Introduction, Business Needs First, Threats, Attacks-secure software development.	5	
II	a)	Introduction, Law and Ethics in Information Security, Relevant U.S Laws, International Laws and Legal Bodies, Ethics and Information Security.	4	12
	b)	Introduction, An Overview of Risk Management, Risk Identification, Risk Assessment	3	
	c)	Risk Control Strategies, Selecting a Risk Control Strategy, Quantitative versus Qualitative Risk Control Practices	3	
	d)	Risk Management Discussion Points, Recommended Risk Control Practices.	2	
III	a)	Information Security policy, Standards and Practices, The Information Security Blueprint, Security Education, Training and Awareness Program, Continuity Strategies.	4	12
	b)	Security Technology-Firewalls and VPNs: Introduction, Access Control	4	
	c)	Firewalls, Protecting Remote Connections.	4	

Unit No.	Sub Unit	Details	Periods Per Sub Unit	Total Periods
IV	a)	Introduction, Intrusion Detection and Prevention Systems, Honeypots, Honeynets, and Padded Cell Systems,	3	12
	b)	Scanning and Analysis Tools, Biometric Access Controls.	3	
	c)	Introduction, Foundations of Cryptology, Cipher Methods, Cryptographic Algorithms	3	
	d)	Cryptographic Tools, Protocols for Secure Communications, Attacks on Cryptosystems.	3	
V	a)	Information security project management, Technical topics of implementation, Non technical aspects of implementation,	4	12
	b)	Security certification and accreditation Positioning and staffing security function, Employment policies and practices, Internal control strategies	5	
	c)	Security management models, The maintenance model, Digital forensics	3	
		Total		60

Department of Computer Science

B.C.A III year .II Sem .ST

Academic Organizer 2016-2017

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)	testing, regression testing, executing the tests	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