B.C.A. (Third Year) Exam

BCA 301: Software Engineering

Time: 3 Hrs. **Max. Marks: 100**

UNIT – I

Introduction to Software Engineering: Definitions - Size Factors - Quality and Productivity Factors - Managerial Issues - Planning a software project : Defining the problem - Developing a Solution Strategy - Planning the Development Process - Planning an Organization structure - Other Planning Activities.

UNIT – II

Software Cost Estimation: Software cost factors - Software Cost Estimation Techniques – Staffing level Estimation - Estimating Software Maintenance Costs - The Software Requirements, Specification - Formal Specification Techniques - Languages and Processors for Requirements Specification.

UNIT – III

Software design: Fundamental Design Concepts - Modules and Modularization Criteria – Design Notations - Design Techniques - Detailed Design Considerations - Real-Time and Distributed System Design - Test Plans - Milestones, walkthroughs, and Inspections.

UNIT – IV

Implementation issues: Structured Coding Techniques - Coding Style - Standards and Guidelines - documentation guidelines -Type Checking - Scoping Rules - Concurrency Mechanisms.

UNIT – V

Quality Assurance - Walkthroughs and Inspections - Static Analysis - Symbolic Execution – Unit Testing and Debugging - System Testing - Formal Verification: Enhancing Maintainability during Development - Managerial Aspects of Software Maintenance - Source Code Metrics – Other Maintenance Tools and Techniques.

Text / Reference Books:

1. R.Fairley, Software Engineering Concepts, Tata McGraw-Hill, 1997.
2. R.S. Pressman, Software Engineering, Fourth Ed., McGraw Hill, 1997.
3. Software Engineering, H. Sommervill Ian , Addition Wesley Pub. Co.
4. Software Engineering: An object Oriented Perspective by Braude, E.J., Willey, 2001.

BCA 302: Visual Programming

Time: 3 Hrs. **Max. Marks: 100**

UNIT – I

Client Server Basics: Discover Client-Server and Other Computing Architectures, Understand File Server Versus Client-Server Database Deployment, Learn About the Two Tier Versus Three Tier Client-Server Model, Visual Basic Building Blocks and Default Controls: Forms, Using Controls, Exploring Properties, Methods and Events, Introduction To Intrinsic Controls, Working With Text, Working With Choices, Special Purpose Controls, VB Advance Controls: Events, Menu bar, Popup Menus, Tool bar, Message Box, Input Box, Built-in Dialog Boxes, Creating MDI, Working with Menus

UNIT – II

VB Programming Fundamentals and Variables: Introduction to Variables, Variable Declaration, Arrays, Introduction to Constants and Option Explicit Statement, Assignment Statements, Math Operations, Strings, Formatting Functions, Controlling and Managing Program: Control Statements, Loops, Error Trapping, Procedures, Functions, Controlling How Your Program Starts, Introduction to common controls- Tree view, list view, tab strip, Creating and working with control arrays.

UNIT – III

Visual Basic and databases: Understanding the Data Controls and Bound Controls, Introduction to Data Form Wizard, Introducing DAO, Working with Record sets, Record Pointer, Filters, Indexes, Sorts and Manipulation of Records. Remote and ActiveX Data Objects: Working With ODBC, Remote Data Objects and Remote data Control, Introducing ADO, ADO Data Control.

UNIT – IV

Using Data Grid Control and ActiveX Data Objects. ActiveX Controls, Extending ActiveX Controls And Classes: Creating, Testing, Compiling, Enhancing and User Drawn ActiveX Controls, Using ActiveX Control Interface Wizard and Property Pages Wizard, Introducing Ambient, Extender Objects, Creating Property Pages, Building Class Modules, ActiveX DLL.

UNIT V

Client-Server Development Tools: COM, Services Models, Development Tools Included with VB 6, SourceSafe Projects. Reports and Packaging: Data Reports and Crystal Reports, Packaging A Standard EXE Project, VB and Internet: Introduction to VBScript, Tools used with VBScript and VBScript Languages, Introduction to Active Server Pages, ASP Objects.

Text / Reference Books

1. Gary Cornell - Visual Basic 6 from the Ground up - Tata McGraw Hill - 1999.
2. Noel Jerke - Visual Basic 6 the Complete Reference, Tata McGraw Hill - 1999.

BCA 303: E-COMMERCE

Time: 3 Hrs. **Max. Marks: 100**

Unit-I

E-commerce: Objectives, advantages and disadvantages, Forces driving E-Commerce, Traditional commerce and E-commerce, E-Commerce opportunities for industries.

Unit-II

E-Commerce Models: Business to consumer, Business to Business, Consumer to Consumer, other models –Brokerage Model, Advertising mode, Aggregator Model, Info-mediary Model, Community Model and value chain Model.

Unit-III

Electronic Payment Systems: Special features required in payment systems, Types of E-payment systems, Smart Card, Electronic wallet, E-Cash, E-cheque, credit card.

Unit-IV

Digital Marketing, E-Customer Relationship Management, E-Supply Chain Management. E-Commerce: An Indian perspective, Digilocker, attendance.gov.in, mygov.in, Swachh Bharat Mission, E-Hospital, National Scholarship portal, E-Sampark, UID, various modes of Digital payment of govt. of India.

Unit-V

Security Issues in E-Commerce: Security risk of E-Commerce, Types of threats, Security tools and risk management approach, Business Ethics, EDI Application in business. Overview of Cyber security.

Text/Reference Books

1. E - Commerce An Indian Perspective by P.T. Joseph, S.J., PHI
2. Doing Business on the Internet E – Commerce (Electronic Commerce for business) by S. Jaiswal, Galgotia Publications.
3. E-Commerce by Schneider, Thomson Publication.
4. E-commerce: Strategy – Technologies and Application by Whitley David, TMH, India.
5. Electronic Commerce by Greenstein, TMH.
6. Electronic Commerce: A managerial perspective – E.Turban – Prentice Hall of India
7. Electronic Commerce: Frontiers of Electronic Commerce – Kalarsta & Whinston, Addison-Wesley.

BCA 304: Web Technology

Time: 3 Hrs. **Max. Marks: 75**

Unit I

Introduction to Basics of Internet: Concepts of Internet: Domain, IP Addressing, Resolving Domain Names, Overview of TCP/IP and its Services, WWW.

Unit II

Introduction to HTML, Designing Pages with HTML, Essential Tags, Deprecated Tags, Tags and Attributes, Text Styles and Text Arrangements, Text, Effects, Exposure to Various Tags (DIV, MARQUEE, NOBR, DFN, HR, LISTING, Comment, IMG), Color and Background of Web Pages, Lists and their Types, Attributes of Image Tag.

Unit III

Hypertext, Hyperlink and Hypermedia, Links, Anchors and URLs, concept of navigation, Different Section of a Page and Graphics, Footnote and e-Mailing, Creating Table, Frame, Form and Style Sheet.

Unit IV

DHTML: Dynamic HTML, Document Object Model, Features of DHTML, CSSP (Cascading Style Sheet Positioning) and JSSS (JavaScript assisted Style Sheet), Layers of Netscape, The ID Attribute, DHTML Events.

Unit V

Web Designing Tools: Front Page Basics , Web Terminologies, Phases of Planning and Building Web Sites, The FTP, HTTP and WAP, Features, Front Page Views, Adding Pictures, Backgrounds, Links, Relating Front Page to DHTML.

Text / Reference Books

1. HTML Black Book – Steven Holzner – Dreamtech Press.
2. HTML, Java Script, DHTML, PERL, CGI – Evan Bayross – BPB.
3. http:www.W3schools.com/html/
4. Dynamic HTML webMagic/ jet douyer-hayden Development group
5. The DHTML Company only Robert mudrey, PHI.

BCA-305: Programming with JAVA

Time: 3 Hrs. **Max. Marks: 75**

Unit I

An overview of Java: Object oriented programming, Two paradigms, abstraction, the, OOP principles, Java class libraries, variables, arrays, Data types and casting, Operators, operator precedence, Control statements.

Unit II

Classes & Objects: Class fundamentals, declaring object reference variable, Introducing methods, constructors, the key word, garbage collection, Overloading methods. Inheritance and polymorphism: super class and subclass, protected members, Relationship between super and sub class. Inheritance hierarchy, abstract classes and methods, final methods and classes, nested classes, Type wrappers.

Unit-III

String handling: The string constructor, string length, special string operator character extraction, string comparison, searching string, modifying string, data conversion, changing the case of characters, string buffer.

Unit IV

Multithreaded Programming: The Java thread model, the main thread, creating thread, creating multiple thread, using is alive () and join (). Thread priorities, synchronization, Inter thread communications, suspending resuming and stopping thread using multithreading.

Exception handling: Exception handling fundamentals

Unit-V

Introduction to Applets : Applet Fundamentals, using paint method, basic of AWT

Recommended Books:

1. Herbert Schildt: JAVA 2 The Complete Reference, TMH, Delhi
2. Deitel: How to Program JAVA, PHI
3. U.K. Chakraborty and D.G. Dastidar: Software and Systems An Introduction, Wheeler Publishing, Delhi.
4. Joseph O'Neil and Herb Schildt: Teach Yourself JAVA, TMH, Delhi

Practical

BCA 306

Practicals: Experiments based on the paper BCA – 302 & 304 and Project development for Internal Assessment.

BCA 307

Practical II: Experiments based on the paper BCA-305.

BCA 308

Project may be developed in any language taught during BCA III Year under the guidance of College faculty.

Innovations and Employability in the area of Computer Science

Innovations

Computer Science is the most creative and diverse field of all the technology fields. If you can imagine an outcome, this major will provide you the tools to create it. In addition to providing a solid grounding in all the most significant areas of computer science, The syllabus is designed for students considering their individual needs, who want to study a broad computer science curriculum with an emphasis on combining both the theory and practice of computer science. Then the syllabus will be able to develop computer professionals with a good grasp of how to design and build high quality systems for industry that are usable in real world socio-technical contexts.

The overall aim to develop this syllabus of Computer Science course is to deliver a broad but rigorous Computer Science education coupled with direct exposure to cutting edge research. Graduates and Post Graduate of this programme are intended to continue directly into careers involving innovative thinking and problem solving, as part of an advanced research, development or other applied field of computer science.

Employability

Selection to study the Computer Science opens up many avenues for future career prospects.

Almost every major challenge in the world turns to the use of computer science to solve problems; from medical research, education, supporting aid work in disaster areas, helping to create a sustainable environment, the logistics of moving products around the world, to the world of business and securing and managing the vast levels of data through visualisation, security and transmission; not to mention the world of media.

Being a successful Computer professional is not just about solving technical problems, but also collaboration, leadership, and teamwork; which is why our degree courses encourage you to gain these interdisciplinary and interpersonal skills in addition too.

- Computers and computing technology lies at the heart of organisations across all industrial sectors; and our graduates are equipped to support and develop these systems.

 Computer Technology is the fastest developing technology in the world, and the requirement for graduates with the skills to work in this field is continuing to grow, whilst the actual supply of graduates with the skills is dropping worldwide.

Computer Science will fulfill the growing market demand in government and private sectors both for expertise in following:

Databases
Communication Networking
Image processing
Animation
Software development ..... etc

JOB OPPORTUNITIES FOR UNDERGRADUATE STUDENTS

A. [BCA/B.Sc. (CS/IT)/BA/BSc./B.Com (with Computer)/PGDCA] graduate can work as a

1. Programmer
2. Sr. Technical Assistant
3. Systems Analyst/System Engineer
4. Software Engineer
5. Database Administrator
6. System Architect
7. Software Project Managers
8. Work As a Faculty Member
9. Research Scientist
10. Web Master / Web Developers
11. Network Engineering/ Analyst