Syllabus and Course Scheme

Academic year 2014-15

Bachelor of Computer Science (BCA)

UNIVERSITY OF KOTA

**MBS Marg, Swami Vivekanand Nagar,
Kota - 324 005, Rajasthan, India**

Website: uok.ac.in

UNIVERSITY OF KOTA, KOTA
BACHELOR OF COMPUTER APPLICATION (BCA) Exam.- 2015

1. Scheme of Instruction:
Each year shall be of ten months (150 working days) duration. Details of lecture hours per week shall be as follows: **Theory:** Three hours/week for each Paper
Practical: Students are required to work in the Laboratory for 4 hours per week for each practical under faculty guidance.

2. Examination Scheme:
1. University shall conduct examinations only after completion of 150 working days of instruction in a year.
2. Each theory paper shall be of 100 marks (75 marks for written examination of 3 hrs duration and 25 marks for internal assessment).
3. Each practical paper shall be of 100 marks.
4. The internal marks will be awarded by committee consisting of Head of the Department & the faculty concerned.
5. The student have to pass internal and external exam separately theory as well as practical papers.

Theory:
1. **Assignments:** 40% of the internal assessment marks for each theory paper will be awarded on the basis of performance in the assignments regularly given to the students, and its records.
2. **Internal Examination:** 40% of the total Internal Assessment marks for each theory paper will be awarded on the basis of performance in written examination conducted by the faculty, one at the end of fourth month and another at the end of eighth month.
3. **Seminar/Oral examination:** 10% of the total internal assessment marks for each paper will be awarded on the basis of performance either in a seminar or internal viva-voce.
4. **Overall performance:** 10% of the total internal assessment marks will be awarded for each paper on the basis of performance and conduct in the classroom.

Practical :
1. **Project**: 80% of the total Internal Assessment Marks for each practical paper during I & II year will be awarded on the basis of project, its presentation and project report submitted by the students. This activity can be held in the team of maximum two students. There should be a project co-ordinator (faculty member of computer science department).
2. **Internal examination:** 10 % of the total Internal Assessment marks for each practical paper during I & II year will be awarded on the basis of performance in practical examination conducted by the faculty, once during the session. In III year it will be 80%.
3. **Overall performance:** 10 % of the total internal assessment marks will be awarded during I & II year for each practical paper on the basis of performance and conduct of the student in the practical lab. In III year it will be 20%.

Note: Detailed breakup of Internal Marks awarded as per above guidelines must be submitted to the university in a tabular format for each paper. Department/College must preserve answer books of internal examination for a period one year from the date of examination and must be presented to the university as and when required.

(a) **I division with distinction:** 75% or more marks in the aggregate provided the candidate has passed all the papers and examinations in the first attempt.
(b) **I division :** 60% or more marks but fails to satisfy the criteria for being classified as first division with distinction laid in (a).
(c) **II division :** All other than those included in (a) and (b) above i.e. < 60% and ≥ 45%.
(d) Passing criteria is as per university ordinance. A candidate must pass the examinations within five years of the initial admission to the first year of the course.

BACHELOR OF COMPUTER APPLICATION (BCA)
I Year Exam. – 2015

Courses of Study and Examination

Paper	Paper Name	Lecture Hrs./week	Duration of exam. (hours)	Max. Marks University Exam.	Internal Assessment	TOTAL
Paper-I (BCA-101)	Introduction to Information Technology	3	3	75	25	100
Paper-II (BCA-102)	Basic Mathematics	3	3	75	25	100
Paper-III (BCA-103)	Problem Solving through C Programming	3	3	75	25	100
Paper-IV (BCA-104)	Business Communication	3	3	75	25	100
Paper-V (BCA-105)	PC Software Packages	3	3	75	25	100
	Practical					
*Practical-I (BCA-106)	PC Software Lab	4(2+2)	3	75	25	100
*Practical-II(BCA-107)	Programming Lab	4(2+2)	3	75	25	100
	Total			**525**	**175**	**700**

*for each practical paper students have to submit the project.

BACHELOR OF COMPUTER APPLICATION (BCA)
II Year Exam.- 2015

1. Courses of Study and Examination

Paper	Paper Name	Lecture Hrs./week	Duration of exam. (hours)	Max. Marks University Exam.	Internal Assessment	TOTAL
Paper-I (BCA-201)	Digital Electronics & Computer Architecture	3	3	75	25	100
Paper-II (BCA-202)	Database Management System	3	3	75	25	100
Paper-III (BCA-203)	Fundamentals of Operating Systems	3	3	75	25	100
Paper-IV (BCA-204)	Data Structure	3	3	75	25	100
Paper-V (BCA-205)	Business Organization and Management	3	3	75	25	100
	Practical					
*Practical-I (BCA-206)	Database Management Lab	4(2+2)	3	75	25	100
*Practical-II(BCA-207)	Data Structure Lab	4(2+2)	3	75	25	100
	Total			**525**	**175**	**700**

*For each practical paper students have to submit the project.

BACHELOR OF COMPUTER APPLICATION (BCA)
III Year 2015

Courses of Study and Examination

Paper	Paper Name	Lecture Hrs./week	Duration of exam. (hours)	Max. Marks University Exam.	Internal Assessment	TOTAL
Paper-I (BCA-301)	Software Engineering	3	3	75	25	100
Paper-II (BCA-302)	Visual Programming	3	3	75	25	100
Paper-III (BCA-303)	Internet & E- Commerce	3	3	75	25	100
Paper-IV (BCA-304)	Web Technology	3	3	75	25	100
Practical-I (BCA-305)	Visual Programming Lab	3	3	75	25	100
Practical-II (BCA-306)	Web Technology Lab	3	3	75	25	100
Practical-III(BCA-307)	Project	3	3	75	25	100
	Total			**525**	**175**	**700**

*For each practical paper students have to submit the project.

B.C.A. (Third Year) Exam. – 2015

BCA 301: Software Engineering

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

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 - Staffinglevel 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 Edn. 1997.
2. R.SPressman, Software Engineering, Fourth Ed., McGraw Hill, 1997.
3. Software Engineering, H. Sommervill Ian , Addition Wesley Pub. Co.
4. Software Engineering Concepts" Fairley Richard , "McGraw Hill, 1985.
5. Software Engineering: An object Oriented Perspective by Braude, E.J., Willey, 2001.

BCA 302: Visual Programming

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

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 Tire 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 INTERNET & E-COMMERCE

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

UNIT– I

Internet: Evolution, Concepts, Internet Vs Intranet, Growth of Internet, ISP, ISP in India, Types of connectivity - Dial-up, Leased line, DSL, Broadband, RF, VSAT etc., Methods of sharing of Internet connection, Use of Proxy server. Internet Services – USENET, GOPHER, WAIS, ARCHIE and VERONICA, IRC WORLD WIDE WEB (WWW) - History, Working, Web Browsers, Its functions, URLs, web sites, Domain names, Portals. Concept of Search Engines, Search engines, searching the Web, Web Servers, TCP/IP and others main protocols used on the Web. E-Mail: Concpts, POP and WEB Based E-mail, merits, address, Basics of Sending & Receiving e-mail, Protocols, Mailing List, Free E-mail services, e-mail servers and e-mail clients programs.

UNIT – II

Concepts of Hypertext, HTML introduction, features, uses & versions Using various HTML tags, Elements of HTML syntax, Head & Body Sections, , Inserting texts, Text alignment, Using images in pages, Hyperlinks – text and images, bookmarks, Backgrounds and Color controls, creating and using Tables in HTML, and presentation, Use of font size & Attributes, List types and its tags. Cascading Style sheets – defining and using simple CSS.

UNIT – III

Introduction to WYSIWYG Design tools for HTML, Overview of MS FrontPage, Macromedia Dream weaver, and other popular HTML editors, designing web sites using MS FrontPage (using at least FrontPage 2000) Use of Frames and Forms in web pages, Image editors, Issues in Web site creations & Maintenance, Web Hosting and publishing Concepts, Hosting considerations, Choosing Web servers – Linux Vs Windows Web servers, Choosing Domain names, Domain name Registration, Obtaining space on Server for Web site, Add your website on search engines.

UNIT – IV

Javascript Overview, Javascript and the WWW, Javascript vs. VBScript, Javascript vs. Java, Javascript versions, Script element, Functions: Functions introduction, Calling functions, Javascript Comments, Variables: Variables overview, declaring variables, Types of variables, Casting variables, Alert box , Prompt & confirm.
Expressions: Arithmetic operators, Assignment operators, Logical operators, Expressions and precedence, Statements: If statement, For statement, While statement, Break/Continue Creating arrays/event handlers, JavaScript Object model, Object and Events in JavaScript – OnClick, On MouseOver, On Focus, OnChange, OnLoad etc. Getting data with forms.

UNIT – V

E - Commerce An introductions, Concepts, Advantages and disadvantages, Technology in ECommerce, Internet & E-business, Applications, Feasibility & various constraints. E-transition challenges for Indian corporate, the Information Technology Act 2000 and its highlights related to ecommerce.
Electronic Payment Systems: Introduction, Types of Electronic Payment Systems, Digital Token- Based Electronic Payment Systems, Smart Cards and Electronic Payment Systems, Credit Card-Based Electronic Payment Systems, Risk and Electronic Payment Systems.
E-security – Security on the internet, network and web site risks for e-business, use of firewalls, secure physical infrastructure.

Text / Reference Books

1. Frontiers of Electronic Commerce, By- Kalakota, Ravi ; Stone, Tom ; Whinston, Andrew B, Addison
   Wesley Publishing Co , ISBN 8178080575
2. E-Commerce An Indian Perspective (Second Edition) – by P.T. Joseph, S.J. Prentice-Hall of India
3. Internet & Web Design By A. Mansoor, Pragya Publications.
4. Learn HTML in a weekend by Steven E. Callihan, PHI
5. Using HTML By Lee Anne Phillips, PHI
6. SAMS Teach Yourself Javascript in 24 Hrs. By Michael Moncur, TechMedia

BCA 304: Web Technology I

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

Designing Pages with HTML
Introduction to 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 WPP,
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.WSschools.com/html/
4. Dynamic HTML webMagic/ jet douyer-hayden Development group
5. the DHTML Company only Robert mudrey, PHI.

Practical

BCA 305 & 306

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

BCA 307

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. Computer Operator/Computer
2. Informatic Assistant etc. In a government sector
3. BDP, Desktop Publishing, BPO professionals
4. Low-level Web designers, Graphic designers
5. Data entry operators
6. Technical Assistant