

Shivaji University, Kolhapur



B
(2009)

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Revised Syllabus For

BACHLOER OF COMPUTER APPLICATIONS

(B.C.A. Part -III)

Sem-V & Sem-VI

Introduced from June 2011 and Onwards

(Subject to the modifications will be made from time to time)

Revised Syllabus of
BACHLOER OF COMPUTER APPLICATIONS (BCA) COURSE
 (Under the Faculty of Commerce)
 w.e.f. Academic Year 2011-12

Paper No.	Name of the subject	Int.	Uni	Total Marks	TH/week	PR/week
501	Software Engineering – II	20	80	100	4	
502	Computer Network	20	80	100	4	
503	Unified Modeling Language	20	80	100	4	
504	Internet Programming	20	80	100	4	
505	Enterprise Resource Planning (ERP)	20	80	100	4	
506	Lab Course VII (Based on Paper No. 504)		50	50		4
507	Mini Project		50	50		2
	Total	100	500	600	20	06

Semester- VI

Paper No.	Name of the subject	Int.	Uni	Total Marks	TH/week	PR/week
601	Linux	20	80	100	4	
602	Data Warehousing & Data mining	20	80	100	4	
603	Java Programming	20	80	100	4	
604	Management Support System	20	80	100	4	
605	Lab Course VIII (Based on Paper No. 601)			50		2
606	Lab Course IX (Based on Paper No. 603)			50		2
607	Major Project	20	80	100	4	2
	Total	130	470	600	20	6

Semester –V

Paper- 501 Software Engineering II

Unit-I

System Design, Problem Partitioning, Top-Down and Bottom-Up design; Decision tree, decision table Software design:-Abstraction - Modularity - Software Architecture - Effective modular design -Cohesion and Coupling Functional vs. Object- Oriented approach.

(12)

Unit-II

Coding & Documentation:-Structured Programming, OO Programming, Information Hiding, Reuse, and System Documentation. Testing : -Levels of Testing, Integration Testing, and Structures testing - Black Box testing and white box testing, Unit testing, system testing, Validation and system testing and Software Maintenance.

(12)

Unit-III

Software Project Management, Project Scheduling, Staffing, Software Configuration Management, Resource Management, Overview of various functions, Requirements planning, sizing, benchmarking, documentation etc. Software and Hardware Acquisition Plan and standards, Performance Evaluation methods for Hardware, Software and Personnel.

(16)

Unit- IV

Software Quality Management, QC and QA, V & V Planning, tools and techniques(reviews, inspections, walkthroughs etc.), Software Quality parameters with their definitions, Introduction to ISO and CMM.

(8)

Books Recommended

1. Software Project Management by Edwin Bennatan
2. Software Engineering by Roger S Pressman
3. Software Engineering Jalote Wiley India
4. Software Engineering by Sommerville Pearson
5. Management of Information Technology by Pravin Mulay.
6. Software Project Management in Practice by Pankaj Jalote
7. Software Engineering By Deven Shah, Dreamtech Wiely India

Paper- 502 Computer Network

Unit-I

Basics of Computer Networks

Computer Network Definition, Goals, Applications, Structure of communication network, Components, Types of Networks(LAN, MAN, WAN, Internet), Broadcast & Point-To-Point Networks, Communications Types(Synchronous , Asynchronous), Modes of Communication :(Simplex, Half Duplex, Full Duplex)

(12)

Unit-II

Transmission Media

Classes of Transmission Media - Guided Media(Wired) : Coaxial Cable, Twisted Pair, Fiber Optics Cable, Advantages & disadvantages, Unguided Media(Wireless) : Propagation Methods(Ground, Sky, Line-Of-Sight), Wireless Transmission- Radio Waves, Infra-Red, Micro-Wave, Wireless LANs, Bluetooth

(10)

Unit-III

Layered Protocols

Goals of Layered Protocols, Design issues of the layers, Protocol Hierarchy, Communication between layers, ISO-OSI Reference Model : Functions of each layer)

Internet Model (TCP/IP): Layers, Comparison of ISO-OSI & TCP/IP Model, Protocol set structure, Working of TCP/IP, TCP/IP Applications, UDP, TCP, IP, Planning the IP address scheme, Characteristics of IP address, Network Numbers & Host Numbers.

(15)

Unit-IV

Switching & Routing in Networks

Categories of Connectivity Devices : Passive & Active Hubs, Repeaters, Bridges, Switches, Routers, Gateways, Switching Techniques – Circuit Switching ,Message Switching, Packet Switching, its merits and Demerits . Routing(static and dynamic).

(11)

Recommended Books :

- 1) Computer Networks - Forozoun (TMH)
- 2) Computer Networks – Olifer (Wiley-india)
- 3) Complete Guide to Networking - Peter Norton
- 4) Computer Today – S. Basandra.
- 5) Computer Network -AS Tannenbum

Paper No 503
Unified Modeling Language

Unit-I

Introduction : History of UML, structure & Components of UML- Diagrams, views and Notations, Concepts supported by UML,

(8)

Unit-II

Use case Modeling- Finding use cases and actors, drawing use case diagram, classes Objects and Relationship-Association, generalization and Aggregation.

(12)

Unit-III

Dynamic Mudding-sequence diagram, collaboration diagram and activity diagram.

(14)

Unit -IV

Deployment diagram, component diagram extension mechanism in UML- stereotypes, tagged values, constraints.

(14)

Reference Books:

- 1 . UML toolkit-2 Hans Brrik Erikson Mgnus Penker.
2. Object oriented software Engineering – Brar Jacobson
3. Object oriented Method- Ian Graham
4. Object oriented Mudding & Design- Raumbaugh
5. UML user guide- Jacobson, Booch Raumbaughe.

Semester V
Paper No 504: Internet Programming

UNIT I:

Overview, Architecture, Features of .NET, MSIL, Metadata, CLR, Managed Code, Unmanaged Code, CTS, CLS, .NET Base Classes, Introduction to Visual Studio, .NET IDE, Types of JIT Compilers (10)

UNIT II:

Introduction to c#, Entry Point Method- main, command line arguments, compiling and building projects, different valid forms of main, Compiling a C# program using command line utility CSC.EXE ,Global,stack and heap memory, reference type & data type, Implicit and explicit casting,boxing & unboxing, properties, pass by value, pass by reference and out parameters, partial class, DLL, difference in EXE and DLL. (10)

UNIT III:

Web programming introduction : understanding role of web server and web browser, HTTP request & response structure, introduction to ASP : Types of path, FORM Tag, Types Of Server Controls, Validation controls like base validator,compare validator, Range validator, grouping control validators, AppDomain, web forms life cycle, event handling in web forms, response.redirect, server.response, crosspage postback property of button, ASP.Net state management, web.config., globalization and localization. (14)

UNIT IV:

Introduction to ADO.NET, ADO.NET architecture: Connection, Command, data reader, data adapter, dataset , Understanding Connected layer of ADO.NET, Understanding the Disconnected layer of ADO.NET (12)

Reference Books

1. Inside C# - Microsoft Pub.- Tom Archer, Andrew Whitechapel
2. Pro C# 2005 and the .NET 2.0 Platform – Andrew Troelson
3. CLR via C# - Jeffery Richter
4. The Complete Reference ASP.NET- TATA McGRAW-HILL
5. ASP.NET Black Book
6. Professional asp.net 2 – wrox series by Wallace B. McClure, Gregory A. Beamer

Semester V
Paper No 505: Enterprise Resource Planning (ERP)

Unit I Business Process Reengineering (BPR):

Definition of business processes and functional processes, importance of focusing on business processes. Understanding business processes.

Business Reengineering: Meaning and Introduction, Need and Advantages of Business Reengineering, Phases in BPR (12)

Unit II Introduction of ERP:

Evolution of ERP, growth of ERP, ERP in India, Problems of system islands, need for system integration and interface, Advantages and Disadvantages of ERP.

(10)

Unit III: ERP Models & Implementation:

Various ERP Business Models and their subsystems, ERP lifecycle, implementation of ERP packages, pre-evaluation, Screening, project planning phase, pre-evaluation, gap analysis, Re-engineering, configuration, implementation ,team training, testing, going live, end user training, post implementation.

(14)

Unit IV: ERP Products and Case Studies:

Introduction to ERP softwares, ERP market, SAP, BAAN, Oracle, SSA J D Edward etc.

Case studies on College ERP, Dairy ERP and Sugar Factory ERP.

(12)

References:

1. Sadagopan – ERP a managerial perspective ,TMH.
2. Alex Leon - Enterprise resource planning, TMH .
3. ERP in Simple Steps – Wiley Dreamtech
4. Plak, Carol, A., Eli Schragenheim, “ERP”, St.Lucie Press, NY, 2000
5. User manual – SAP R/3.
6. User manual – BAAN VI
7. User Manual - Oracle

Semester V
Paper No 506: Lab Course VII
(Based on Paper No 504)

Assignments on c#

1. Write a c# program to display “hello world” and compile it with csc.exe.
2. Write a c# program to pass Command line arguments.
3. Write a c# program for implementation of Multiple main.
4. Write a c# program to implement ‘Using’ keyword.
5. Write a c# program to implement boxing and unboxing
6. Write a c# program to implement different data types
7. Write a c# program to implement c# control statements (if, for, for..each etc)
8. Write a c# program to implement Property tag
9. Write a c# program to implement Casting
10. Write a c# program to implement Pass by value & pass by reference and out parameters

Assignments in asp.net

1. Write an ASP.NET code to generate multi selection list box.
2. Write an ASP.NET code to display an image in a web form than can handle click event
3. Write an ASP.NET code to create hyperlink in a web form.
4. Write an ASP.NET code to carry following validations:
 - Required field validations
 - Compare validations
 - Regular expression validations
 - Custom validations
5. Write an ASP.NET code to manipulate database as
 - Inserting data
 - Updating data
 - Deleting data
 - Displaying data.

Semester V
Paper No 507: Mini Project

The group of students may undertake a software project in consultation with the internal guide. The group size should not exceed four students.

The student is expected to do project in any language studied in Vth or earlier semester. Project documentation format is as per paper no 607.

Semester VI

Paper No 601: Linux

UNIT-I

Overview of Linux: History, Linux Features, Advantages of Linux, Overview of LINUX Architectures, Linux File System, Hardware requirements for Linux.

10

UNIT-II

Linux File system: Logging in & logging out, getting familiar with Linux desktop, shell interface. Understanding Linux shell, using shell, types of Text editors (**vi and ed**). Using vi editor, prompt character.

12

UNIT-III

The shell interface, checking logging sessions – id, who
General Purpose Utilities – - Man, cal, date, tty, uname, passwd, bc, script..
File management commands – cat, cp, rm, mv, wc, cmp, gzip, gunzip
Directory management commands – pwd, cd, mkdir, rmdir, ls
Checking directories and permissions – pwd, home, cd, ls
advance commands in UNIX

12

UNIT-IV

Shell programming: Creating a script, Shell syntax, variables, control: if-else- if, loop: for, while- with syntax & Example
Built-in shell commands: break, continue, echo, eval, exec, exit, export, expr, printf, return, set, shift, trap, unset

12

Books Recommended:

- Unix Operating system by :- Bach
- UNIX Systems V by : Morgan , McGilton
- Red Hat Linux Bible - WILEY – dreamtech
- Yashwanr Kanetkar, “Unix shell programming”, BPB Publications

Semester VI
Paper No 602: Data Warehousing and Data Mining

Unit I

Data Ware House introduction, Transactional Databases, component architecture of data warehouse, applications of data warehouse, benefits and limitations of data warehouse. (12)

Unit II

Data Warehouse and OLAP technology, Multidimensional data Model, Data Warehouse implementation, Knowledge Discovery in Databases. (12)

Unit-III

Introduction to data mining, Data Mining KOD VS. data Mining, Issues and challenges in Data Mining (12)

Unit-IV

Case studies on Data ware house Design : University & supermarket (12)

Reference Books

- 1..M.H. Dunham & S. Sridhar- Data Mining: Introductory and Advanced Topics, Pearson Education, 2006
- 2.Kimble - Data Warehousing Lifecycle Toolkit, Wiley India(P) Ltd
3. Data warehousing fundamentals by Paulraj Ponniah , Wiley India(P) Ltd.
4. Anahory & D. Murray- Data Warehousing, Pearson Education, New Delhi-2000
- 5.A.Berson & S.J. Smith- Data Warehousing, Data Mining & OLAP, TMH, New Delhi-2006
6. ERP - by Alexon leon

Semester VI
Paper No 603: Java Programming

Unit-I

Introduction to Java 12

Basics of Java, History, Features, Comparison between java and C++, Java program structure ,JVM (Java Virtual Machine), Java byte code, compilation and Execution, keywords, identifiers, variables, data types, operators, branching and looping statements.

Unit-II

Classes, Objects and Methods 12

Defining a class and objects, writing a Java class, adding methods, Creating an object, Accessing class members, constructors- default constructors, parameterized constructor, Method overloading, this keyword, garbage collection, finalize() method.

Unit-III

Inheritance, Polymorphism and Packages 14

Concept of inheritance and implementation, single versus multiple inheritance, method overriding, keywords: super and final. Interfaces- definition, user defined interfaces and their applications, implementing an interface, extending interfaces,.

An overview of polymorphism, abstract classes, abstract methods

Packages: definition, CLASSPATH, import statement, access control and packages,

Unit-IV

Exception Handling 10

Overview of exception handling, flow of control, throwable classes, catching exceptions, multiple catch blocks, throws keyword, throwing exception, finally keyword.

References: 1. Core Java Black book – Rao – Wiley Dreamtech.

2. The Complete Reference Java2 Tata McGraw-Hall.

3. Object oriented programming in Java by Dr.Thampi Wiley.

4. Java Programming (for absolute beginner) – Russell – PHI.

5. An Object Oriented Programming with Java – Thomas Wu,TMH.

6. Java Programming For Tim Absolute Beginners - Rt&Sell

Semester VI
Paper No 604:
Management Support System

Unit-I

Introduction to information system, Concept of IS-Meaning, definition, nature, role need & importance, Overview of CBIS (Computer Based Information System) applications, Information requirements of various levels of management.

12

Unit-II

Types of Information System-TPS, (Transaction Processing System)-KWS,(Knowledge work System) OAS,(Office Automation System) MIS,DSS,ESS TPS,(Transaction Processing System)- Introduction & Definition, Need of TPS, (Transaction Processing System)OAS, (Office Automation System) & KWS, (Knowledge work System) Introduction & Definition Need of OAS and TPS, MIS- Introduction & Definition Need and characteristics of MIS,

12

Unit-III

Decision making concepts, decision making phases, Types of Decisions, A need of decision support, DSS-Introduction & Definition Need and characteristics of DSS, Component architecture of DSS,

ESS- Introduction & Definition, Need and characteristics of ESS architecture of ESS, Significance of ESS for business organization.

15

Unit-IV

Case studies on Design and development of information system for university and Bank.

12

Reference Books

1. Davis, Michael W. Decision support, Englewood cliffs, New Jersey, Prentice Hall, India 1990
2. Jayshankar, R. Decision support systems, New Delhi, Tata McGraw Hill 1989
3. Turban E decision support and expert systems 2nd Ed New York, MacMillan, 1990
4. Bhatnagar, S.C. and Ramani K.V. "Computers and Information system" Prentice Hall of India, New Delhi-1992
5. Lucas, H.C. "Information system concepts for Management" 5th Edition McGraw Hill New York 1994
6. Margan Alvi " Grouped decision support system Information system Management" Voll-8 No-3, summer 1991
7. Jqwdekar 'Management Information System' McGraw Hill
8. Laudon 'MIS-Managing Digital Firm" Prentice Hall of India, New Delhi.

Semester VI
Paper No 605: Lab course –VIII
(Based on Paper No 601)

Part- I) Use of Basic Commands- Based on Unit-III

(Minimum five Practical Assignments)

Part- II) Assignments based on Shell Script :

1. Add two nos, which are supplied as command line argument, and if the nos are not given the error is to be shown.
- 2 .Find out biggest number from given three nos.
- 3.Calculate the circumference and area of a circle
- 4.Write Script to see current date, time, username, and current directory
5. Arrange the numbers in ascending /descending order
- 6.Find factorial of given number

Semester VI
Paper No 606: Lab course –IX
(Based on Paper No 603)

Sample Assignments

1. Write a Java Program that will accept command-line arguments and display the same.
2. Write a Java Program which will read a text and count all occurrences of a particular word.
3. Write a java program which shows the application of constructors.
4. Write a java program which show the use of methods overloading.
5. Write a java program which show the use of static members.
6. Write a java program which explaining the concept of single inheritance.
7. Write a java program which show the method overriding.
8. Write a java program which implement interface.
9. Write a java program which use try and catch for exception handling.
10. Write a java program which use multiple catch blocks.

Semester VI
Paper No 607: Major Project

A group of maximum four students prepare a major project under the guidance of internal teacher. Project report will be evaluated by the internal teacher out of 20 marks and there will be viva-voce examination for 80 marks.(Documentation -- 20 Marks, Online Presentation-- 30 Marks, Viva-Voce -- 30 Marks.)

The panel for viva-voce examination will be appointed by university. The student should prepare the project report on the work carried out as a project in semester VI.

Guidelines for Project:

Number of Copies: The student should submit two Hard-bound copies of the Project Report.

Acceptance/Rejection of Project Report:

The student must submit an outline of the project report to the college for approval. The college holds the right to accept the project or suggest modifications for resubmission. Only on acceptance of draft project report, the student should make the final copies.

Format of the Project Report:

The student must adhere strictly to the following format for the submission of the Project Report.

a. Paper:

The Report shall be typed on white paper, A4 size, for the final submission. The Report to be submitted to the must be original and subsequent copies may be photocopied on any paper.

b. Typing:

The typing shall be of standard letter size, 1.5 spaced and on one side of the paper only. (Normal text should have Arial Font size 11 or 12. Headings can have bigger size)

c. Margins:

The typing must be done in the following margins:

Left -----1.5 inch, Right ----- 1 inch

Top ----- 1 inch, Bottom ----- 1 inch

d. Front Cover:

The front cover should contain the following details:

TOP : The title in block capitals of 6mm to 15mm letters.

CENTRE: Full name in block capitals of 6mm to 10mm letters.

BOTTOM: Name of the University, Course, Year of submission -all in block capitals of 6mm to 10mm letters on separate lines with proper spacing and centering.

f. Blank Sheets:

At the beginning and end of the report, two white black bound papers should be provided, one for the purpose of binding and other to be left blank.

Documentation Format

- a) Cover Page
- b) Institute/College Recommendation
- c) Guide Certificate
- d) Declaration
- e) Acknowledgement
- f) Index
- g) Chapter Scheme
 - 1) Introduction to Project
 - Introduction
 - Existing System
 - Need and scope of Computer System
 - Organization Profile
 - 2) Proposed System
 - Objectives
 - Requirement Engg.
 - Requirement Gathering
 - SRS
 - 3) System Analysis
 - System Diagram
 - DFD
 - ERD
 - UML(if applicable)
 - 4) System Design
 - Database Design
 - Input Design
 - Output Design
 - 5) Implementation
 - System Requirement
 - Hardware
 - Software
 - Installation process
 - User Guideline
 - 6) Output(with valid Data)
(Minimum 6 reports)
 - 7) Conclusion and Suggestions
 - Conclusion
 - Limitations
 - Suggestion
 - 8) References:-
 - i) Books:-
 - ii) Journals:-
 - iii) Periodicals and Newspapers:-
 - iv) Web
 - v) Questioner/Schedule(if used)
 - vi) Source code(Include Main Logic source code)