NORTH MAHARASHTRA UNIVERSITY, JALGAON

'A' Grade NAAC Re-Accredited (3rd Cycle)

Faculty of Science and Technology
Syllabus

BACHELOR IN COMPUTER APPLICATION (BCA)

With effect from June- 2017-18

NORTH MAHARASHTRA UNIVERSITY, JALGAON
BACHELOR IN COMPUTER APPLICATION
STRUCTURE
(W.E.F. June 2017)

Course Name: Bachelor in Computer Application

Short Title of Degree: B C A

Faculty to which assigned: Science and Technology

Duration: 3 years full time

Pattern: Semester

Examination Pattern: 60 (External) + 40 (Internal)

No of paper per semester: 4 Theory + 3 Practical

Eligibility: Passed Higher Secondary Examination in Any Stream

OR

Diploma recognized by Board of Technical Education with minimum Duration of 3 years

Medium of Instruction: English

Objectives:

- BCA COURSE strives to create outstanding computer professionals with ethical and human values to reshape the nation's destiny. This programme aims to prepare young minds for the challenging opportunities in the IT industry, nourished and supported by experts in the fields.
- The BCA Course aims at inculcating essential skills as demanded by the global software industry through interactive learning process. This also includes team-building skills, audio- visual presentations and personality development programmes.
- The programme enhances analytical, managerial and communication skill besides inculcating the virtues of self-study. The Curriculum has been designed to cater to the ever changing demands of information technology along with necessary inputs from the Industry.
  The OBJECTIVE of the course is to develop skilled manpower in the various areas of software industry and Information Technology.

COURSE STRUCTURE
Bachelor Of Computer Application (BCA)
w.e.f. –Academic Year 2017-18

First Year BCA - (Sem I & II) w.e.f. - July 2017-18			
Paper	**Semester -I**	**Paper**	**Semester –II**
BCA 101	Foundation Course for Managers	BCA 201	Financial Accounting
BCA 102	Computer Fundament and Networking	BCA 202	Professional Communication
BCA 103	Essential of Web Design I	BCA 203	Essential of Web Design II
BCA 104	Programming In C	BCA 204	Programming In C++
BCA 105	Practical on Computer & Internet	BCA 205	Practical on Professional Communication
BCA 106	Practical on Web Design-I	BCA 206	Practical on Web Design-II
BCA 107	Practical on C Programming	BCA 207	Practical on C++ Programming

Second Year BCA - (Sem III & IV) w.e.f. - July 2018-19			
Paper	**Semester -III**	**Paper**	**Semester –IV**
BCA 301	Mathematics and Statistics for Managers	BCA 401	Introduction to Information System Audit
BCA 302	Management Information System	BCA 402	RDBMS
BCA 303	Java Programming	BCA 403	C#.NET
BCA 304	Linux Operating System	BCA 404	Data Structure
BCA 305	Practical on Java	BCA 405	Practical on C#.NET
BCA 306	Practical on Linux	BCA 406	Practical on RDBMS using Oracle
BCA 307	Practical on Tally ERP	BCA 407	Practical on Data Structure using CPP

Third Year BCA - (Sem V & VI) w.e.f. - July 2019-20			
Paper	**Semester –V**	**Paper**	**Semester -VI**
BCA 501	Entrepreneurship Development	BCA 601	E-Commerce & M-Commerce
BCA 502	Cyber Security	BCA 602	Cloud Computing
BCA 503	ASP.NET	BCA 603	Android Application Development
BCA 504	Software Engineering	BCA 604	Server Side Scripting using PHP
BCA 505	Practical on ASP.Net	BCA 605	Practical on Android &PHP
BCA 506	Practical on CASE Tool with MS-VISIO and Software Testing	BCA 606	Practical on Employability Skills
BCA 507	Field Work on IT Project Assessment	BCA 607	Project Report and Viva

NORTH MAHARASHTRA UNIVERSITY, JALGAON
BACHELOR IN COMPUTER APPLICATION
NOTES TO STRUCTURE
(W.E.F. June 2017)

1. English medium is allowed for instructions to all the courses under this programme.

2 For all the courses (except course no 507 & 607 at semester V & VI) there shall be a semester pattern of examination (Theory / Practical) of 100 marks, comprising of external examination of 60 marks, and 40 marks for continuous internal assessment for every course.

Theory Examination	Maximum marks
Internal Assessment ***	**40**
External Examination (Term end examination)	**60**
Total Marks	**100**

a. ***

Two internal tests are to be conducted by the subject teacher. Each test shall be of 20 marks and the concerned teacher shall consider both internal tests for Internal Assessment.

Internal Assessment	Maximum marks
Internal test-I	**20**
Internal test-II	**20**
Total Marks	**40**

3 For course no 507 & 607 at Semester V & VI, Field work & Project has been prescribed for 100 marks, comprising maximum of 50 marks each to be awarded by an external examiner and an internal examiner, based on the field work / project report submitted and the viva-voce thereon. The said examination is to be conducted at the end of the V / VI Semester. In case of course no 507 & 607 of Semester V/VI the 60:40 patterns will not be applicable.

Field Work / Project Report	Maximum marks
Internal Assessment	**50**
External Viva - voce	**50**
Total	**100**

4 There shall be External Examination (Viva-Voce) for Field work and Project Report. The project must be based Computer Software Application (Desktop or Web)

5 The syllabus of each course shall be taught in 4 lectures per week during the semester.

Question Paper Pattern for External Examination

Marks: 60 **Times: 2hrs**

· Attempt any Five.

· Each Question carries 12 marks.

Que.1	**(12 Marks)**
Que.2	**(12Marks)**
Que.3	**(12Marks)**
Que.4	**(12Marks)**
Que.5	**(12Marks)**
Que.6	**(12Marks)**
Que.7	**(12Marks)**
Que.8	**(12Marks)**

Semester –I

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Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 101 - Foundation Course for Managers

w.e.f. 2017-18

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objectives-

- ✓ **To study the fundamental Accounting concepts, terms, jargons and learn the process of recording of financial transactions in the books of Accounts.**
- ✓ **To develop the foundation for higher studies in the field of accounting.**

Unit1- Introduction to Accounting:(theory only) **[10L] [15M]**

1.1 Meaning and definition of Financial Accounting.
1.2 Objectives and scope of Financial Accounting,
1.3 Meaning and use of Book Keeping
1.4 Accounting v/s Book Keeping
1.5 Advantages and Limitations of Financial Accounting.

Unit 2- Basics of Accounting (theory only) **[10L] [15M]**

2.1 Types of Accounting
2.2 Golden Rules of Accounting.
2.3 Double entry system in Accounting
2.4 Terms used in accounting : Debtors, Creditors, Bill Receivable, Bills Payable, Credit Note ,Debit Note ,Petty Cash ,Contra Entry ,Trade Discount ,Cash Discount,Suspense A/c
2.5 Users of accounting information

Unit 3-Recording of transactions: (theory & Practical Problems) **[10L] [15M]**

3.1 Accounting Process from Journal to Final Accounts
3.3 Journals& Problems on Journal Entries
3.4 Subsidiary Books
3.5 Cash Book& Problems on Preparation of Cash Book
3.6 Ledger
3.7 Balancing of Ledger – Balance c /d and Balance b/d (Opening & Closing Balance)
3.8 Rectification of Errors: meaning
3.9 Types of Errors
3.10 Problems on Rectification of Errors

Unit 4- Preparation of final accounts: (theoryonly) **[10L] [15M]**

4.1 Preparation of Trading and Profit & Loss Account and Balance Sheet of sole proprietor
4.1.1 Pro-forma of Trading Accounts
4.1.2 Pro-forma of Profit & Loss Accounts
4.1.3 Pro-forma of Balance sheet
4.2Importance of final accounts to the Businessman, Government,Creditors and other stakeholders of Business.

Unit 5- Conceptual Frame work: (theory only) **[10L] [15M]**

5.1 Brief review of Accounting Standards in India
5.2 Accounting Standards-concept, objectives and Scope
5.3Accounting Principles, Conventions and Concepts
5.4 Accounting Policies

Unit 6: Corporate Banking: (theory only) **[10L] [15M]**

6.1 Bank Pass Book,
6.2 Cheque-meaning and Types
6.4 Discounting of Cheques, Dishonour of Cheque
6.4 Current Account & Savings Accounts (CASA)
6.5 Bank Overdraft, (BOD)
6.6 Cash Credit (CC)
6.7 Internet Banking: meaning & Advantages
6.8 Plastic Money :Debit Card & Credit Card
6.9 RTGS: Real Time Gross Settlement
6.10 NEFT: National Electronic Fund Transfer

Reference Books

Recommended Books

1. Financial accounting: By Jane Reimers (Pearson Education) *ISBN*: 9780136115274
2. Accounting Made Easy By Rajesh Agarwal & R Srinivasan (Tata McGraw –Hill) *ISBN* 0070600600
3. Financial Accounting for Management: By Amrish Gupta (Pearson Education) ISBN - 9788131754528

4. Financial Accounting for Management: By Dr. S. N.Maheshwari (Vikas Publishing House) *ISBN* : 9789325956193
5. Fundamentals of Accounting: S.K Paul

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 102 - Computer Fundament and Networking

w.e.f. 2017-18

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective- To make students well familiar with computer and networking fundamentals.

Unit 1. Introduction: **[10L] [15M]**

History & generation of computer, Block diagram of computer system, Types of computers
Definition- Software, Hardware, Compiler, Interpreter, Characteristics & applications ofComputer,
Data Representation: Introduction to Number system: decimal, binary, octal and hexadecimal, Conversion in Number System, Character representation: ASCII.

Unit 2. Memory Concepts and Input Output Devices: **[10L] [15M]**

Concepts of Memory cell, Types of memory, Primary- RAM, ROM, PROM, EPROM
Secondary - Magnetic disk, hard disk, CD , Input devices - keyboard, mouse, scanner, web camera Output device - printers, plotters, LCD projector

Unit3. Algorithm & flowcharts: **[10L] [15M]**

Definition - Algorithm, flowchart, Flowchart symbols,
Examples for constructing algorithmand flowchart for simple programs (Minimum 5)

Unit 4. Operating System Concepts: **[10L] [15M]**

Definition,Need and Function of an operating system,
Types of operating system,
Comparative study of various operating systems.

Unit 5. Introduction to Network: **[10L] [15M]**

What is Computer Network. Types of Networks: LAN, MAN, WAN, Wireless Networks, Transmission Path: Twisted Pair, Coaxial Cable, Fiber Optics, Working of Internet, Use of Internet, Applications of Internet, Study of Web Browsers, Search Engines, Creating an E-mail Account, Sending & Receiving E-mail (with attachment)

Unit 6.Topologies & Switching **[10L] [15M]**

Topologies: Star, Tree, Bus, Ring, Mesh, Fully Connected.
Switching: Circuit Switching, Packet Switching, Message Switching

Reference Books

1) Fundamentals of computer - V. Raja Raman (PHI Publication) ***ISBN*** 10: 8120340116
2) Computer and commonsense - Roger Hunt and John Shelley (PHI Publication) ***ISBN*** 10: 0131646737
3) Andrew S.Tanenbaum Computer Networks – Fourth Edition. ***ISBN number*** 0130661023

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North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 103 - Essential of Web Design I

w.e.f. 2017-18

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective- - To make students well familiar Internet and Web designing

Unit 1 - Internet & Web Designing Concepts **[10L] [15M]**

Internet**:** Introduction to Internet, Internet Services, WWW, Hypertext Transfer Protocol (HTTP), URL, Web server, Proxy servers

Web Site Concepts: Web page, static and Dynamic web page, Web site development Phases,

Unit 2 - HTML Fundamentals **[10L] [15M]**

Hypertext Basics, Basic Components of HTML, HTML Tags,Head, and Title Tags, Body Tags, Creating HTML Code using different editor (notepad, EditPlus, TextPad etc.)

Viewing in aBrowser.

Unit 3 - Formatting Text **[10L] [15M]**

Importance of Formatting, Paragraphs and Alignment, Bold Text, Italic Text, Underline, HTML Headings, Ordered List Tags and Attributes, Unordered List Tags and Attributes Nested Lists, Font Tags, Font Attributes, Marquee Tag and Attributes.Heading Tag.

Unit 4 – Images **[10L] [15M]**

Different Image Formats, Image Tags and Attributes,

Background Images and Color

Inserting Audio and Video Files, images Link

Unit 5 - Links & Tables **[10L] [15M]**

How Hyperlinks Work, Anchor Tag and HREF. Attributes, Absolute vs. Relative Links, Border E-Mail Links, and Table Tags & Table Attributes, RowAttributes, Cell Attributes, Merging Rows & Columns.

Unit 6 - Frames and Forms **[10L] [15M]**

Frames, Pros and Cons of Using Frames, Creating Framesets, Frameset Attributes & Frameset Examples, Frame Tag and Attributes,No frames Tag,

Anatomy of A Form, Form Tag And Attributes, Text Boxes, Check Boxes, Radio Buttons, Text Areas, List Box Submit and Reset Buttons

Reference Books

1) Textbook of Web Designing By Joel Sklar, Cengage Learning Publication 2009
2) Web designing in Nut Shell (Desktop Quick Reference) by Jennifer Niederst Publication – O'Reilly publication
3) Designing web navigation by James Kalbach Publication – O'Reilly publication Textbook of
4) Web Designing By Joel Sklar, Cengage Learning Publication 2009 ***ISBN***, 1423901940

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 104 - Programming In C

w.e.f. 2017-18

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective: Prepare students to acquire knowledge of programming using C. It is the precursor and inspiration for almost all of the most popular high-level languages available today.

Unit 1 -Basics of C Language **[10L] [15M]**

Overview of C: History of C, Importance of C, Structure of a C Program.

Elements of C: C character set, identifiers and keywords, Data types, Constants and Variables, Assignment statement, Symbolic constant.

Input/output: Unformatted & formatted I/O function in C, Input functions viz. scanf(), getch(), getche(), getchar(), gets(), output functions viz. printf(), putch(), putchar(), puts().

Unit 2 -Control Flow and Logical Expressions **[10L] [15M]**

Operators & Expression: Arithmetic, relational, logical, bitwise, unary, assignment, conditional operators and special operators, operator hierarchy & associativity

Decision making & branching: Decision making with IF statement, IF-ELSE statement, Nested IF statement, ELSE-IF ladder, switch statement, goto statement.

Loops control structure: while loop, for loop, do–while loop, nested loop, break , continue, switch, go to, exit statement

Unit 3 -Functions **[10L] [15M]**

Functions: Definition, prototype, passing parameters, scope of variable, storage class, recursion. function Overloading .

Unit 4 -Arrays and String **[10L] [15M]**

Array, array initialization, and Manipulation, Multidimensional array, Strings, Standard library string function strlen(), strcpy(), strcat(), strcmp() etc.

Unit 5 -Pointers **[10L] [15M]**

Definition and declaration, Uses, Initialization, address operator,pointer arithmetic,dynamic memory allocation,arrays and pointers,pointer to function

Unit 6 -Structure, Union **[10L] [15M]**

Structure: use of structure, declaration of structure, accessing structure elements, how structure elements are stored, array of structure, Union, Difference between structure and union.

Reference Books

1) Programming with problem solving through 'C'. (ELSEVIER) (for UNIT I) ***ISBN***-10: 0124058760
2) Programming in C", E. Balaguruswamy Tata McGraw Hill ISBN 10: 1259004619
3) "C The Complete Reference", H. Schildt, Tata McGraw Hill ***ISBN***-13
4) The C Programming language by Brian W. Kernighan Dennis M. Ritchie Prentice Hal SBN ***0-13-110362-8***
5) Text Book - 1. Y. Kanetkar, "Let us C", BPB Publications ***ISBN*** 10: 8183331637 ***ISBN*** 13: 9788183331630

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 105 - Practical on Computer & Internet

w.e.f. 2017-18

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective: To practically train students in using computer and internet.

1. Run different commands of MS DOS – CD, DIR, COPY, REN, CLS, MD, CD, RD etc.
2. Study information of Internet connectivity components line, VSAT, Broadband,
3. Study information of Internet connectivity components Modem, IP Sharer, Hub, and Switch.
4. Study different web Browsers- Internet Explorer, Fire fox, downloading of files,
5. Connect the Internet; open any website of your choice and save the WebPages.
6. Search any topic related to your syllabi using any search engine and download the relevant material.
7. Create your E-Mail ID on any free E-Mail Server.
8. Login through your E-Mail ID and do the following:
   a. Read your mail
   b. Compose a new Mail
   c. Send the Mail to one person
   d. Send the same Mail to various persons
   e. Forward the Mail
   f. Delete the Mail
   g. Send file as attachment
9. Send any greeting card to your friend.
10. Surf Internet using Google to find information about your State / Country / Famous Personality.
11. Surf Internet using Google to find Tourism information about your state
12. Surf Internet using Google to find colleges around your area.

'A' Grade NAAC Re-Accredited (3rd Cycle)

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 106 - Practical on Web Design-I

w.e.f. 2017-18

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective- - To make students well familiar with internet and HTML Script

1. Create web page using basic HTML tags
2. Createweb page using Marquee Tag and Different Formatting tag.
3. Create a web page using different List tag.
4. Create web page using Anchor Tag (Internal Link and External Link)
5. Create web page to design time table of your college using Table tag.
6. Create Web page with different images.
7. Create web page inserting audio and video files.
8. Design a web page using Frames and Frameset Tag.
9. Design a simple Webpage of College Admission Form.
10. Design static and simple website for your college.

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 107 - Practical on C Programming

w.e.f. 2017-18

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective: To practically train students in C programming language.

1. Write a program in C to demonstrate Arithmetic operators.
2. Write a program in C to demonstrate Relational operators.
3. Write a program in C to check the number is palindrome or not.
4. Write a program in C to check the number is Armstrong or not.
5. Write a program in C for Fibonacci series up to given term.
6. Write a program in C to find factorial of given number.
7. Write a program in C for Matrix Addition/subtraction.
8. Write a program in C for Function Overloading.
9. Write a program in C for swapping two integer numbers using call by value and call by reference
10. Write a program in C which demonstrates the string function.
11. Write a program in C to demonstrate pointer variable.
12. Write a program in C to demonstrate structure.

Semester –II

'A' Grade NAAC Re-Accredited (3rd Cycle)

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 201 Financial Accounting& Costing

w.e.f. 2017-18

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objectives:

- ✓ **To give the practical knowledge of accounting to the students.**
- ✓ **To make the students competent in preparation of Accounts for the Business Entities.**

Note: For Question Paper Pattern of subjects related to Accounts & Costing refer guidelines given in syllabus instructions.

SCECTION-I FINANCIAL ACCOUNTING

Unit 1: Basics of Accounts(Theory and Practical Problem) [10L] [15M]

1.1 Types of Accounts&Golden Rules of Accounts
1.2 Journal: - Concept and Problems on Journal Entries.
1.3 Types of Journals: Cash Book, Sales Book, Purchase Book, Debtor Book, Creditor Book, Petty Cash Book, Bills Receivable Book and Bill Payable Book
1.4 Ledger: - Concept, Pro-forma
1.5 Ledger Posting and Ledger Balances
1.6 Cash Book: Types &
1.7 Problems on Preparation of Cash Book

Unit 2 Preparation of Final Accounts:(Theory and Simple Practical Problem) [10L] [15M]

2.1 Trial Balance: - Concept, Objectives and Pro forma
2.2 Preparation Of Trading, Profit and Loss and Balance-sheet (Horizontal Format- i.e. Regular Format)
2.3 Importance of Final Accounts in Business.

Unit 3: Accounting Standards (Theory) [10L] [15M]

3.1 Meaning of Accounting Standards
3.2 Objectives and Scope of Accounting Standards
3.2 AS- 1 – Disclosure of Accounting Policies
3.3 AS- 2- Valuation of Inventories
3.4 AS- 6- Accounting for Depreciation
3.5 AS- 10 – Accounting For Fixed Assets

Chapter 4: Bank Reconciliation Statement (Theory and Simple Practical Problem) [10L] [15M]

4.1 Meaning and concept
4.2 Need of Bank reconciliation statement
4.3 Reasons of Difference between the balance of Cash Book and Pass Book
4.4 Preparation of Bank Reconciliation Statement

SCECTION-II COST ACCOUNTING

Unit 5: Fundamentals of Cost Accounting (Theory and Problem) [10L] [15M]

5.1 Cost, Expense, Loss : Meaning
5.2 Costing, Cost Accounting
5.3 Types of Costs on the basis of various criteria
5.4 Advantages and Limitations of Cost Accounting
5.5 Difference between Financial Accounting and Cost Accounting
5.6 Cost Sheet: Importance and objectives of Cost Sheet
5.7 Format of Cost Sheet&Preparation of Cost Sheet**(Problem)**

Chapter 6 Material Control (Theory and Problem) [10L] [15M]

6.1 Importance of Materials accounting and control in Industry
6.2 Different Level of Materials & their Calculations :
6.3 Economic Order Quantity (EOQ), Maximum Level, Minimum Level, Average Level, Reorder Level, Danger Level
6.4 Procedure and documentation of Purchasing and Storekeeping
6.5 Pro forma / Formats of:
6.5.1 Purchase Requisition
6.5.2 Purchase Order,
6.5.3 Bin Cards,
6.6 Inventory Pricing Methods:
6.6.1 FIFO, LIFO, Simple Average Method: Advantages
6.6.2 Problems on Preparation of Store ledger under FIFO, LIFO, Simple Average Method

Reference Books

References:

1) Introduction to Accountancy – T. S. Grewal& S. C. Gupta – S. Chand – 8thEdition ISBN 10: 8121905699 / ISBN 13: ***9788121905695***
2) Accounting Made Easy: By Rajesh Agarwal & R Srinivasan (Tata McGraw –Hill) ***ISBN*** 1403 910324. 2.
3) Fundamentals Of Accounting, Dr. S.N. Maheshwari&Dr.S.K. Maheshwari, Vikas Publishing House, New Delhi ***ISBN*** 13: 9788180544491
4) Financial Accounting – Jawaharlal &Shrivastava – S.Chand & Sons ***ISBN*** 0-672-32901-8
5) Accounting for Managers - Vijay Kumar – TMH ***ISBN*** 13: 9780070090170
   Advanced Accounts, M.C. Shukla, T. S. Grewal& S.C. Gupta, S. Chand & Co Ltd. ***ISBN*** 13: 9788121910163

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 202 Professional Communication

w.e.f. 2017-18

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective-To impart the basic communication skills among students.

Unit 1 - Basics of Communication **[10L] [15M]**

1) Meaning & Objectives of communication,
2) Process of communication, Importance of communication,
3) Steps of Effective Communication
4) Methods of Communication
    a) Verbal & Non verbal
    b) Oral & Written
    c) Internal & External

Unit 2 - Use of English Language **[10L] [15M]**

1) Tenses in a Nutshell -For proper sentence construction.
2) Punctuation: Commas, Semi-colons, colons, Hyphens & Dashes, Apostrophes
3) Vocabulary Building -; Antonyms and Synonyms; Prefixes and Suffixes
4) Development of English Language: through LSRW Skills Listening, Speaking, Reading, Writing

Listening to common English Sentences, Popular and Motivational Speeches.

Speaking Routine and situational Conversation; Just two Minutes - 2 Minute talk on any topic

Reading Skills- Speed reading techniques -Loud and silent, Reading-Simple Motivational success stories of well known people.

Tactful Use of Language: Asking for action, talking about errors, Techniques of Emphasis

Unit 3- Written Communication-I **[10L] [15M]**

1) Meaning, Distinction with Oral Communication, Merits & Limitations of Written communication.
2) Letter writing, Essentials of Good Business letters
3) Types of letters: Types of Application Letters- Application to Director for Leave, Application for delayed fee payment, Application for Bonafide Certificate.
4) Writing Direct Messages by Manager –Delivering: Positive, Neutral & Negative Information.

Unit 4 - Written Communication –II **[10L] [15M]**

1) E-mail –Drafting & Sending Emails
2) Report Writing: Meaning & Nature of Report, Formats of Reports –Formal, Informal reports, Writing Reports -Data collection, organizing, presentation of the Report.

Unit 5 - Organizational Communication –I **[10L] [15M]**

1) Job Applications: Covering Letter-Resume –Appointment Letter
2) Meaning & Importance of Organizational Communication.
3) Upward and Downward Communication

4) Horizontal Communication
5) Grapevine.

Unit 6 - Organizational Communication –II **[10L] [15M]**

1) Internal communication: Notice, Circular, Memo.
2) External Communication –Enquiries, Quotations, Bank & Financial Institutions
3) Holding Press Conferences & Preparing Press Releases

Reference Books

1) Effective Technical Communication by M AsharfRizvi Tata McGraw-Hill Publisher ***ISBN***:9780070599529,
2) Communication for Business –Taylor & Chandra –Pearson ***ISBN*** 13: 9788131727652
3) Business Communication –Rai&Rai –Himalaya ***ISBN*** 0415213002
4) Business Communication by Raman & Singh, Oxford Publication ***ISBN*** 13: 9780198077053
5) Basics of Business Communication –Lesikar&Flatley –Tata McGraw Hills ***ISBN*** 13: 9780070599765
6) Business Communication –C.S. Raydu –Himalaya Publishing House ***ISBN*** : 817866125X

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 203 Essential of Web Design II

w.e.f. 2017-18

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective- - To make students well familiar with JavaScript and CSS

Unit 1 - Introduction to Cascading Style Sheets [10L] [15M]

- Advantages of Style Sheets,
- Role of CSS in Web Designing,
- Rules of CSS
- CSS Structure and Syntax
- Selectors and declarations
- Working with style classes
- Working with style IDs
- Child Selector
- Type Selector
- Inheriting styles Using Different Kinds of Style Sheets
- Internal style sheets, External style sheets

Unit 2 - Using Cascading Style Sheets [10L] [15M]

- Managing Layout and Positioning
- Visual layouts, Positioning
- Changing Fonts for Visual Interest and Better Readability
- Body text
- Headings
- Hyperlinks
- Externalizing Style Sheets
- Using CSS with Multimedia
- Visual media styles
- Paged media styles

Unit 3 - Introduction to Java Script [10L] [15M]

- Meaning of Scripting Language,
- Types of Scripting Language (JavaScript, VBScript, Perl, ASP, PHP
- Differences between client-side and server-side scripting.
- Writing JavaScript into HTML.

- Basic Programming Techniques: Data Types and Literals, Creating variables, JavaScript Array, operators and Expressions (Arithmetic, Logical. Comparison. Assignment operator) in JavaScript.
- JavaScript Programming Constructs: Conditional checking (if-then-else statement), Loops (for loop and While loop),

Unit 4 – Java Script Function **[10L] [15M]**

- Creating functions in Java script
- Java Script Built-in String function
- Handling Web Page Events – OnClick, OnMouseOver, OnMouseOut, OnBlur etc.
- Dialog Boxes (Alert, Prompt and Confirm Dialog Box)

Unit 5 – Java Script Objects **[10L] [15M]**

- Array Object
- Date & time object
- Math object
- String object
- Document object
- History object

Unit 6 – Java Scripting and forms **[10L] [15M]**

- Form Object's - Properties and Methods
- Form Actions – Reset and Submit.
- Form Validation – E-Mail, Not Null, Number etc.

Reference Books

1) The ABC's of Java Script by Lee Purcell Mary Jane Mara, BPB Publication .***ISBN***: 8170298261.
2) The Complete Reference – Web Design, Thomas A. Powell, TMH, ISBN 0-07-041186.
3) How to become webmaster in 14 days, James L Mohler, Techmedia ***ISBN*** 1575211696.
4) HTML, DHTML, JavaScript, Perl & CGI by Ivan Bayross, BPB Publishing ... ***ISBN***: 8176562742
5) Web References: www.w3c.org, www.sybex.com ***ISBN*** 0-07-041186
6) Web Enabled Commercial Application Development using HTML, DHTML, Java Script,PERL ISBN 13: ***9788183330084***.
7) CGI By Ivan Bayross, BPB Publication ***ISBN*** 13: 9788183330084

'A' Grade NAAC Re-Accredited (3rd Cycle)

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 204 Programming In C++

w.e.f. 2017-18

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective- To train students in programming using object oriented concepts with C++.

Unit 1 – Introduction and Basics of OOP's **[10L] [15M]**

- Introduction to Object Oriented Paradigm,
- Need Object-Oriented Programming,
- Characteristics of Object-Oriented Programming.
- Difference of Structured Vs. OOPs

Unit 2 –C++ Controls , Pointers & Functions **[10L] [15M]**

- Input/ Output in C++,
- Data Types, Operators,
- Control & Conditional Statements,
- Pointer variables,
- Array of pointer,
- Pointer arithmetic,
- Function and its components,
- Different types of parameter passing mechanisms,
- Pointer as function argument
- Recursive function,
- Function overloading,
- Inline Function,

Unit 3 –Object and Classes **[10L] [15M]**

- Class declaration in C++,
- Objects,
- Constructors and types of constructor (Default constructor, Copy Constructor, Parameterized constructor).
- Destructor,
- Difference between classes and structures.
- Friend class Friend Function

Unit 4 – Operator Overloading **[10L] [15M]**

- Operator overloading,
- Overloading Unary & Binary Operators without friend function.

- Features of operator overloading,
- Operators overloading using friend function.

Unit 5 – Inheritance **[10L] [15M]**

- Inheritance- definition, concept,
- Types of Inheritance,
- visibility modes- Public, Private, Protected,
- Virtual Base Class,
- Benefits of Inheritance,

Unit 6 – Virtual Functions, Templates & Exception& File handling **[10L] [15M]**

- Virtual Function,
- Pure Virtual Functions,
- Abstract classes,
- Function Templates
- Exception handling constructs.

Reference Books

1. Mastering C++ by K R Venugopal, Rajkumar, T Ravishankar, Publication - TMH
2. Exploring C++ by YashwantKanetkar
3. Object Oriented Programming using C++ by W. Balguruswamy, Publication - TMH
4. The C++ Programming Language by BjaraneStroustrup,

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 205 Practical on Professional Communication

w.e.f. 2017-18

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective- To impart basic communication skills among students

1. Prepare letter of application to
   a. The Director/Head for leave
   b. The Director/Head for delay in payment of fee.
   c. The Director/Head for Bona fide Certificate
2. Prepare Notice
3. Prepare Memo
4. Prepare Circular
5. Create E-mail
6. Prepare Written Report
7. Prepare Grammar Worksheet – Punctuation (Prepare 10 to 15 sentences using various punctuation marks)
8. Prepare Grammar Worksheet – Tenses (Prepare 10 to 15 sentences using various tenses)
9. Give a two minute talk on a topic of choice (With proper beginning and ending)
10. Prepare a Report
11. Draft a Resume
12. Write a Job Application Letter including a covering letter

Note: Students may use their creativity.

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 206 Practical on Web Design-II

w.e.f. 2017-18

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective- - To make students well familiar with css and JavaScript

1. Create web page to set background color using CSS.
2. Create web page to set different font style to each paragraph.
3. Design a web page using Inline and Internal CSS
4. Demonstrate the use of External CSS
5. Create a Webpage different background images using CSS.
6. Write JavaScript code to demonstrate different string functions.
7. Write JavaScript code to demonstrate different events.
8. Create a HTML page to demonstrate Date & Time object using JavaScript.
9. Write JavaScript code to demonstrate use of Dialog Boxes (Alert, Confirm, and Prompt).
10. WriteJavaScript code to validate E-Mail Id.

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 207 Practical on C++ Programming

w.e.f. 2017-18

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective- To practically train students in programming in object oriented way using C++.

1. Write a program to check given number is prime or not.
2. Write a program to demonstrate use of Function overloading
3. Write a program to demonstrate encapsulation using of class.
4. Write a program to demonstrate use constructors and Destructor.
5. Write a program to demonstrate single inheritance
6. Write a program to demonstrate multiple inheritances.
7. Write a program to demonstrate use of operator overloading using friend function.
8. Write a program to demonstrate use of operator overloading without using friend function.
9. Write a program to demonstrate use of friend function.
10. Write a program to demonstrate use of Friend class.
11. Write a program to demonstrate use of Virtual functions
12. Write a program to demonstrate use of function templates.

Second Year - Semester –III

North Maharashtra University, Jalgaon

Faculty of Science and Technology
BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 301 : Mathematics and Statistics for Managers

w.e.f. 2018-19
Total Lectures: 60
[Total Marks: 60 External + 40 Internal =100 Marks]

Objective :To impart the required knowledge of Mathematics and statistics for managerial activities among students.

Unit 1: Mathematical Logic [10L] [15M]

1.1. Meaning of Statement
1.2. Primitive and Compound Statements
1.3. Truth Values of a Statement
1.4. Law of Excluded Middle
1.5. Logical Operations: Negation, Conjunction & Disjunction Implication, Double Implication, Equivalence
1.6. Equivalence of Logical Statements
1.7. Truth Tables & Construction of Truth Tables
1.8. Tautology and Contradiction
1.9. Argument: Valid And Invalid Arguments

Unit 2: Sets [10L] [15M]

2.1. Meaning of a Set
2.2. Methods of Describing a Set
  2.2.1. Tabular Form
  2.2.2. Set Builder Form
2.3. Types of a Set:
  2.3.1. Finite Set, Infinite Set, Empty Set, Subset, Universal Set,
  2.3.2. Equal Sets, Overlapping Sets, Disjoint Sets, Complementary Set.
2.4. Operations on Sets
  2.4.1. Union of Sets
  2.4.2. Intersection of Sets
  2.4.3. Difference of Sets
2.5. Demorgan's Laws (Without Proof)
2.6. Venn Diagrams
2.7. Cartesian Product of Two Sets
2.8. Statement of Following Laws (Without Proof) Relating To Union and Intersection of Sets :- Idempotent Laws (ii) Identity Laws (iii) Commutative Laws (iv) Associative Laws (v) Distributive Laws

Unit 3: Matrices [10L] [15M]

3.1. Meaning of a Matrix, Order Of Matrix
3.2. Types of Matrix
3.2.1. Zero Matrix, Column Matrix, Square Matrix, Diagonal Matrix,
3.2.2. Scalar Matrix, Unit Matrix
3.2.3. Symmetric Matrix, Skew-Symmetric Matrix,
3.2.4. Transpose of a Matrix: Singular Matrix & Non -Singular Matrix.
3.3. Algebra of Matrices:-
3.3.1. Equality of Matrices

3.3.2. Multiplication of Matrix by A Scalar
3.3.3. Addition of Matrices, Subtraction of Matrices
3.3.4. Multiplication of Matrices

Unit 4: Introduction to Statistics [10L] [15M]

4.1. Meaning of Statistics
4.2. Importance and Limitations of statistics
4.3. Meaning of data, Raw data, Primary data, Secondary data
4.4. Variable and attribute, Types of variable: - districts and continuous
4.5. Meaning of Population and sample
4.6. Introduction to methods of sampling: - simple
random sampling and strafied random sampling

Unit 5: Measures of central tendency [10L] [15M]
5.1 Meaning and central tendency
5.2 Statement of measures of central tendency: - arithmetic mean, geometric mean, harmonic mean, median and mode
5.3 Computation of these measures of central tendency for given raw data
5.4 Partition values: - quartiles, deciles and percentiles
5.5 Computation of partition values for given raw data

Unit 6: Mathematical and Statistical Calculations using MS-EXCEL [10L] [15M]

6.1 Step by step procedure to perform basic logicalfunction using MS-Excel
6.2 Step by step procedure to perform basic mathematical function with MS-Excel
6.3 Step by step procedure to perform basic statistical function using MS Excel

Reference Books

- Business Mathematics Sancheti&Kapoor Sultan Chand & Co. New Delhi ***ISBN*** 10: 8180545385
- Business Mathematics & Analytics Anand Sharma Himalaya Publishing ***ISBN*** 13: 9788180545382
- Business Mathematics Dr.Ramnath Dixit and Dr. .Jinendra Jain Himalaya Publishing
- Business Mathematics & Statistics: Punaini, Pearson Education ***ISBN***: 9780070612044
- Business Statistics C M Chikkodi& B G Satyaprasad Himalaya Publishing
- Business Statistics S P Gupta Sultan Chand &Co.NewDelhi ***ISBN*** : 8180549453
- MS-Excel Help files from Microsoft ***ISBN***-13: 978-1285168432

'A' Grade NAAC Re-Accredited (3rd Cycle)

North Maharashtra University, Jalgaon

Faculty of Science and Technology
BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 302 : Management Information Systems

w.e.f. 2018-19
Total Lectures: 60
[Total Marks: 60 External + 40 Internal =100 Marks]

Objectives: To impart the knowledge of MIS among students.

1 Introduction **[10L] [15M]**

Definition, Purpose, Objectives and Role of MIS in Business Organization with particular reference to Management Levels. MIS Growth and Development,

2 MIS in the Organization **[10L] [15M]**

Concept and design. Transaction Processing System, Decision Support System, Executive Information system, Expert System, and the recent developments in the field of MIS.

3 System Development **[10L] [15M]**

Concept of System, Types of Systems – Open, Closed, Deterministic, Probabilistic, etc. Relevance of choice of System in MIS, Integration of Organization Systems and Information Systems,

4 System Development Life Cycle **[10L] [15M]**

System Analysis, Design and Implementation, MIS Applications in Business.

5 Information Concepts **[10L] [15M]**

Data and Information – meaning and importance, Relevance of Information in Decision Making, Sources and Types of Information, Cost Benefit Analysis – Quantitative and Qualitative Aspects, Assessing Information needs of the Organization.

6 Information Technology **[10L] [15M]**

Multimedia Approach to Information Processing. Decision of Appropriate Information Technology for proper MIS.Choice of appropriate IT Systems – Database, Data warehousing & Data mining Concepts, Centralized and Distributed Processing.

Reference Books

1) Javadekar, W.S."Management Information System", Tata Mac Graw Hill Publication,2003. ***ISBN*** 0-07-282256-2
2) Davis,B.Gordon, "Management Information System", Tata MacGraw Hill Publication,2002. ***ISBN*** 13:978-0-07
3) Gupta,A.K, "Management Information System",S Chand Puplications,2003 ISBN13: 9788121919937
4) Arora,Ashok&Bhatia,Akshaya, "Management Information System", Excel Books,NewDelhi, 2001 ***ISBN***: 978-81-7446-781-2
5) Basandra,Suresh K., "Management Information System", Wheeler Publishing,New Delhi,999.
6) O'Brien, James A., "Management Information System", Tata McGraw Hill, 2003 ***ISBN*** 81-203-1282-1

North Maharashtra University, Jalgaon

Faculty of Science and Technology
BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 303 : JAVA Programming

w.e.f. 2018-19
Total Lectures: 60
[Total Marks: 60 External + 40 Internal =100 Marks]

Objectives: To impart the knowledge of object oriented programming using java among students.

Unit 1: Introduction To Java **[10L] [15M]**

Java as programming tool, Advantages of Java (Simple, Object Oriented, Distributed, Robust, Secure, Architecture Neutral, Portable, Interpreted, High performance, Multithreading, dynamic), Java& Internet.

Unit 2: Fundamental Programming **[10L] [15M]**

Comments, Data types (Integer, floating pt., character type, Boolean, enumerated), Casting, Variables, Arrays, Assignments, Initializations (Conversion between Numeric Types, constants), Operators, Input and Output, a simple java programs, Compiling and running Java programs using command line and Editors, command line arguments. Control flows: conditional statement, loops, Switch statement, and Block scope

Unit 3: Objects and Classes **[10L] [15M]**

Introduction, Defining a class, Adding variables, Adding methods, Creating objects, Accessing class members, Constructors, Method Overloading, Static members, Nesting of methods, final methods.

Unit 4: Function and Package **[10L] [15M]**

String functions (Concatenation, substring, string editing, testing for equality etc), Formatting functions, Creating and UsingPackage, User defined packages

Unit 5: Inheritance **[10L] [15M]**

Inheritance, Inheritance hierarchies, super class, sub class, Polymorphism, Abstract classes, Access modifiers, Introduction to Wrapper classes, Interfaces, Inner classes. Use of Final.

Unit 6: Multithreading, Exception&Applet in Java **[10L] [15M]**

What Are Threads, Thread States,
Introduction to Exceptions- Try, Catch, Throw, Throws and Finally.
What is an Applet, Applet lifecycle, Use of java.awt.graphics class and its various methods in an applet

Reference Books

1) Core Java Volume- I Fundamentals- By: Cay's Horstmann and Gray Cornell ISBN-***13***: ***978-0-13***-708160-8
2) Programming with Java- By: E Balagurusamy (Tata McGraw Hill) ISBN: ***9780070141698***
3) The complete reference JAVA-2 Fifth Edition By: Herbert Schildt (TMH) ***ISBN***: 0 07 881538

'A' Grade NAAC Re-Accredited (3rd Cycle)

North Maharashtra University, Jalgaon

Faculty of Science and Technology
BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 304 : LINUX Operating System.

w.e.f. 2018-19
Total Lectures: 60
[Total Marks: 60 External + 40 Internal =100 Marks]

Objectives:

1. **To make students understand the features of Linux operating system**
2. **To make students learn the components of Linux**
3. **To learn basic Linux commands and printing Linux documents.**

Unit 1 **[10L] [15M]**

History and Development of Linux -
A Brief History of Linux, Basic features of Linux OS, components of Linux System, Benefits of Linux, Acquiring and Using Linux, Examining Linux Distributions.

Unit 2 **[10L] [15M]**

System Access and User Accounts -Logging In and out Using the Linux System, Creating Additional User Accounts, Creating & Managing Groups, Managing Users Linux Commands.

Unit 3 **[10L] [15M]**

Introduction to The File System and Working with Linux Permissions , File System Navigation, Managing The File System Understanding Permissions, Changing File And Directory Permissions, Changing Default Permissions And Ownership

Unit 4 **[10L] [15M]**

File Operations -Archiving Files Archiving Files With Tar, Archiving Files With CPIO, Zipping Files, Creating and Viewing Files Using The Vi Editor, Studying Other Editors,

Unit 5 **[10L] [15M]**

Redirection, Introduction to Programming In C Using Linux (gcc), Introduction To X Windows And GNOME

Unit 6 **[10L] [15M]**

Working in X Windows (utilities), Managing Files and File Systems, Customizing X Windows, Choosing and Changing Window Managers and Desktops Remote X Window Access

Reference Books

1) 1 McAllister, Suse Linus-10, Pearson Education, 2006 ***ISBN***-81-7808-488-0 PHI. 2.
2) Ball, Using Linux, PHI, 1998. ***ISBN***-10: 0789716232
3) Das, UNIX: Concepts and Applications (4th Ed), TMH, 2006 ISBN 13: ***9780070635463***.
4) Foster Johnson, Welch, Anderson, Beginning Shell Scripting, Wiley India (Wrox), 2006 ***ISBN***-10: 0764583204
5) Neil Mathew, Richard Stones, Beginning Linux Programming (3rd Ed), Wiley India (Wrox), 2006 ***ISBN***: 978-0-470-14762-7
6) Peterson, Linux: Complete Reference (5th Ed), Peterson, TMH. ***ISBN*** 10: 0070222940

'A' Grade NAAC Re-Accredited (3rd Cycle)

North Maharashtra University, Jalgaon

Faculty of Science and Technology
BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 305: Practical on JAVA.

w.e.f. 2018-19
Total Lectures: 60
[Total Marks: 60 External + 40 Internal =100 Marks]

1. Write a Java program that demonstrates program structure of java. (Fibonacci Series, Factorial etc.)
2. Write a Java program to demonstrate use of class and object.
3. Write a Java program that demonstrates all string operations.
4. Write a Java program to demonstrate use of constructor and finalize method.
5. Write a Java program to demonstrate use of method overloading.
6. Write a Java program to demonstrate use of wrapper class
7. Write a Java program to demonstrate use of package.
8. Write a Java program that demonstrates inheritance.
9. Write a Java program to demonstrate interface.
10. Write a Java program that demonstrates inner class.
11. Write a Java program that demonstrates Exception (Divide by 0).
12. Write a Java program that demonstrates AWT control (Label, Textbox, Button etc.).

'A' Grade NAAC Re-Accredited (3rd Cycle)

North Maharashtra University, Jalgaon

Faculty of Science and Technology
BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 306: Practical on Linux.

w.e.f. 2018-19
Total Lectures: 60
[Total Marks: 60 External + 40 Internal =100 Marks]

1. Access: Logging In. Linux Commands. Getting Help. Obtaining Information about Your System.
2. Starting and Stopping Linux: Shutting Down a Linux System, Booting a Linux System.
3. Demonstration of Linux commands with attributes: - pwd, cd, ls, more, less, echo, clear, kill, ps, man, cal, date, who, who am I, WC, mkdir, rmdir, rm, sort.
4. File and File Permission: Creation of Files, and changing their permission (Cat,vi, Chmod)
5. Archiving Files: Archiving Files with tar
6. Write a shell script to display first 20 terms of Fibonacci series.
7. Write a shell script to display current time of system and display the message according to the time.
8. Write a shell script to check the user is login or not and say hello.
9. Write a shell script to calculate factorial of a number
10. Using filters & redirections: create new processed files (Using Head, tail, cut, paste etc. create resultsheet/salarysheet)
11. Develop a C Program In Linux to find out 20 terms of Fibonacci series.
12. Develop a C Program In Linux to calculate factorial of a number

North Maharashtra University, Jalgaon

Faculty of Science and Technology
BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 307 : Practical on Tally ERP

w.e.f. 2018-19
Total Lectures: 60
[Total Marks: 60 External + 40 Internal =100 Marks]

Objective :To practically train students in Accounting using Tally ERP.

I] List A of Practical -

Assignment 1. Create a Company BCA Ltd. to maintain Financial Accounts only using hypothetical address and other details. The company maintains its books of accounts on financial year basis.
(a) Make the default setting for printer assuming that the reports are printed on the stationery with a letterhead printed on the top that consumes the space of one inch.
(b) The Company wants to print the amount in Indian Currency with space between Rs and amount.

Assignment 2. Create a Company Temporary Ltd. (Store data in C:/work/temp) having financial year as the accounting year. It is a newly set up company that has commenced its business from 1st October 2007. Other details may be enteredas per your assumption, except the Income Tax Number (PAN); upon saving the company, enter the Income tax number PAN as FYBCA0278S. Delete the Company created for Temporary Ltd.

Assignment 3. Create Groups following the hierarchy shown below -
Debtors - International
Debtors - National
Debtor- South
Debtor- North
Debtor- Central

Assignment 4. Create the following Ledger accounts, place under appropriate group (Create new groups whenever necessary)
(a) Wages paid to factory workers
(b) Wages paid to temporary workers
(c) Salary paid to H.O. employees
(d) Salary paid to Branch employees
(e) Share Capital (Rs. 5,00,000 Cr.)
(f) Telephone Charges

Assignment 5. a) Create at least 8 imaginary ledger account and place them under appropriate group – in the books of an Educational Institution.

b) Modify the above company to record account of a new asset which was not these earlier.

c) Creation of ledger consist of
1. Debtors in regional hierarchy, at least 4 groups
2. Sales at least 4 groups
3. Fixed assets groups at least 3 ledgers
4. Capital groups at least 3 – 5 parties ledgers
5. Purchases group at least 3 ledgers
6. Creditors at least 3 groups. Take imaginary opening balance.

Create the following Ledger

Name	**Group**	**Opening Bal. Rs.**
Khandesh Textile	Debtors- South	5,000 Dr.
Kanpur Textile	Debtor Central	0
Lucknow Textile	Debtor- North	0

Honda Corporation Debtors- International 0
Jackson Textile Debtors- International 0
Bank of Maharashtra Bank Account 60,000 Dr.
Sales- Domestic Sales Account 0
Sales- International Sales Account 0
Purchases Purchase Account 0
Building Fixed Assets 6,00,000
Furniture Fixed Assets 30,000

Assignment 6. Create a Short-life Company Ltd, and copy all the masters from the BCA Ltd. To the Short-life Company Ltd. Select the Short-life Company created, and check whether all the masters (Groups & Ledgers) have been copied. Delete the Short-life Company.

II] List B of Practical -

1. Preparing Purchase Register and Sales Register entering the transactions relating to Purchase (including discount), Sales (including discount), Purchase-Returns, Sales-Returns [Minimum 8 to 10 transactions be recorded]
2. Preparing Trial Balance with the minimum of 10 to 12 transactions.
3. Preparing Balance Sheet with transactions regarding Trading and Profit & Loss Account with adjustments. Alternatively, preparing Income & Expenditure Account for a non-trading concern along with the Balance Sheet.
4. Modifying Vouchers, deleting Voucher entries – using imaginary transactions. The above list is illustrative. A teacher, if required, may conduct similar additional practical on the above line in such a way as to cover the syllabus. Minimum of 3 practical each must be completed by a student from List A& List B to get the Journal certified.

Semester –IV

North Maharashtra University, Jalgaon

Faculty of Science and Technology
BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 401: Introduction to Information System Audit.

w.e.f. 2018-19
Total Lectures: 60
[Total Marks: 60 External + 40 Internal =100 Marks]

Objective: To impart the knowledge and importance of Information System and Audit among Students for Quality Management.

1) Overview of Information System Auditing - I **[10L] [15M]**

a) Organizational Costs of data loss
b) Incorrect decision making
c) Cost of Computer Abuse
d) Value of Computer Hardware, Software and Personnel
e) High cost of Computer Error
f) Maintenance of Privacy
g) Controlled evolution of computer use
h) Definition Information System Audit
i) Objectives – Asset safeguarding, Data Integrity, System Effectiveness, System efficiency.

2) Overview of Information System Auditing - II **[10L] [15M]**

a) Separation of Duties
b) Delegation of authority and responsibility
c) Competent and trustworthy personnel
d) System of Authorization
e) Adequate documents and records
f) Physical Control over assets and records
g) Adequate management supervision
h) Independent checks on performance
i) Comparing recorded accountability with assets

3) Conducting an Information System Audit **[10L] [15M]**

a) Introduction
b) Nature of Controls
c) Audit Risks
d) Types of Audit Procedures
e) Steps inan Audit
f) Auditing Around or Through the Computer

4) Data Management Controls **[10L] [15M]**

a) Functions and motivations of DA and DBA roles
b) Organizational Issues
c) Data Repository Systems
d) Control over DA and DBA

5) Information System Audit Management and ISA Professionalism **[10L] [15M]**

a) Introduction
b) Managing the Information System Audit Function
c) Planning Function

d) Organizing Function
e) Staffing Function
f) Leading Function
g) Control Information
h) Information System Audit Professionalism
i) Future of Information System Auditing

6) BCP **[10L] [15M]**

a) Introduction to Business Continuity Planning
b) Need of BCP
c) Difference between BCP and DRP
b) Costs associated with BCP

Reference Books

1) Information System Control and Audit – Ron Weber – Pearson Education ***ISBN*** 10: 8131704726
2) Information System Audit and Assurance – D.P. Dube and V.P. Gulati – Tata McGraw Hill ***ISBN***-13: 9780070585690.
3) ISACAs IT Audit standards – ***ISBN***978-0-12-374354-1.

'A' Grade NAAC Re-Accredited (3rd Cycle)

North Maharashtra University, Jalgaon

Faculty of Science and Technology
BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 402: RDBMS.

w.e.f. 2018-19
Total Lectures: 60
[Total Marks: 60 External + 40 Internal =100 Marks]

Objective- To prepare students in using and managing Relational databases and its applications.

UNIT 1: **[10L] [15M]**

Database Systems

Introduction of File Processing System, Introduction of DBMS & RDBMS. Difference between File processing system & DBMS, Difference between DBMS & RDBMS. Applications of RDBMS

UNIT 2: **[10L] [15M]**

Data Models

Relational Model, Network Model, Hierarchical Model, Entity Relationship Model.

UNIT 3: **[10L] [15M]**

Integrity Constraints

Keys: Super, Candidate, Primary, Foreign Key, Entity Integrity, Referential Integrity, Integrity Constraints.

UNIT 4: **[10L] [15M]**

Relational Database Design

Introduction, Normalization, Normal Form:1 NF, 2 NF, 3 NF.

UNIT 5: **[10L] [15M]**

Introduction to Structured Query Language (SQL) using Oracle

Introduction to SQL &Oracle, Data types in oracle, Operators in oracle, Working with tables, Introduction to DML, TCL, DDL, DCL, Integrity constraints, Functions in Oracle, Numeric Function, Character Function, Date Function, Conversion Function, Group Functions.

UNIT 6: **[10L] [15M]**

Sub Queries & Joins

Sub Queries, view, Sequence, Set Operators, Joins, Inner joins, Equi, Non Equi,
Self-join & Outer Joins.

Reference Books

1) 1. Oracle PL/SQL by Example, Rosenweig, Pearson Education ***ISBN*** 10: 0133796787
2) Database System Concepts: - Abraham Silberschatz, Henry F. Korth& S. Sudarshan, McGraw-Hill ***ISBN*** 978-0-07-352332-3
3) Oracle- D2K by Ivan Bayros ***ISBN*** : 8176567426
4) Introduction to Database Management Systems, by – AtulKahate (Pearson Education) ISBN ***9788131700785***

North Maharashtra University, Jalgaon

Faculty of Science and Technology
BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 403: C#.NET.

w.e.f. 2018-19
Total Lectures: 60
[Total Marks: 60 External + 40 Internal =100 Marks]

Objective:To impart the knowledge of object oriented programming using C# among student.

UNIT 1:The .Net framework **[10L] [15M]**

a) Introduction to .NET framework,
b) The Origin of .Net Technology
c) Common Language Runtime (CLR),
d) Microsoft Intermediate Language (MSIL)
e) Just-In –Time Compilation (JIT)

UNIT 2: C# as a Language **[10L] [15M]**

a) Introduction to C #
b) Advantages & Disadvantages of C#
c) Programming Structure of C#
d) Basic Constructs – Variables, Data types, Operators, arrays, functions
e) Control Statements (if statement, if....else statement, nesting of if....else statement, the else if ladder, switch statement), Looping Construct(while statement, do statement, for statement)

UNIT 3:Object Oriented Programming in C# **[10L] [15M]**

a) Class and Object,
b) Constructors and Destructors
c) Inheritance,
d) Interfaces
e) Access modifiers: Public, Private, Protected,
f) Polymorphism
g) Overloading and Overriding
h) Sealed Classes

UNIT 4:Exception handling **[10L] [15M]**

a) Types of errors
b) Syntax of exception handling code
c) Try and catch block
d) Multiple Catch Blocks

UNIT 5: Windows Applications in C#.NET **[10L] [15M]**

a) Introduction to GUI Programming
b) GUI Components/ Controls (Windows Forms, Text Boxes, Buttons, Labels, Check Boxes, Radio Buttons, List Boxes, Combo Boxes, Picture Boxes, Timer, Scrollbars, Menus, Built-in Dialogs, Image List, Tree Views, List Views)

UNIT 6:ADO.NET & Crystal Report **[10L] [15M]**

a) Introduction to ADO.NET
b) Components of ADO.NET
c) ADO.NET Data Providers
d) Working with Disconnected Data
e) Introduction to Crystal report , Creating Simple Report by wizard

Reference Books

1) Illustrated C# 2008, Solis, Publication APRESS, ISBN 978-81-8128-958-2 ***ISBN 978-81-8128-958-2***
2) Professional C# 4.0 and .NET 4by Christian Nagel, Bill Evjen, Jay Glynn, Karli Watson, Morgan Skinner, WROX ISBN: ***978-0-470-50225***-9.
3) Beginning C# Object-Oriented Programming by Dan Clark,Apress ***ISBN***-13 978-1-4302-3531-6
4) ADO.NET Examples and Best Practices for C# Programmers, By Peter D. Blackburn Apress ***ISBN***: 978-1-59059-012-6
5) Database Programming with C#, By Carsten Thomsen, Apress ISBN ***978-1-59059-010***-2

North Maharashtra University, Jalgaon

Faculty of Science and Technology
BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 404: Data Structure.

w.e.f. 2018-19
Total Lectures: 60
[Total Marks: 60 External + 40 Internal =100 Marks]

Objective: To impart the knowledge of data structure among student.

UNIT 1:Introduction : **[10L] [15M]**

Meaning of Data, Data item, Elementary and Group Data items, Meaning of Data Structure, Linear and Non Linear Data Structure, Meaning of Algorithm, Algorithm development

UNIT 2:Arrays : **[10L] [15M]**

Meaning of Array, Dimension of array, Linear and Non-Linear array, Representation of linear array in memory, Traversing linear array, Inserting and Deleting, Sorting (Bubble Sort, Selection Sort, Insertion Sort, Quick Sort, Merge Sort), Searching (Linear Search, Binary Search), Multidimensional Array

UNIT 3: Stack: **[10L] [15M]**

Meaning of Stack, Stack Operation, Array representation of Stack, Polish notation, Arithmetic expression, Recursion,

UNIT 4: Queues: **[10L] [15M]**

Meaning of Queue, Queue Operation, CircularQueue,Dequeue, Priority queue,Queue Applications

UNIT 5: Linked Lists : **[10L] [15M]**

Meaning of Linked List, Representation of linked list in memory, Traversing, Searching, Insert and Delete in singly link list,Introduction to Circular Link List, introduction to Doubly Link List.

UNIT 6: Trees and Graphs: **[10L] [15M]**

Introduction to Tree, Binary tree, representing binary trees in memory, Traversing binary trees, Graph:- Types, representation in memory.

Reference Books

1) Schaum's Outline of Data Structures with C++ ISBN-10: 0071353453
2) Data Structure and Algorithms:Concept, Techniques and Application,G.A.V.Pai ISBN 10: ***0070667268***
3) Data Structure:Balucha ***ISBN***: 978-93-833-0383-0 4

'A' Grade NAAC Re-Accredited (3rd Cycle)

North Maharashtra University, Jalgaon

Faculty of Science and Technology
BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 405: Practical on C#.NET.

w.e.f. 2018-19
Total Lectures: 60
[Total Marks: 60 External + 40 Internal =100 Marks]

Objective: To practically train students in programming in C#.NET

1. Write a program to print “Teach One, Each One, Tree One” given number of times
2. Write a program to show use of different operators
3. Write a program to show use of Looping Constructs
4. Write a program to show use of Constructor
5. Write a program to demonstrate Inheritance
6. Write a program to show use of Exception Handling
7. Create a simple C# application using Label, TextBox, and Button control
8. Create a C# application using ListBox, ComboBox control
9. Demonstrate the use of Timer control in C#
10. Create a C# application using PictureBox, ScrollBar control
11. Demonstrate Simple Database Connectivity using wizard.

'A' Grade NAAC Re-Accredited (3rd Cycle)

North Maharashtra University, Jalgaon

Faculty of Science and Technology
BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 406: Practical on RDBMS.

w.e.f. 2018-19
Total Lectures: 60
[Total Marks: 60 External + 40 Internal =100 Marks]

1. Demonstration of creating database and table.
2. Demonstrate to INSERT, UPDATE, and DELETE Records in Table.
3. Demonstrate to Alter Table.
4. Defining different types of database constraint. Create table with various constraints as PRIMARY KEY, FOREIGN KEY, and CHECK & NOT NULL Constraints
5. Query based on operators and joins
   - Simple and nested query

6. Write down SQL by using
   i. WHERE Clause
   ii. GROUP BY
   ii. HAVING CLAUSE

7. Write down SQL by using
   i. Aggregate functions
   ii. Date functions
   iii. String functions

'A' Grade NAAC Re-Accredited (3rd Cycle)

North Maharashtra University, Jalgaon

Faculty of Science and Technology
BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 407: Practical on Data Structures.

w.e.f. 2018-19
Total Lectures: 60
[Total Marks: 60 External + 40 Internal =100 Marks]

Objective: To practically train students in Data structure using C++.

Implement following data structures and its applications using C++

1. Matrix
2. Stack
3. Queue
4. Single Linked List
5. Bubble Sort
6. Recursion
7. Linear Search
8. Binary Search
9. Tower of Hanoi
10. Adjancy matrix representation of graph

Third Year - Semester –V

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 501 - Entrepreneurship Development

w.e.f. 2019-20

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective: To impart the knowledge of Entrepreneurship Development among students.

Unit 1 **[10L] [15M]**

Entrepreneur: meaning- Importance, Qualities, nature, types, traits, culture, similarities and economic and differences between Entrepreneur and Intrapreneur. Entrepreneurship development-its importance- Role of Entrepreneurship -Entrepreneurial environment.

Unit 2 **[10L] [15M]**

Entrepreneurship Development and Government: Role of Central Government and State Government in promoting Entrepreneurship - Introduction to various incentives, subsidies and grants - Export Oriented Units - Fiscal and Tax concessions available.

Unit 3 **[10L] [15M]**

Challenges to Woman Entrepreneurs, Achievements of Woman Entrepreneurs, Role Models of Woman Entrepreneurs, Women Entrepreneurs Problems and Prospects

Unit 4 **[10L] [15M]**

Creating and starting the venture - Steps for starting a small industry - selection of types of organization - International entrepreneurship opportunities.

Unit 5 **[10L] [15M]**

Small Business: Concept & Definition, Role of Small Business in the modern Indian Economy, Small entrepreneur in International business;

Unit 6 **[10L] [15M]**

Steps for starting a small industry, registration as SSI, Role of SIDBI; advantages and problems of SSIs; Institutional Support mechanism in India; Incentives & Facilities, Govt. Policies for SSIs

Reference Books

1. Vasanth Desai "Dynamics of Entrepreneurial Development and Management Himalaya Publishing House ***ISBN*** 81-7014-619-4
2. N.P.Srinivasan&G.P.Gupta," Entrepreneurial Development ", Sultanchand&Sons. ***ISBN***: 8185386196
3. Robert D.Hisrich, Michael P.Peters, "Entrepreneurship Development, Tata McGraw Hill edition ***ISBN*** : 1259001636

'A' Grade NAAC Re-Accredited (3rd Cycle)

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 502 - Cyber Security

w.e.f. 2019-20

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective: To impart the knowledge of Cybercrime and cyber security among students.

1. Introduction to Information Security **[10L] [15M]**

- History of Information Systems and its Importance, basics,
- Nature of Information Systems,
- Basic Principles of Information Security
- Information System Threats and attacks

2. Security Threats and Controls **[10L] [15M]**

- Security Threats to E Commerce,
- Business Transactions on Web,
- Concepts in Electronics payment systems, Internet Banking, E-Cash, Credit/Debit Cards.
- Physical Security- Needs
- Disaster and Controls,
- Access Control- Biometrics, Benefits of Biometrics Systems and Criteria for selection of Biometrics.

3. Cryptography **[10L] [15M]**

- Model of Cryptographic Systems,
- Issues in Documents Security,
- Digital Signature, Requirement of Digital Signature System,
- Finger Prints

4. Network Security **[10L] [15M]**

- Network Security- Basic Concepts, Dimensions
- Intrusion Detection System
  - Need of Intrusion Monitoring and Detection,
- Virtual Private Networks
  - Need,
  - Use of Tunneling with VPN,
  - Authentication Mechanisms,
  - Types of VPNs and their Usage

5. Cyber Crime **[10L] [15M]**

- Introduction to Cyber Crime
- Email Tracing and Tracking , Email Spoofing
- Mobile Number Hacking
- Data Recovery
- Cyber Fraud Detection
- Website Hacking
- Web Server/ISP
- Web & DOS Attacks

6. Cyber Law & IT Act **[10L] [15M]**

- Fundamentals of Cyber Law. Introduction to Indian Cyber Law: Information Technology Act
- 2000. Main features of the IT Act2000, Information Technology Amendment Act 2008 and its major strengths.

Reference Books

1) Godbole,"Information Systems Security", Willey ***ISBN*** 10: 8126516925
2) Merkov, Breithaupt," Information Security", Pearson Education ISBN-***10***: ***0-7897-5325-1***
3) Yadav, "Foundations of Information Technology", New Age, Delhi ***ISBN*** 10: 8122417620
4) Schou, Shoemaker, "Information Assurance for the Enterprise", Tata McGraw Hill ***ISBN***:0072255242
5) Sood,"Cyber Laws Simplified", McGraw Hill ***ISBN*** 10: 0070435065
6) Furnell, "Computer Insecurity", Springer 7. IT Act 2000 ***ISBN***: 81 7656494X

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 503 - ASP.NET Technology

w.e.f. 2019-20

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective : To impart the knowledge of web development in students in by using ASP.NET

Unit – 1 Introduction to ASP.NET **[10L] [15M]**

- History of Asp.Net
- Introduction to Asp.Net
- Features of Asp.Net
- Structure of Asp.Net Page
- ASP.NET Web Pages Model(Single Page Model, Two Page Model)

Unit – 2 ASP.NET Controls **[10L] [15M]**

- Working with Basic Web Form Controls.
- HTML Server Controls
- Miscellaneous Basic Controls
- ASP.Net Rich Controls,
- Validation Controls(Required Field Validator, Range Validator, Compare Validator)

Unit – 3 ASP.Net Intrinsic Objects and State Management **[10L] [15M]**

- HTTPRequest Object,
- HTTPResponce Object
- HTTPServerUtility
- HTTPApplicationState Object
- HTTP Session state Object
- State Management - View State, Session, Application, Cookies
- Global Application Class (global.asax)
- Web Configuration File (Web.config)

Unit – 4 Web Site Designing **[10L] [15M]**

- Webpage designing Principals
- Site map
- Master pages and content Pages
- Navigation controls: Tree view, Menu navigation

Unit – 5 Data Access With ADO.Net Object **[10L] [15M]**

- Overview of ADO.NET

- Create and retrieve Database Connections
- SqlDataSource Controls
- ASP.NET Data-Bound Controls
- GridView, Repeater, DataList, Details View, Form View

Unit – 6 Security and Configuration **[10L] [15M]**

- Using the CreateUserWizard control
- Using the LoginStatus control
- Using the Login control
- Using the LoginView control

Reference Books

1. ASP.NET - The Complete Reference, Matthew MacDonald .. ***ISBN***, 0072195134
2. ASP.NET 4.5 IN SIMPLE STEPS (SIMPLE STEPS series), KOGENT LEARNING SOLUTIONS INC., 2013 ***ISBN*** -10: 9350049996
3. Programming ASP.NET, J.Liberty, D.Hurwitz, (3rdEd), O'REILLY, 2006
4. ASP.NET and VB.NET Web Programming, by Crouch Matt J, Addison Wesley 2002. ***ISBN*** 13: 9780201734409
5. www.asp.net
6. http://www.w3schools.com/

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 504 - Software Engineering

w.e.f. 2019-20

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective:The course has been designed to provide a foundation of systems principles and an understanding of System development.

1. System Concept and Information [10L] [15M]

- Definition and Characteristics of System
- Elements of Systems
- Types of system – Conceptual & Physical, Natural & artificial, Open & Closed, Deterministic & Probabilistic.
- Feedback and feed forward control system

2. System Development Life Cycle [10L] [15M]

- Systems analyst, Roles of System Analysts – As an Architect, Change Agent, Investigator & monitor, Organizer, Motivator & Psychologist.
- Introduction of Systems Development Life Cycle (SDLC)
- Phases of system development:Recognition of need, Problem definition, Analysis, Design, Implementation, Maintenance
- Factors affecting the system development.
- SDLC Models : Waterfall Model, Spiral and RAD, Prototyping

3. System Planning [10L] [15M]

- **Data and fact gathering techniques:** Interviews & Questionnaires, Group discussion, On-site observation, Review of Written Documents.
- Feasibility study and its importance
  - Types of feasibility study- Technical, Economical and Operational
- System Selection plan and proposal Prototyping

4. Systems Design and modeling [10L] [15M]

- Logical and physical design
- Systems flowcharts & Data flow diagrams
- CASE tools - Common diagramming conventions and guidelines using DFD and ERD diagrams
- Tools for Structured Analysis : Data Dictionary, Decision Tree, Decision Tables, Structured English

5. User Interface of System [10L] [15M]

- User-interface design
  - Guidelines to design Input and Output user-interfaces.
- Graphical interfaces

6. Designing business application system using DFD, ERD, Input and Output layouts [10L] [15M]

- Library Management System

- Inventory Management System
- Hospital Management System
- Sales/Purchase System

Reference Books

1. System Analysis and Design Methods, Whitten, Bentaly and Barlow, Galgotia Publication. ***ISBN***-10; 0-07-305233-7
2. System Analysis and Design Elias M. Awad, Galgotia Publication ***ISBN*** 13: 9788175156180.
3. Software Engineering by Roger Pressman ***ISBN***-13: 978-0071267823
4. Software Engineering by YogeshAgarwal ; ***ISBN***-10: 8122416381

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 505 - Practical on ASP.NET

w.e.f. 2019-20

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective: To practically train students in developing web pages using ASP.NET

Practical on ASP.NET

1. Write an ASP .net program that demonstrate use of HTML Controls
2. Write an ASP .net program that demonstrates use of web controls.
3. Write an ASP .net that returns the windows name of your computer and URL of the page that you are visiting.
4. Write an ASP .net program that demonstrates use of Validations Controls.
5. Write an ASP .net program that demonstrates use of Intrinsic Objects.
6. Write an ASP .net program that demonstrate Application and Session Scope Variables using Global.Asax
7. Write an ASP .net program Demonstrate use of Master Pages.
8. Write an ASP .net page that used the connection object to connect the database and display information using datagrid Controls.
9. Demonstrate website navigation controls(sitemap path, treeview, menu) using SiteMap file.
10. Demonstration of ASP.NET objects (HTTPApplicationState, HTTPSessionState)

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 506 - Practical on CASE Tool with MS-VISIO and Software Testing

w.e.f. 2019-20

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective: To practically train students in using CASE tools for designing real time system diagrams.

Study following systems using CASE tool -

1) Library Management System
2) Inventory Management System
3) Hospital Management System
4) Sales System
5) Purchase System
6) Admission System
7) Examination System
8) Logistic Management System
9) Hotel Management System
10) Payroll Management System

Software Testing:

Manual Testing: Data constraints, data integrity, validity, correctness, referential integrity need to be tested for already developed software. Its data entry forms and reports, menu system needs to be tested for various testing parameters. A Test report needs to be prepared by student.

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 507 - Field work on IT Project Assessment

w.e.f. 2019-20

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective: – To understand the issues in implemented IT project by assessing it using research methodology.

FIELD WORK

1. Each student shall have to undergo a field work during 5th Semester

2. In the 5th semester examination student are required to carry out a Field Work individually or by group of two students. It should be compulsorily based on **assessment of any IT project implemented in real time** as mentioned in the point 3. The topic should be decided with consultation and guidance of internal teacher of the Institute. The field work should be necessarily Research oriented, Innovative and Problem solving.

3. The field work should be related to **assessment of any IT project already implemented in real time** such as – e-Commerce websites, e-Governance websites, universities IT services, governments IT services, e-banking systems, railway reservation systems, bus reservation systems, online travel booking systems etc.

4. The student has to write a report based on the actual Field work, get it certified by the concerned Guide/teacher that the fieldwork has been satisfactorily completed and submit TWO typed copies of the same to the Head / Director of the institute /Principal of the college. One copy of the report submitted by the student shall be forwarded to the University by the Institute.

5. Field work shall be strictly based on primary data. The Sample Size shall be minimum 100. The students are encouraged to use advance excel or SPSS software.

6. Field work viva shall be conducted at the end of Semester V

7. Viva Voce for one student shall be of minimum 15 minutes. The Student has to prepare Power Point presentation based on field work to be presented at the time of Viva voce.

8. The field work will carry maximum 100 marks, of which internal teacher shall award marks out of maximum 50 marks on the basis of work done by the student. Remaining marks shall be awarded out of maximum 50 marks by examining the student during Vivavoce, by the External examiner.

Semester - VI

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 601 - e-Commerce & m - Commerce

w.e.f. 2019-20

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective:To impart the knowledge of e-Commerce & m - Commerce among students.

UNIT 1: Introduction to E-Commerce [10L] [15M]

Definition and scope of E-Commerce and M-Commerce, E-Commerce trade cycle, Electronic Markets, Internet Commerce, Benefits and Impacts of E-Commerce.

UNIT 2: Elements of E-Commerce & M-Commerce [10L] [15M]

Various elements, e-visibility, e-shops, Delivery of goods and services, Online payments, After - sales services, Internet E-Commerce security, Basics of M-Commerce, E-Commerce Vs. M-Commerce. Advantages of M-Commerce over e-Commerce.

UNIT 3: EDI and Electronic Payment Systems [10L] [15M]

Introduction and definition of EDI, EDI layered Architecture, EDI technology and standards, EDI communications and transactions, Benefits and applications of EDI with example, Electronic Payment Systems: credit/debit/smart cards, e-credit accounts, e-money.

UNIT 4: Introduction to EC models [10L] [15M]

Inter-organization and intra-organization E-Commerce, E-Commerce Models: B2B, B2C, C2B, C2C, G2C, C2G. Concept and importance of E-Services and M-Services.

UNIT 5: E-Business [10L] [15M]

Introduction to Internet bookshops, Electronic newspapers, Virtual auctions, Online share dealing, e-Governance. Cases of amazon, flipkart and snapdeal.

UNIT 6: E-Security and Legal Issues [10L] [15M]

Security concerns in E-Commerce, Privacy, integrity, authenticity, non-repudiation, confidentiality, SSL, Digital Signatures and fire walls, IT Act 2000,Cyber crimes and cyber laws.

Reference Books

1. Gary Schneider, Electronic Commerce, Thomson Publishing. ***ISBN***-10: 1-4239-0305-6
2. Pandey, Srivastava and Shukla, E-Commerce and its Application, S. Chand ***ISBN***: 9788121928410
3. P.T. Joseph, Electronic Commerce – An Indian Perspective, P.H.I ***ISBN*** 13: 9788120345058
4. Bharat Bhaskar, Electronic Commerce, TMH ***ISBN*** 13: 9781259026843 .
5. Turban, King, Viehland& Lee, Electronic Commerce- A Managerial Perspective,Pearson.
6. Ravi kalakota& A.B. Whinston, Electronic Commerce- a Manager's Guide, Pearson. ***ISBN***:9788177583168
7. Laudon&Traver, e-commerce – Business, Technology, Society. Pearson ISBN13: 9780133938951

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 602 - Cloud Computing

w.e.f. 2019-20

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective:This course will help the students to get familiar with cloud computing fundamentals, architecture, services, implementation and deployment techniques etc.

Unit 1: Introduction to Cloud Computing: [10L] [15M]

Overview, Roots of Cloud Computing, Layers and Types of Cloud, Desired Features of a Cloud, Benefits and Disadvantages of Cloud Computing, Cloud Infrastructure Management, Infrastructure as a Service Providers, Platform as a Service Providers, Challenges and Risks, Assessing the role of Open Standards

Unit 2: Cloud Architecture, Services and Applications: [10L] [15M]

Exploring the Cloud Computing Stack, Connecting to the Cloud, Infrastructure as a Service, Platform as a Service, Saas vs. Paas, Using PaaS Application Frameworks, Software as a Service, Identity as a Service, and Compliance as a Service.

Unit 3: Abstraction and Virtualization [10L] [15M]

Introduction to Virtualization Technologies, Load Balancing and Virtualization, Understanding Hyper visors, Understanding Machine Imaging, Porting Applications, Virtual Machines Provisioning and Manageability Virtual Machine Migration Services, Virtual Machine Provisioning and Migration in Action, Provisioning in the Cloud Context

Unit 4: Managing & Securing the Cloud [10L] [15M]

Administrating the Clouds, Cloud Management Products, Emerging Cloud Management Standards, Securing the Cloud, Securing Data, Establishing Identity and Presence, Storage Area Networks, Disaster Recovery in Clouds

Unit 5: Risk of Cloud computing and Related Cost [10L] [15M]

Risk Assessment and Management – Rosk of Vendor Lock- in – Risk of Loss of control over IT services- Risk of Poor Provisioning – Risk of Multi-tenant environment – Risk failure of cloud provider – SLA risk – security, malware and Internet Attacks – Risk with Application Licensing.

Unit 6:Advanced Topics and Cloud Applications [10L] [15M]

Integration of Private and Public Clouds, Cloud Best Practices, the Web on Amazon Cloud, Hosting Massively Multiplayer Games on Cloud, Content Delivery Networks Using Clouds and Hosting Twitter and Facebook on Cloud

Reference Books

1) Sosinsky B., “Cloud Computing Bible”, Wiley India ***ISBN*** 13: 9788126529803.

2) Buyya R., Broberg J., Goscinski A., “Cloud Computing: Principles and Paradigm”, John Wiley & Sons ***ISBN NO***: 81–7758– 575-4

3) Velte T., Velte A., Elsenpeter R., “Cloud Computing – A practical Approach”, Tata McGraw-Hill. / ***ISBN*** 13: 9780070683518

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'A' Grade NAAC Re-Accredited (3rd Cycle)

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 603 - Android Application Development

w.e.f. 2019-20

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective:The use of mobile communication and android based applications are increasing day by day. It is therefore necessary for students to know that how mobile communication works and how to build mobile apps for android operating system. This course covers the necessary concepts which are required to understand mobile communication and to develop Android Applications.

Unit 1:Introduction to Mobile Computing and Android [10L] [15M]

1.1 Mobile Computing: Introduction to Mobile Computing, applications, limitations, and architecture, Characteristics of Mobile Communication.

1.2 Cellular Overview: Cellular networks, Cellular concept, location management, Handoffs noise and its effects on mobile.

1.3 Understanding GSM and CDMA.

1.4 Overview of Android

1.5 Android for mobile apps development

1.6 Environment setup for Android apps Development

1.7 Framework - Android- SDK, Eclipse.

1.8 Architecture of Android, Libraries.

1.9 Software development kit.

Unit 2: Designing the user interface [10L] [15M]

2.1 Design criteria for Android Application: Hardware Design Consideration, Design Demands For Android application, Intent, Activity, Activity Lifecycle and Manifest

2.2 Introducing views and view groups,

2.2 Introducing layouts, creating new views,

2.4 Creating and using Menus

Unit 3: Database Issues [10L] [15M]

3.1 Hoarding techniques

3.2 Caching invalidation mechanisms

3.3 Client server computing with adaptation,

3.4 Power-aware and context-aware computing,

3.5 Transactional models, query processing, recovery, and quality of service issues.

Unit 4: Talking with Servers (Web services) [10L] [15M]

4.1 Introduction to web services

4.2 Restfull Web Service

4.3 Soap Web Service

4.4 JSON parsing

4.5 XML parsing

Unit 5: Data Storage, retrieval and Sharing **[10L] [15M]**

5.1 File system in android
5.2 Internal and external storage
5.3 Saving and loading files
5.4 File Management tools

Unit 6: Wireless LANs and Application overview **[10L] [15M]**

6.1 WLAN
6.2 Wireless applications
6.3 Mac issues (Hidden and exposed terminals, near and far terminals),
6.4 Mobile IP
6.5 Mobile ad-hoc networks (MANET)
6.6 Disconnected operations
6.7 Mobile agents.

Reference Books

1) Mobile Communications J. Schiller, Addition Wesley Publication ***ISBN*** 0 321 12381 6
2) GSM System Engineering A.Mehrotra, Addition Wesley Publication ***SBN*** 0-201-42293-X.
3) Understanding WAP M. Heijden, M. Taylor, Artech House Publication ***SBN*** 0470849061
4) Professional Android™ Application Development Wrox Publications, Reto Meier ***ISBN***: 978-0-470-34471-2

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 604 - Server Side Scripting using PHP

w.e.f. 2019-20

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective: To impart the knowledge of web development in students in by using PHP

Unit – 1 Introduction to PHP [10L][15M]

- **1.1** Web architecture, web Server (xamp Server, apache server)
- **1.2** Installation and Configuration of PHP (php.ini, httpd.conf)
- **1.3** History, Features & Drawbacks of PHP

Unit - 2 The Basics of PHP [10L][15M]

- **2.1** Introduction to PHP
- **2.2** Data types in PHP
- **2.3** Lexical Structure of PHP
  - **2.3.1** Structure & Syntax of PHP
  - **2.3.2** PHP with HTML
  - **2.3.3** Comments
  - **2.3.4** Variables
  - **2.3.5** Literals
  - **2.3.6** Operator
  - **2.3.7** Operator Precedence
- **2.4** Flow Control Statements
  - **2.4.1** Conditional Statements
  - **2.4.2** Looping Statements
  - **2.4.3** Exit, Return, Die, Include and Require Statements

Unit – 3 Array, Function and String [10L][15M]

- **3.1** Introduction to Array
  - **3.1.1** Index Vs Associative Array
  - **3.1.2** Multidimensional Array
  - **3.1.3** Different array function in PHP
- **3.2** Introduction to Function
  - **3.2.1** Defining and Calling a function
  - **3.2.2** Scope of variables in function
  - **3.2.3** Function Parameters
  - **3.2.4** Returning Values from a function
  - **3.2.5** Recursive Functions
- **3.3** Types of strings in PHP
- **3.4** Printing functions
- **3.5** Comparing strings
- **3.6** Manipulating and Searching strings
- **3.7** Regular Expressions

Unit – 4 Object-Oriented PHP [10L][15M]

- **4.1** Introduction and Benefits of OOPs
- **4.2** Creating a Class
- **4.3** Creating an Object

- **4.3.1** Adding a Method
- **4.3.2** Adding a Properties
- **4.3.3** Visibility (Public, Private and Protected)

4.4 Constructor and Destructors
4.5 Inheritance (Extending a class)
4.6 Abstract classes, Final classes
4.7 Interfaces
4.8 Exception handling

Unit - 5 Web Techniques **[10L][15M]**

5.1 Introduction
5.2 HTTP Basics
5.3 Processing Forms

- **5.3.1** Using PHP $_GET
- **5.3.2** Using PHP $_POST
- **5.3.3** GET vs. POST
- **5.3.4** File Uploads
- **5.3.5** Form Validation

5.4 Maintaining State

- **5.4.1** Cookies
- **5.4.2** Sessions

Unit - 6 PHP with MySQL **[10L][15M]**

Introduction to MySQL
Interaction between PHP and MySQL
Connecting to a Database
Execute SQL Statements

Reference Books

1. Beginning PHP and MySQL, 3rd Ed., W. Jason Gilmore, A press Publication.
2. PHP 5.1 for Beginners, Ivan Bayross and Sharnam Shah, SPD Publication
3. Beginning PHP5 Dave Mercer et al. Wrox Press
4. PHP for Beginners [Book] / auth. Ivan Bayross, Sharnam Shah, THE X Team. - [s.l.]: SPD.

Websites:

1. http://www.php.net.in
2. http://www.w3c.org

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 605 - Practical on Android & PHP

w.e.f. 2019-20

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective: To practically train students in developing Mobile application and web pages using PHP

Practical on Android

1. Installation and setup of java development kit (JDK), setup android SDK, setup eclipse IDE, setup android development tools (ADT) plugins, create android virtual device.
2. Create “Hello World” application. That will display “Hello World” in the middle of the screen using TextView Widget in the red color.
3. Create Registration page to demonstration of Basic widgets available in android.
4. Create sample application with login module.(Check username and password) On successful login, Change TextView “Login Successful”. And on failing login, alert user using Toast “Login fail”.
5. Create an application for demonstration of Scroll view in android.
6. Create login application where you will have to validate username and passwords Till the username and password is not validated, login button should remain disabled.

Practical on PHP

1. Write PHP scripts that demonstrate fundamentals PHP.
2. Write PHP script that will display grade based on criteria given below using the marks obtained in Examination.
    a. Distinction (70 and above)
    b. First Class (60 - 69)
    c. Pass (40 - 59)
    d. Fail (below 40)
3. Write a PHP script to demonstrate different String functions.
4. Write a PHP script to Demonstrate OOPS Concept in PHP.
5. Write a PHP script to demonstrate Form Data Handling using Get and Post methods.
6. Design a database in MYSQL. Create table in database. Store, Update, Delete and Retrieve data from the table. Display the data from the table.
7. Write a PHP script to store, retrieve and delete cookies on your local machine.
8. Write a PHP script to store, retrieve and delete data using session variables.

'A' Grade NAAC Re-Accredited (3rd Cycle)

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 606 - Practical on Employability Skills

w.e.f. 2019-20

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective: To practically train students in developing required employability skills.

1. Resume Designing with individual career objective
2. Group Discussion on current topics
3. Short Power point Presentations on one's behavioral qualities (10 min)
4. System model Presentation
5. Business Email Writing /Covering letter
6. Designing a weekly calendar (To-do list with deadlines)
7. Personal Interview-Domain based
8. Personal Interview-Behavioral
9. Facing a telephonic interview –Executing telephonic Etiquettes

'A' Grade NAAC Re-Accredited (3rd Cycle)

North Maharashtra University, Jalgaon

Faculty of Science and Technology

BACHELOR OF COMPUTER APPLICATIONS (BCA)

BCA 607 - Project Report & Viva

w.e.f. 2019-20

Total Lectures: 60

[Total Marks: 60 External + 40 Internal =100 Marks]

Objective: – To prepare students to use applications of the theory and practical learned during the course.

PROJECT WORK

1. Each student shall have to carry out the project work based on System Development which may include Application Program, Database Management System, Web Based Application, Smart phone Application, System Tools, Network System Application, etc. A project may be carried out at any outside organization or on a sub system of an organization.
2. The project work should be carried out individually. No group work is allowed in the Project work. The project title should not be repeated.
3. The topic of the project should be decided with the consultation & guidance of an internal guide-teacher of the institute/college. The project should be necessarily innovative and problem solving. No teacher shall be entrusted with more than 15 students for guidance and supervision.
4. The student should clearly mention the need of project , database(s), files required for the project, DFD , Normalization, ERD, software used for the project, reasons for selection of that software, inputs required, outputs produced etc.
5. The application should be menu driven and should provide the facilities of storage of data, modifications in existing data, deletion of unwanted data, and viewing of data.
6. The student has to write a report based on the actual work undertaken during the vacations at the specific selected enterprise/ organization or sub system and get it certified by the concerned teacher that the Project report has been satisfactorily completed and submit TWO typed copies of the same to the Head / Director of the institute /Principal of the college.
7. One copy of the report submitted by the student shall be forwarded to the University by the Institute.
8. No student will be permitted to appear for Viva-Voce examinations, unless and until the project report is submitted within the stipulated time.