MBA II Year	Elective – Finance	Max. Marks 100
Semester – 4		Int: 25 Ext: 75
15MBAEF42	CORPORATE TAX PLANNING	5 hrs week
Objectives:		4 Credits

It aims to understand the concept of Tax law and practice, for individual income and company tax and direct and indirect tax for the effective functioning of finance department.

Unit – I Direct Tax Laws:

A comprehensive study of the Income-tax act, 1961, Wealth-tax act, case laws governing capital and revenue expenditure, deemed income, residence concept. Special Problems Centering on the concept of assesses, registered Firm, Hindu Undivided family, Companies, Association of persons and trust, minors, Cooperatives, non-resident Indians and avoidance of double taxation.

Unit – II Heads of Income:

Salaries, perquisites, gratuity and retirement benefits, income from house property, capital gains, income from other sources, Income from business and profession, problems arising from aggregation of income and set off and carry forward of losses. Computation of income and Return of Income Tax, Filing procedure.

Unit – III Tax Management:

Filing of Returns and Assessments, Penalties and Prosecutions, Appeals and Revisions, Advance Tax, TDS, Advance Rulings, Avoidance of Double Taxation Agreements.

Unit – IV Indirect Tax:

Indirect Tax Laws, administration and relevant procedures. The central Excise including Central Value Added Tax (CENVAT); The Central Sales Tax Act, 1956 (74 of 1956); The Customs Act, 1962 (52 of 1962); and Excise audit.

Unit – V Taxation of Companies:

Special Provisions in Computation of Profits from Business, Deductions from Gross Total Income, Amalgamations of Companies and fiscal Incentives, Minimum Alternate Tax on Companies, Special Provisions relating to Tax on Distributed Profits of Domestic Companies.

References:

1. Vinod K. Singhania, students guide to income tax, Taxman's New Delhi
2. Bhagavathi Prasad, Income Tax Law & Practice, Sultan Chand & Sons, New Delhi.
3. B.B.Lal, Income Tax Law and Practice, S Chand, New Delhi.
4. P.K.Sinha, Corporate Tax Planning – 2014
5. D.Chennappa, International Commerce and Business – 2010
6. Senthil, Business Taxation, 2010

B.Com (CA) III Year	Core	Max Marks 100 Int: 25 Ext: 75
Semester – 5	Human Resource management	5 hrs week
Code: 14BCOMCC51		Credits: 4

Objectives

1. To understand the meaning and concept of Human resource management.
2. To understand the role of human resource management in real situation.
3. To enlighten on the problems while handling people.

Unit – I

Human resource management – definition – concept – nature and scope - objectives – functions – organization of personnel department

Unit – II

Man Power Planning – meaning – objectives and steps. Job analysis – description – specification - evaluation

Unit – III

Recruitment & Selection process – merits and demerits – training and development – wage and salary administration – sources

Unit – IV

Performance appraisal – methods, Collective Bargaining – Workers participation in management – criteria for a good appraisal

Unit – V

Trade Union – industrial relations – significance causes for poor relations – remedies. Industrial disciplinary system – grievance handling system – machinery and procedures

Text Book:

a. Subba Rao, Personal Management, Sultan Chand, New Delhi, 2005.

Reference Books:

1. Shasi K, Gupta & Rosy Josi, Human Resource Management, Kalyani Publishers, New Delhi, 2000.
2. A. Memoria, Personal Management, Himalaya Publishing House, New Delhi, 2004.
3. A. Monappa and M.S. Saiyadain, Personal Management, Tata McGraw Hill, New Delhi, 2001.
4. Tripati & Reddy, Personal Management and Industrial Relations, Himalaya Publishing House, New Delhi, 2008.

B.Com (CA) III Year	Core	Max Marks 100
Semester – 5 Code: 14BCOMCC54	Multimedia Technology	Int: 25 Ext: 75 5 hrs week Credits: 4

OBJECTIVES:

1. To make the students to understand the concept of multimedia.
2. To understand the concept of multimedia techniques.
3. To enrich the knowledge of about multimedia.

Unit I:

Introduction- Objectives-History of Multimedia-Its market- copyright- Resources for multimedia developers- Types of products-Evolution –Hardware Architecture- software library – drivers.

Unit II:

Text and Graphics –Elements of text-text data files-using text in multimedia application- hypertext-elements of graphics-images and colors-graphics files and application formats- obtaining images for multimedia use – using graphics in applications.

Unit III:

Digital Audio and video- Characteristics of sound and digital audio-digital audio systems- MIDI – audio for content -background as video- characteristics of digital video-digital video data sizing- video capture and play back systems- computer animations.

Unit IV:

Product design and authoring tools-Building blocks-classes of products-content organizational strategic – story boarding-multimedia tool features - categories of authoring tools-selecting the right authoring paradigm.

Unit V:

Multimedia and internet- internet- client/server technology-communication protocols- internet addressing –internet functions-origin of www- html and web authoring- web page development- multimedia consideration for web pages.

Text Book:

1. David Hillman, Multimedia technology and applications, Golgotha Publications 1998.

Reference Book:

1. Tay Vaughan,Multimedia making its work , Tata MC GrawHill,1996.
2. Prabhat K.Andleigh, Kiran Thakrar, Multimedia System Design , Prentice Hall,1986.
3. Satraj Khosafian and A.BradBaker, Multimedia and Imaging Databases, Morgan Kanfmann,1966.

B.Com (CA) III Year	Elective	Max Marks 100
Semester – 5		Int: 25 Ext: 75
Code: 14BCOMCE52	Multimedia Lab	6 hrs week
		Credits: 5

OBJECTIVES:

1. To make the students to understand logic of Multimedia.
2. To understand Multimedia Techniques.
3. To enrich the knowledge about Adobe Flash.

List of Programs:

1. Creating a sample image

2. Editing existing image's brightness, mode colors and adds edit layer style.

3. Stitch and edit two images into single image. Use selection tools Lasso tool, clone stamp.

4. Study about timeline concepts. Insert Text, and image. Use scaling rotation alignment.

5. Study masking concepts. Use audio in the movie.

6. Add buttons, menus, and actions to the movie.

7. Export movie. Use multiple scenes.

8. Insert text, image, and sprite to the movie.

9. Add effects to the text.

10. Export movie to html, GIF, Flush formats.

11. Create simple 3D animation and export.

B.Com (Reg) III Year	Core	Max Marks 100
Semester – 5		Int: 25 Ext: 75
Code: 14BCOMRC51	Human Resource Management	5 hrs week
		Credits: 4

Objectives

1. To understand the meaning and concept of Human resource management.
2. To understand the role of human resource management in real situation.
3. To enlighten on the problems while handling people.

Unit – I

Human resource management – definition – concept – nature and scope - objectives – functions – organization of personnel department

Unit – II

Man Power Planning – meaning – objectives and steps. Job analysis – description – specification - evaluation

Unit – III

Recruitment & Selection process – merits and demerits – training and development – wage and salary administration – sources

Unit – IV

Performance appraisal – methods, Collective Bargaining – Workers participation in management – criteria for a good appraisal

Unit – V

Trade Union – industrial relations – significance causes for poor relations – remedies. Industrial disciplinary system – grievance handling system – machinery and procedures

Text Book:

a. Subba Rao, Personal Management, Sultan Chand, New Delhi, 2005.

Reference Books:

1. Shasi K. Gupta & Rosy Josi, Human Resource Management, Kalyani Publishers, New Delhi, 2000.
2. A. Memoria, Personal Management, Himalaya Publishing House, New Delhi, 2004.
3. A. Monappa and M.S. Saiyadain, Personal Management, Tata McGraw Hill, New Delhi, 2001.
4. Tripati & Reddy, Personal Management and Industrial Relations, Himalaya Publishing House, New Delhi, 2008.

M.Sc (CS&IT) First Year Semester – II 14MCSE21	ELECTIVE CRYPTOGRAPHY	Max Marks 100 Int: 25 Ext: 75 5 hrs week Credits: 5

OBJECTIVES:

- To acquire students with the knowledge of Information Security.
- To expose them to the cryptography and security in complex software systems.
- To understand the various issues involved in computer based symmetric key cryptography.

UNIT I

Attacks on Computers and Computer Security: Need for Security – Security Approaches – Principles of Security – Types of Attacks – Cryptography Concepts and Techniques: Plain Text and Cipher Text – Substitution Techniques – Transposition Techniques.

UNIT II

Encryption and Decryption – Symmetric and Asymmetric Key Cryptography – Steganography – Key Range and Key Size – Possible Types of Attacks – Symmetric Key Algorithms and AES: Algorithm Types and Modes – An overview of Symmetric Key Cryptography.

UNIT III

Data Encryption Standards (DES) – International Data Encryption Algorithm (IDEA) – RC4 – RC5 – Blow fish – Advanced Encryption Standard(AES). Asymmetric Key Algorithms, Digital Signatures and RSA : Brief History of Asymmetric Key Cryptography – An overview of Asymmetric Key Cryptography.

UNIT IV

RSA Algorithm – Symmetric and Asymmetric Key Cryptography Together – Digital Signatures – Knapsack Algorithm – Internet Security Protocols: Basic Concepts – Secure Socket Layer(SSL) – Transport Layer Security(TLS)-Secure Hyper Text Transfer Protocol(SHTTP) – Time Stamping Protocol(TSP).

UNIT V

User Authentication and Kerberos: Authentication Basics – Passwords – Authentication Tokens- Certificate based Authentication – Biometric Authentication –Kerberos- Key Distribution Center(KDC).

Reference books:

1. Atul Kahate, 2008, Cryptography and Network Security, Tata McGrawHill .
2. William Stallings, 2013, Cryptography and Network Security Principles and Practice, Pearson Education Limited.
3. Atul Kahate, 2013. Cryptography And Network Security, Tata McGraw Hill Publishing Co,
4. Jaydip Sen, 2012, Applied Cryptography and Network Security, In Tech.
5. Behrouz A. Forouzan, 2008, Cryptography and Network Security, Tata McGrawHill.

M.Sc (CS&IT) Second Year	ELECTIVE	Max Marks 100
Semester – III		Int: 25 Ext:75
14MCSE32	Data Mining	5 hrs week
		Credits: 5

Objectives:
1. To acquire knowledge about data mining.
2. To understand process and future of data mining.

UNIT I

Introduction: Data mining process - Data mining applications – Data mining techniques – Data mining case studies - future of data mining – Guidelines for successful data mining - data mining software-   Case study Data mining techniques for optimizing inventories for electronic commerce.

UNIT II

Association Rules mining: Basics – Task and Naïve Algorithm - Apriori ALgorithm – Improving the Efficiency of the Apriori ALgorithm –Direct Hashing and Pruning(DHP)– Dynamic Itemset Counting(DIC)- Mining Frequent Patterns without candidate generations(FP –growth)-Performance Evaluation of Algorithms-Software for Association Rule Mining-Case Study Mining Customer Value: From Association Rules to Direct Marketing.

UNIT III

Classification: Decision Tree – Building a Decision Tree – The Tree Induction Algorithm – Split Algorithm based on Information Theory - Split Algorithm based on the Gini Index – Overfitting and Pruning- Decision Tree Rules-Decision Tree Summary – Naïve Bayes Method- Estimating predictive Accuracy of Classification methods- Improving Accuracy of Classification of Classification methods – other evaluation criteria for classification methods- Classification Software.

UNIT IV

Cluster Analysis: Desired features of Cluster Analysis – Types of Data – Computing Distance – Types of Cluster Analysis Methods- Partitional methods – Hierarchical methods – Density based methods- dealing with large databases – Quality and validity of cluster analysis methods - cluster Analysis software.

UNIT V

Web Data Mining: Web Terminology and characteristics– Locality and Hierarchy in the Web – Web Content Mining – Web Usage Mining – Web Structure Mining – Web Mining Software – Case study Lessons and Challenges from Mining Retail E- Commerce Data .

Text book:
1. G.K Gupta, Introduction to Data Mining with Case Studies, 2nd Edition ,PHI, 2011.

Reference books:
1. David Hand, Heikki Mannila, Padhraic Smyth, Principles of Data Mining, PHI, 2008.
2. Jiawei Han, Micheline Kamber, Data Mining Concepts and Techniques, Morgan Kaufmann Publishers, 2006.
3. Gordon S.Linoff, Michael J.A. Berry, Data Mining Techniques, 3rd Edition. Wesley, 2009.

B.Sc (C.S) III Year	Elective	Max Marks 100
Semester – VI	An Introduction to Data Mining	Int: 25 Ext: 75
Code: 14BSCCSE61		5 hrs week
		Credits: 5

Objectives:
1. To acquire knowledge about data mining.
2. To understand process of data mining.
3. To understand the future of data mining.

UNIT I

Introduction: Data mining process - Data mining applications – Data mining techniques – future of data mining – Guidelines for successful data mining - data mining software.

UNIT II

Association Rules mining: Basics – Task and Naïve Algorithm – Apriori Algorithm – Improving the Efficiency of the Apriori ALgorithm –Direct Hashing and Pruning(DHP)– Dynamic Itemset Counting(DIC)- Mining Frequent Patterns without candidate generations(FP -growth).

UNIT III

Classification: Decision Tree – Building a Decision Tree - The Tree Induction Algorithm – Split Algorithm based on Information Theory - Split Algorithm based on the Gini Index – Overfitting and Pruning- Decision Tree Rules-Estimating predictive Accuracy of Classification methods- Classification Software.

UNIT IV

Cluster Analysis: Features of Cluster Analysis – Types of Data – Computing Distance – Types of Cluster Analysis Methods- Partitional methods – Hierarchical methods - Density based methods- cluster Analysis software.

UNIT V

Web Data Mining: Web Terminology and characteristics– Locality and Hierarchy in the Web – Web Content Mining – Web Usage Mining – Web Structure Mining – Web Mining Software.

Text book:
1. G.K Gupta, Introduction to Data Mining with Case Studies, 2nd Edition ,PHI, 2011.

Reference books:
1. David Hand, Heikki Mannila, Padhraic Smyth, Principles of Data Mining, PHI, 2006.
2. Jiawei Han, Micheline Kamber, Data Mining Concepts and Techniques, Morgan Kaufmann Publishers, 2006.
3. Gordon S.Linoff, Michael J.A. Berry, Data Mining Techniques, 3rd Edition. Wesley, 2009,

B.Sc (IT) II Year	Skill Based	Max Marks 100
Semester – III		Int: 25 Ext: 75
Code: 14BSCITS31	Basic Internet Programming Lab	2 hrs week
		Credits: 2

Objectives:

1. To understand the basic concept of HTML & PHP.
2. To become familiar in PHP.
3. To become familiar with HTML & PHP

List of Programs:

1. Write a program for Heading Tags
2. Write a program for Table Format.
3. Write a program for create a Hyperlink & Image.
4. Write a program for Marquee Function.
5. Write a program for Frames.
6. Write a program for Order list & unordered list.
7. Write a program for PHP using For Loop.
8. Write a program for PHP using While Loop.
9. Write a program for PHP using Break Statement.
10. Write a program for PHP using continue Statement.
11. Write a program for PHP using Function
12. Write a program for PHP Time Alert Box.
13. How to print the PHP Dialog Box?
14. Write a Program for PHP String Function.
15. Write a Program for PHP Math Function.

B.Sc (IT)IIIYear	Skill based	Max Marks 100
Semester – V	Internet Application Lab	2 hrs week
Code: 14BSCITS53		Credits: 2

Objectives:
1. To explore the knowledge in Internet Applications.
2. To explore the knowledge of creating Email Accounts.
3. To understand the Importance of Internet Features.

List of Programs:
1. Google Search.
2. Create an Email Account.
3. Compose a Mail and Send it to your friend.
4. Attach a document to a mail.
5. Create a Group mail Account.
6. World Wide Web: Search Engines
7. Blog Creation
8. Register your details in job provider sites
9. Read the e papers.
10. Register your details in Alumni sites.

MPhil-SW	Core	Max Marks 100 Int: 25 Ext: 75
Semester – 1	CONTEMPORARY SOCIAL WORK: THEORY AND PRACTICES	8 hours
15MPHD.C12		

Objectives:

- To enable students to learn about the profession of social work and its importance.
- To develop the knowledge of students about fields of social work, its practice and application.
- To develop an insight in students about various theories of social work.

Unit –I

Introduction about social work profession: concept, definition, meaning, objectives, need& importance of social work. Characteristics of profession, professional values & code of ethics, social realities & responsibilities of professional social workers.

Unit-II

Models and theories in social work: the problem solving model – psycho-analytic model – functional model – behaviour modification model – task centred case work model – therapeutic model – cognitive behavioural model – changing behaviours.

Unit –III

Rights perspective in social work: refugees, disability, environmental issues, disaster management, children, women, unorganized sector, gender and justice issue.

Unit –IV

Application of social work in different settings : industrial settings, correctional settings, medical and psychiatric settings , rural, urban and tribal development settings, family and child welfare, welfare of aged , youth welfare, women welfare and welfare of persons with disability.

Unit – V

Social planning & development – concept, importance, traditional social work, voluntary social work, solution and evidence based approach, strength based approach, empowerment and advocacy approach, social equity, social exclusion and social inclusion.

References:

1. William Borden 2013, Reshaping Theory in Contemporary Social Work: Toward a Critical Pluralism in Clinical Practice, Columbia University Press
2. Charles A. Glisson et.al, 2012, Social Work Practice with Groups, Communities, and Organizations: Evidence-Based Assessments and Interventions, John Wiley & Sons publication
3. Malcolm Payne 2014, Modern Social Work Theory, Palgrave Macmillan
4. Marion Bogo 2013, Social Work Practice: Concepts, Processes, and Interviewing, columbia university press.
5. Mel Gray & Stephen Webb 2012, Social Work Theories and Methods, sage publicers
6. Mel Gray, Stephen Webb 2012, Social Work Theories and Methods, sage publication
7. Roberta R. Greene 2011, Human Behavior Theory and Social Work Practice of Social Work Applications, Transaction Publishers. Volume 1

M.Sc (CS&IT) I Year	CORE	Max Marks 100 Int: 25 Ext: 75
Semester – I	MATHEMATICAL FOUNDATION	5 hrs week
15MCSC11		Credits: 4

Objectives:

1. To enable the students to understand the concept of set theory.
2. To enable the students to understand the concept of logic theory.
3. To enable the students to understand the concept of Graph theory.

Unit – I

       Mathematical Logic : Statements And Notation – Connectives – Normal Forms

Unit – II

       The Theory Of Inference For The Statement Calculus - The Predicate Calculus – Inference Theory Of The Predicate Calculus

Unit – III

       Algebraic Structure : Grammers And Languages – Polish Expression - Groups

Unit – IV

       Lattices And Boolean Algebra: Lattices As Partially Ordered Set – Boolean Algebra – Boolean Functions – Finite State Mechanism

Unit – V

       Graph Theory : Basic Concept Of Graph Theory – Basic Definition – Path, Reachability And Connectedness - Matrix Representation Of Graph – Trees – **Introduction To Computability Theory**: Finite State Acceptors And Regular Grammers

TEXT BOOK: Discrete Mathematical Structures With Applications To Computer Science, J.P.TREMBLEY, 2ND Edition , MCGRAW Hill Publication.

Unit – I :1.1,1.2,1.3   Unit – II : 1.4,1.5,1.6   Unit – III : 3.3,3.4,3.5
Unit – IV : 4.1,4.2,4.3,4.6   Unit – V : 5.1,6.1

REFERENCE BOOK:

VENGATRAMAN, M.K ,2000, Discrete Mathematics, The National Publishing Company.

M.Sc (CS & IT) I Year Semester – I 14MCSC14	CORE DATA COMMUNICATION & NETWORKS	Max Marks 100 Int: 25 Ext: 75 5 hrs week Credits: 4

OBJECTIVES:

- To help the students to acquire knowledge of wireless and data communication.
- To enable them to understand the concepts of satellite and mobile communication.

Unit – I

Introduction : Data Communication – Networks – Internet – Protocols And Standards – **Network Model:** Layered Task – The Osi Model - Layers In Osi Model – Addressing – **Data And Signals:** Analog And Digital – Digital Signals – Transmission Impairments – Performance

Unit – II

Digital Transmission : Digital To Digital Conversion – Analog To Digital Conversion– Transmission Modes – **Analog Transmission:** Digital To Analog Conversion - Analog To Digital Conversion – Multiplexing

Unit – III

Transmission Media: Guided Media - Unguided Media – Circuit Switched Network – Data Gram Network – Virtual Circuit Network – Telephone Network – Cable Tv Network –

Unit – IV

Error Detection And Correction : Introduction – Block Coding – framing - Flow And Error Control – Noiseless And Noisy Channels

Unit – V

Wireless Lan: Ieee 802.11 – Bluetooth - Cellular Telephony – Satellite Network – Atm Process – Cryptography – Symmetric And Asymmetric Cryptography -Security Services

Text Book : DATA COMMUNICATION AND NETWORKING – Behrouz A.Forouzan , fourth edition , MCGRAW HILL publication.

Unit – I : 1.1 to 1.4, 2.1,2.2,2.3,2.5,3.1,3.3,3.4,3.6
Unit – II : 4.1,4.2,4.3,5.1,5.2 ,6.1   Unit – III : 7.1,7.2,8.1,8.2,8.3,9.1,9.4
Unit – IV : 10.1,10.2,11.1 to 11.5
Unit – V: 14.1,14.2,16.1,16.2,18.2,30.1,30.2,30.3,31.1

Reference book: Computer Networks, by Tanenbaum, 4th edition , MCGRAW HILL publication.

OBJECTIVES:

- To help the students to explore the programming knowledge in language used in internet.
- To make them familiar with the features of web designing using UNIX commands.
- To make them familiar in open source software.

Unit – I

Introduction – Getting Started On UNIX System V – Directories And Files – Processes And Standard Files.

Unit – II

User To User Communication – Text Manipulation

Unit – III

The Visual Text Editor Vi – The Ex And Ed Line Editors

Unit - IV

Using The Shell As A Programming Language

Unit – V

System Administration

Text book: INTRODUCING UNIX SYSTEM V – Rachel Morgan, Henry Mcgilton , McGrawHill publication.

Unit – I : chapter : 1,2,3,4
Unit – II : chapter : 5,6
Unit – III : chapter :7,8
Unit – IV : chapter :9
Unit – V : chapter :10

Reference book: THE UNIX PROGRAMMING ENVIRONMENT – Brian.W.Kernignan, PHI learning publication.

M.Sc (CS&IT) II Year Semester – III 15MCSC31	CORE SOFTWARE ENGINEERING	Max Marks 100 Int: 25 Ext:75 5 hrs week Credits: 4

OBJECTIVES:
- To know the concepts of structured design.
- To understand the concepts of system analysis and design.
- To understand the concepts of Software Engineering.
- To understand the concepts of Cost estimation techniques.
- To understand the concepts of Verification and Validation

UNIT – I

Software And Software Engineering: Nature Of Software – Software Engineering – Software Process – Software Engineering Practice – **Process Models :** Generic Process Model – Prescriptive Process Model – Specialized Process Model – Unified Process – Personal And Team Process Model – **Agile Development:** Agile Process – Extreme Programming – Agile Process Model.

UNIT – II

Principles That Guide Practice: Core Principles – Framework Activities – **Understanding Requirements:** Establishing The Groundwork – Eliciting Requirement – Building The Requirement Model – Validating Requirements – **Requirements Modeling:** Requirement Analysis – Scenario Based Modeling – Data Modeling Concepts – Class Based Modeling – Flow Oriented Modeling – Requirement Modeling For Webapps

UNIT – III

Design Concept: Design Concept – Design Models – Software Architectural – **Component Level Design:** Component – Designed Class Based Components – Designing Traditional Components – Component Based Development – Interface Analysis – Interface Design Steps – Pattern Based Software Design – Aesthetic Design – Content Design – Architecture Design – Navigation Design.

UNIT – IV

Quality Concepts: Software Quality – Achieving Software Quality – Formal Technical Reviews – **Software Quality Assurance:** SQA Tasks, Goals, And Metrics – Formal Approaches To SQA – Statistical SQA – Software Reliability – SQA Plan – **Software Testing Strategies:** Strategies Approaches To Software Testing – Unit And Integrate Testing – System Testing – Art Of Debugging – **Testing Conventional Applications:** Basic Path Testing – Control Structure Testing – Black Box And White Box Testing – Testing OOA And OOD Models – Object Oriented Testing Models – Content Testing – User Interface Testing – Component Level Testing – Navigation Testing – Configuration Testing – Security Testing – Performance Testing –

UNIT - V

Formal Modeling And Verification: Functional Specification – Clean room Design And Testing – Formal Specification Languages – Software Configuration Management: SCM Process – **Estimation For Software Project:** Project Planning Process – Resources – Decomposition Techniques- Empirical Estimation Model- **Project Scheduling:** Project Scheduling – Scheduling - Software Risk – Risk Identification – Risk Projection – THE RMMM Plan

Text Book: SOFTWARE ENGINEERING – Roger.S.Pressman, 7TH Edition , Mc Graw Hill Publication .

Unit – I : 1.1,1.3,1.4,1.5,2.1,2.3,2.4,2.5,2.6,3.3,3.4,3.5   Unit – II : 4.2,4.3,5.2,5.3,5.5,5.7, 6.1,6.2,6.4,6.5,7.2,7.5   Unit – III : 8.3,8.4,9.1,10.1,10.2,10.5,10.6,11.3,11.4,12.2,13.5, 13.6,13.7,13.8   Unit – IV :4.2,14.415.6,16.3,16.4,16.5,16.6,16.8,17.1,17.3,17.7,17.8,18.4, 18.5,18.6,18.3,19.2,19.4,20.3,20.4,20.5,20.6,20.7,20.8,20.9
Unit – V : 21.2,21.3,21.4,21.7,22.3,26.2,26.4,26.6,26.7,27.2,27.5,28.2,28.3,28.4,28.7

Reference Book: SOFTWARE ENGINEERING – Richard Fairley.

M.Sc (CS & IT)	ELECTIVE - 2	Max Marks 100
II Year		Int: 25 Ext: 75
Semester – III	COMPUTER ORGANIZATION	5 hrs week
15MCSE31		Credits: 5

OBJECTIVES:
- To expose the students to the concepts of computer architecture and design tools.
- To enrich their knowledge in machine instruction sets and computer peripherals.

UNIT – I
   Basic Structure Of Computers: Computer Types – Functional Units – Basic Operational Concepts – Bus Structure – Historical Perspective Of Computer – **Machine Instruction And Programs:** Numbers,Arithmetic Operations And Characters – Memory Location And Address – Memory Operations – Addressing Modes – Assembly Language – Basic Input/Output Operations – Stacks And Queues – Subroutines

UNIT – II
   Instruction set : arithmetic and logical instruction – branch instruction – logic and shift/rotate instruction - **Input/Output Organization:** Accessing I/O Devices – Interrupts – Buses – Interface Circuits

Unit - III
   Memory Systems: Some Basic Concepts – Semiconductor RAM Memories – ROM Memories – Cache Memories – Virtual Memories – Secondary Storages

Unit – IV
   Basic processing unit : some fundamental concepts – executing complete instruction – multiple bus organization - **Pipelining:** Basic Concepts – Data Hazards – Instruction Hazards – Superscalar Operations.

UNIT – V
   Computer Pheripherals: Input Devices – Output Devices – Serial Communication Links – **Large Computer Systems:** Structure Of General Purpose Microprocessor – Interconnection Networks – Multi Computers.

Text books: Computer Organization – Carl Hamacher,5th edition , McGRAW HILL publications.

Unit – I : 1.1,1.2,1.3,1.4,1.8,2.1,2.2,2.3,2.5,2.6,2.7,2.8,2.9
Unit – II : 3.2,3.3,3.20,4.1,4.2,4.5,4.6   Unit – III :5.1,5.2,5.3,5.5,5.7,5.9
Unit – IV : 7.1,7.2,7.3,8.1,8.2,8.3,8.6 Unit – V : 10.1,10.2,10.3,12.3,12.4,12.7

Reference book: Computer Architecture And Organization, JOHN.P.HAYES, 3rd edition, McGRAW HILL publications.

M.Sc (CS&IT) II Year. Semester – III 15MCSL32	PHP LAB	Max Marks 100 Int: 25 Ext: 75 5 hrs week Credits: 4

OBJECTIVES:

- To assist the students to understand the concept of web development.
- To enable them to understand the implementation of script language induce in the PHP programs.

List of programs:

1.create a login page in PHP.

2.using legend design a biodata form

3.using ODBC connection perform add, edit and the delete the data.

4. design a web page Using PHP tags.

5. using functions calculate Armstrong number and Palindrome number in PHP

6.Using array concept, design the multiplication table in PHP.

7. using various array predefined functions, display the text content.

8. perform the various sort functions in PHP

9.perform the various string functions in PHP.

10.perform the various validate functions in PHP.

M.Sc (CS&IT) II Year Semester – III 15MCSL31	RDBMS LAB	Max Marks 100 Int: 25 Ext: 75
		5 hrs week
		Credits: 5

OBJECTIVES:

- To assist the students to understand the concept of database management.
- To enable them to understand the implementation of query analyzing and managing the database.

1. To create a sql table for students personal details.
2. To create a sql table for students marks details.
3. To create a sql table for employee personal details.
4. To create a sql table for employee details.
5. To perform the data manipulation in student personal details.
6. To perform the data definition in student personal details
7. To check the using employee details cursor.
8. To check the using students mark details cursor.

M.Sc (CS & IT) II Year	ELECTIVE - 2	Max Marks 100 Int: 25 Ext: 75
Semester – III		
15MCSE32	MOBILE COMPUTING	5 hrs week
		Credits: 5

OBJECTIVES:

- To help the students to acquire knowledge of mobile computing.
- To enable them to understand concepts of GSM & GPRS.
- To make them become familiar with WAP.

Unit – I

Introduction : Mobility Of Bits And Bytes – Wireless – Mobile Computing - Dialogue Control – Networks – Middleware And Gateway – Application And Services – Developing Applications – Security In Mobile Computing – Standard Bodies – **Mobile Computing Architecture:** History Of Computer And Internet – Architecture – Three Tier Architecture – Design Consideration For MC – MC Through Internet

Unit – II

MC Through Telephony: Evolution – Multiple Access Procedures – Satellite Communication System – MC Through Telephone – Developing IVR Application – Voice XML – **Emerging Technology:** Introduction – Bluetooth – RFID – WIMAX – Mobile IP – IPV6 – Java Card

Unit – III

GSM: Architecture – Entities – Call Routing – PLMN Interface – GSM Address And Identifiers – Network Aspect In GSM – Mobility Management – GSM Frequency Allocation – Personal Communication Service – Authentication And Security – **SMS:** Mobile Computing Over SMS – Value Added Services Through SMS – Accessing SMS Bearer

Unit – IV

GPRS: Introduction – GPRS And Packet Data Network – Architecture Operations – Data Service – Application Limitation Billing And Charging – EDGE – **WAP:** Introduction – MMS – GPRS Application

Unit – V

CDMA And 3G: Introduction – Spread Spectrum Technology – IS95 – CDMA Vs GSM – Wireless Data – Third Generation Network – Application On 3G – **Wireless LAN:** Introduction – Advantages – IEEE Standards – Architecture – Mobility In Wireless LAN – Deploying Wireless LAN – Security – Vehicular Environment – Wireless Local Loop – HiperLAN – WIFI Vs 3G.

TEXT BOOK: MOBILE COMPUTING, by TALUKDER, 2nd edition, McGrawHill Publication.

Unit –I : chapter :1,2   Unit –II : chapter :3,4   Unit –III : chapter :5,6
Unit –IV : chapter :7,8   Unit –V : chapter :9,10

Reference books: Asoke K talukder, Roopa R yavagal, 2005 Mobile computing, Technology applications and service creation, TMH publishing company New Delhi.

B.Com (CA) III Year	Elective	Max Marks 100
Semester – 6		Ext: 100
Code: 15BCOMCP61	DTP	6 hrs week
		Credits: 5

Objectives:

1. To give practical knowledge on DTP work.
2. To enable the students to understand the DTP
3. To enable the students to do DTP in practical

LAB PROGRAM

1. To design a cover page in present scenario of Market / Industry in Corel draw

2. To design Advertisement in Corel draw

3. To make a Magazine Cover in Corel draw

4. To make a posters In Corel draw

5. To design a text in 3D effects in Corel draw

6. To design a Text and Images in Blur in Corel draw

7. To design a Power Clips in Corel draw

8. To Insert, Trim and Weld Image's in CorelDraw

9. To design cut-outs in Photoshop in Corel draw

10. To Change and Edit a Picture or Photo's in Photoshop

11. To Creating Water Drop on leaf in Photoshop.

13. Applying Layer in Photoshop.

14. Colour Adjustment in Photoshop.

15. Colour separation in Photoshop.

16. To create a Photo collage from photo's in Photoshop.

17. To design a wrapper in Photoshop.

18. Creating and Opening Publications Using 1. Tool Box, 2. Working With Palettes 3.With Text and Graphics.

19. To design a Cash Receipt in PageMaker.

20. To Design a Newspaper Front page in PageMaker.

21. To design a Editorial Page in PageMaker.

B.Com (CA) I Year	Non – Major Elective	Max Marks 100 Int: 40 Ext: 60
Semester – 2 Code: 15BCOMCN23	Introduction to Cost Accounting	2 hrs week Credits: 2

Objectives

To enable the students to understand the costing and cost accounting

To understand the concept and types of cost

To develop skills in different methods of costing

Unit –I

Cost accounting – Meaning – Objectives – Importance – Advantage – Preparation of cost sheet.

Unit – II

Material – Material issue procedure – pricing of materials.

Unit – III

Labour – Methods of remunerating labour.

Unit – IV

Overhead – Allocation and apportionment of Over head to cost centers.

Unit – V

Methods of costing – job costing – contract costing

Text book:

1. S.P. Jain & K.L.Narang, Advanced Cost Accounting, Kalyani Publishers, Chennai, 2008.

Reference Books:

1. S.P.Jain & K.L.Narang, Elements of Cost Accounting, Kalyani Publishers, Chennai, 2008.
2. P.V.. Rathinam, Costing Advisor, Kitab Mahal, New Delhi, 2004
3. S.P.Jain & K.L Narang, Advanced Cost And Management Accounting, Kalyani Publishers, Chennai, 2008.

MSW I	Value added	Max Marks 50
		Int: 50
Semester – II	INDUSTRIAL SOCIAL WORK	2 hrs week
16MSWV22		Credit: 1

Objectives:
✓ To expose the students on Industrial Social Work
✓ To help the students to understand the scope of Social Work.

Unit I:

Industrial Social Work – Meaning. Scope of Social Work practice in industry - with individual - with groups & community –of industrial social work in industry-Qualities of Industrial Social Worker

Unit II:

Problem worker in industry – Applicability of social work knowledge and skills in industry –Social Work Process- Case Studies related to Psychotic & neurotic employees – Alcoholics & drug addicts – Chronic absenteeism.

Unit-III

Management of problem- Various approaches to problem solving efforts-applicability of skills of case work practice, group Work. Community organization and Research. Performance Counselling

1. Pearlman Helen (2011), Social Case Work, New Delhi, Rawat Publications
2. Karin Crawford. Marie Price & Bob Price (2014). Group work Practice for Social Workers. SAGE Publications Ltd.
3. Sarma A M (2011). Industrial Relations – Conceptual and legal framework, Mumbai: Himalaya
4. Karin Crawford. Marie Price & Bob Price (2014). Group work Practice for Social Workers. SAGE Publications Ltd.
5. Mathew, Grace,(1993), An Introduction to Social Case Work, Bombay, TISS.

MSW I	Value added	Max Marks 50 Int: 50
Semester – II		2 hrs week
16MSWV21	THERAPEUTIC SKILLS FOR SOCIAL WORKER	Credit: 1

Objectives:
- To help students to gain therapeutics skills
- To develop their understanding and its application in the practice of Social work.

UNIT I:

Therapeutic skills: Concept, importance, Ethical issues, Interviewing Skills, Communicative Skills: Transactional analysis, ego states, EISPU responses.

UNIT II:

Helping Skills: Rapport Building, Participation, Insight building, Empathy Concern, Confidentiality, Transference & Counter Transference.

UNIT III:

Crisis intervention, Grief & Bereavement, Anger Management, Relaxation, Negative life events, Problem Solving.

References:
1. Gordon Emmerson G (2006) Advanced Skills and Interventions in Therapeutic Counselling, Pub:Crown House Pub Ltd.
2. John Antony .D (2003) Psychotherapies in counselling, Anugraha Publications.
3. John Antony .D (2011) Types of counselling, Anugraha Publications.
4. Sudha Datar et al(2010). Skill training for Social Workers – A Manual. Sage Pub.

M.Sc (CS) -I	CORE	Max Marks 100 Int: 25 Ext: 75
Semester – II 16MCSC23	COMPUTER GRAPHICS	5 hrs week Credits: 4

OBJECTIVES:

- To acquire knowledge of computer graphics.
- To understand the concepts of multimedia.

Unit – I

A survey of computer graphics: Computer-Aided Design - Presentation Graphics – Computer Art – Entertainment – Education and Training – Visualization – Image Processing – Graphical User Interfaces-**Overview of Graphics Systems:** Video Display Devices – Raster Scan Systems – Random Scan Systems – Input Devices – Hard Copy Devices.

Unit – II

Output Primitives: Points and Lines – Line Drawing Algorithms – Circle Generating Algorithms – Ellipse Generating Algorithms – Filled Area primitives - **Attributes of Output Primitives:** Line Attributes – Curve Attributes – Color and Gray Scale Levels – Area Fill Attributes – Character Attributes – Bundled Attributes – Inquiry Functions – Antialiasing

Unit – III

Two–Dimensional Geometric Transformations : Basic Transformations – Matrix Representations – Composite Transformations – Other Transformations – Transformations Between Coordinate Systems –

Unit - IV

Two –Dimensional Viewing : The Viewing Pipeline – Viewing Coordinate Reference Frame – Window –to- Viewport Coordinate Transformation – Two-Dimensional Viewing Functions – Clipping Operations – Point Clipping – Line Clipping – Polygon Clipping – Curve Clipping – Text Clipping – Exterior Clipping.

Unit – V

Three–Dimensional Geometric and modeling Transformations : translation – rotation – scaling – other transformation – composite transformation – 3D transformation function – modeling and coordinate

Text Book:

DONALD HEARN , M. PAULINE BAKER, Computer Graphics, SECOND EDITION,Prentice Hall of India Pvt. Ltd. ,New Delhi..

Unit – I : 1.1 to 1.8, 2.1,2.2,2.3,2.5,2.6   Unit – II : 3.1.3.2,3.5,3.6,3.11,4.1 to 4.8

Unit – III : 5.1 to 5.5   Unit – IV: 6.1 to 6.11   Unit – V: 11.1 to 11.7

Reference Books:

MALAY K. PAKHIRA, COMPUTER GRAPHICS, MULTIMEDIA and ANIMATION ,Prentice Hall of India Pvt. Ltd.,New Delhi .

M.Sc (CS) -II	ELECTIVE - 2	Max Marks 100 Int: 25 Ext: 75
Semester -- III	MULTIMEDIA	5 hrs week
16MCSE31		Credits: 4

OBJECTIVES:
- To expose the students to the concepts of computer architecture and design tools.
- To enrich their knowledge in machine instruction sets and computer peripherals .

UNIT I
Introduction: Objective-History of Multimedia-Its Market-content copyright-resources for Multimedia Developers-Types of products-Evolution-Hardware Architecture-software Library-Drivers.

UNIT II
Text and Graphics: Elements of text-Text Data files-Using text in Multimedia Application-Hypertext-Elements of Graphics-Images and Color-Graphics files and Application formats-Obtaining Images for Multimedia use-Using Graphics in Applications.

UNIT III
Digital Audio and Video: Characteristics of sound and Digital Audio-Digital audio Systems-MIDI-Audio for content-background as Video-Characteristics of Digital Video-Digital Video Data Sizing-video capture and Playback systems-computer animation.

UNIT IV
Product Design and Authoring Tools: Building Blocks-Classes of Products-Content organizational Strategic-story boarding-Multimedia Tool features-categories of Authoring Tools-selecting the Right authoring Paradigm.

UNIT V
Multimedia and Internet: Internet-client/server technology-communications protocol-internet addressing-internet functions-Origin of WWW-HTML and web Authoring-web page browsers-web page development-Multimedia Considerations for Web Pages.

Text book:
1. David Hillman, Multimedia Technology and Applications, Golgotha Publications.

Reference books:
1. Tay Vaughan, Multimedia Making it Work, Tata McGraw Hill Publication, New Delhi.
2. Prabhat K.Andleigh, Kiran Thakrar, Multimedia System Design, Prentice Hall.
3. Satraj Khosafian and A. Brad Baker, Multimedia and Imaging Databases, Morgan Kanfmann.

M.Sc (CS) II		Max Marks 100
		Int: 40 Ext: 60
Semester – III	RDBMS LAB	5 hrs week
16MCSL31		Credits: 5

OBJECTIVES:

- To assist the students to understand the concept of database management.
- To enable them to understand the implementation of query analyzing and managing the database.

Programmes

1. To create a sql table for students personal details.
2. To create a sql table for students marks details.
3. To create a sql table for employee personal details.
4. To create a sql table for employee details.
5. To perform the data manipulation in student personal details.
6. To perform the data definition in student personal details
7. To check the using employee details cursor.
8. To check the using students mark details cursor.

M.Sc (CS) II Year		Max Marks 100
		Int: 40 Ext: 60
Semester – III	Multimedia Lab	5 hrs week
16MCSL32		Credits: 4

OBJECTIVES:

- To assist the students to understand the concept of Multimedia.
- To enable them to understand the implementation of Flash and Photoshop.

Programmes

1. Creating a sample image
2. Editing existing image's brightness, mode colors and ads edit layer style.
3. Stitch and edit two images into single image. Use selection tools Lasso tool, clone stamp.
4. Study about timeline concepts. Insert Text, and image. Use scaling rotation alignment.
5. Study masking concepts. Use audio in the movie.
6. Add buttons, menus, and actions to the movie.
7. Export movie. Use multiple scenes.
8. Insert text, image, and sprite to the movie.
9. Add effects to the text.
10. Export movie to html, GIF, Flush formats.
11. Create simple 3D animation and export.

B.Sc (IT) III	Elective	Max Marks 100
		Int: 25 Ext: 75
Semester – V	MOBILE COMPUTING	6 hrs week
13BSCCSE51		Credits: 5

OBJECTIVES:
- Understand the basic concepts of mobile computing.
- Be familiar with the network protocol stack.
- Learn the basics of mobile telecommunication system.
- Be exposed to Ad-Hoc networks.
- Gain knowledge about different mobile platforms and application development.

UNIT I: INTRODUCTION
Mobile Computing – Mobile Computing Vs wireless Networking – Mobile Computing Applications – Characteristics of Mobile computing – Structure of Mobile Computing Application. MAC Protocols – Wireless MAC Issues – Fixed Assignment Schemes – Random Assignment Schemes – Reservation Based Schemes.

UNIT II: MOBILE INTERNET PROTOCOL AND TRANSPORT LAYER
Overview of Mobile IP – Features of Mobile IP – Key Mechanism in Mobile IP – route Optimization. Overview of TCP/IP – Architecture of TCP/IP- Adaptation of tCP Window – Improvement in TCP Performance.

UNIT III: MOBILE TELECOMMUNICATION SYSTEM
Global System for Mobile Communication (GSM) – General Packet Radio Service (GPRS) – Universal Mobile Telecommunication System (UMTS).

UNIT IV : MOBILE AD-HOC NETWORKS
Ad-Hoc Basic Concepts – Characteristics – Applications – Design Issues – Routing – Essential of Traditional Routing Protocols –Popular Routing Protocols – Vehicular Ad Hoc networks (VANET) – MANET Vs VANET – Security .

UNIT V:MOBILE PLATFORMS AND APPLICATIONS
Mobile Device Operating Systems – Special Constrains & Requirements – Commercial Mobile Operating Systems – Software Development Kit: iOS, Android, BlackBerry. Windows Phone – M- Commerce – Structure – Pros & Cons – Mobile Payment System – Security Issues.

TEXT BOOK:

1.Prasant Kumar Pattnaik, Rajib Mall, "Fundamentals of Mobile Computing", PHI Learning Pvt. Ltd, New Delhi.

REFERENCES:

1. Jochen H. Schller, "Mobile Communications", 3rd Edition, Pearson Education. New Delhi.
2. Dharma PrakashAgarval, Qing and An Zeng, "Introduction to Wireless and Mobile systems", Thomson Asia Pvt Ltd.
3. UweHansmann, LotharMerk, Martin S. Nicklons and Thomas Stober, "Principles ofMobile Computing", Springer.

B.Sc (CS) II Year	Skill Based	Max Marks 100 Int: 40 Ext: 60
Semester – IV Code: 16BSCCSS4P	Multimedia Lab	2 hrs week
		Credit: 2

Objectives:
1. To make the students to understand logic of Multimedia.
2. To understand the implementation of Multimedia Techniques.
3. To enrich the knowledge about Adobe Flash.

List of Programs:

1. Creating a sample image
2. Editing existing image's brightness, mode colors and ads edit layer style.
3. Stitch and edit two images into single image. Use selection tools Lasso tool, clone stamp.
4. Study about timeline concepts. Insert Text, and image. Use scaling rotation alignment.
5. Study masking concepts. Use audio in the movie.
6. Add buttons, menus, and actions to the movie.
7. Export movie. Use multiple scenes.
8. Insert text, image, and sprite to the movie.
9. Add effects to the text.
10. Export movie to html. GIF, Flush formats.
11. Create simple 3D animation and export.

B.Sc (C.S) III	Elective	Max Marks 100 Int: 25 Ext: 75
	Client Server Computing	6 hrs week
Semester – V 16BSCCSE51		Credits: 4

Objectives:
1. The students will gain an exhaustive knowledge on the fundamentals of Client server.
2. To enable to understand the categories of servers.
3. To enrich the knowledge of operating system.

UNIT I
Introduction to Client/Server Computing – What is Client/Server Computing – Benefits of Client/Server Computing – Evolution of C/S computing – Hardware Trends – Software Trends – Evolution of Operating Systems – Networking (N/W) Trends – Business Considerations.

UNIT II
Overview of c/S Applications: Components of C/S Applications – Classes of C/S applications – Categories of C/S Applications. Understanding C/S Computing: Dispelling the Myths – Obstacles – Upfront & Hidden – Open Systems & Standards – Standards – Setting Organizations – Factors for Success.

UNIT III
The Client Hardware & Software : Client Component – Client Operating Systems – What is GUI – Database Access – Client Software products: GUI Environments – Converting 3270/5250 Screens – Database Tools – Client Requirements : GUI Design Standards – Open GUI Standards – Interface Independence – Testing Interfaces.

UNIT IV
The Server : Categories of Servers – Features of Server Machines – Classes of Server Machines – Server Environment : N/W Management Environment – N/W Computing Environment – Extensions – Network Operating System – Loadable Module.

UNIT V
Server Operating System :Windows New Technology – Unix Based OS – Server Requirements : Platform Independence – Transaction Processing – Connectivity – Intelligent database – Stored Procedure – Triggers – Load Leveling – Optimizer – Testing and Diagnostic Tools – Backup & Recovery Mechanisms.

Text book:

1. Dawna Travis Dewier. Client/Server Computing, Tata McGraw- Hill Publishing Company, NewDelhi.

2. Patrick Smith and Steve Guengerich, Client/Server Computing, Prentice Hall of India, Second Edition, 1997.

Reference books:

1. Chris Loosley, Frank Douglas, High Performance Client/Server, John Wiley & Sons.
2. David Linthicum, Guide to Client/Server and Intranet Development, John Wiley & Sons.

B.Sc (C.S) III Year	Elective	Max Marks 100
Semester – V		Int: 25 Ext: 75
16BSCCSE52	Android Programming	6 hrs week
		Credits: 4

UNIT I:

Preliminary information's - Before we get started: History of Android - Advantages of Android - SDK tools to download Setting up Android Development Environment: Installing java, eclipse, androidsdk - Android development tools - Setting up AVD's Android Software development platform: Dalvik virtual machine - Directory structure of Android project - Common resource folder - Common values folder - Android manifest.xml - Creating first application Activities: Introduction - Declaring an activity - Starting new activity with an intent object - switching between activities

UNIT II:

Layouts: Introduction - Declaring layout - Applying relative layout - Applying table layout - Using Listviews and Listadapters - Applying gravity and weight - Controlling layout during runtime - Optimizing for tablets and multiple screens - Dividing screen into fragments Handling UI events: Overview of UI events - Handling onclick events - Android touchscreen events - Keyboard event listeners.

UNIT III:

Widgets: Introduction - Inserting widget into layout - Adding images to widgets - Creating widget at runtime - Applying style - Turning style into theme - Creating custom component Menus: Introduction - creating and inflating option menu - Designing menu icons - Building context sensitive menu - Handling menu selections - Building menu group of checkable items.

UNIT IV:

Notifying the user: Introduction - Displaying an alert dialog - Displaying progress dialog - Customizing a dialog - Making a toast - Notifying user with status bar - Using Notifiaction Builder class Graphics and Animation: Introduction - Adding graphics to imageview class - Rotating image with matrix - Using shapedrawable and paint - Drawing with canvas - Using tween animations.

UNIT V:

Multimedia: Introduction - Playing an audio file from within an application - Playing back video from external memory - Recording audio - Recording video - Capturing photos with cameraUnderstanding Content providers: Overview of Android content providers - Defining content provider - Creating content provider - Working with database

Textbook:

1. Kyle Merrifield Mew, Android 3.0 Application Development cookbook –PACKT Publishing.
2. Wallace Jackson, Android Apps for Absolute Beginners –Apress Publishing
   UNIT I: Chapter 1,3 4 (Textbook 2), Chapter 1 (Textbook 1)
   UNIT II: Chapter 2 (Textbook 1), Chapter 9 (Textbook 2)
   UNIT III: Chapter 3,4 (Textbook 1)
   UNIT IV: Chapter 7,8 (Textbook 1)
   UNIT V: Chapter 9 (Textbook 1), Chapter 10 (Textbook 2)

Reference book:

1. Mark.L.Murphy, The Busy coders Guide to Android Development. Commonsware LLC.

B.Sc (C.S) III Year	Elective	Max Marks 100 Int: 25 Ext: 75
Semester – V Code:16BSCCSE53	Visual Programming	6 hrs week Credits: 4

Objectives:
1. To develop programming skills in GUI based language visual basic
2. To understand the concepts of visual programming.
3. To understand the concepts of Graphics.

UNIT I
Starting a new project -The properties window -Common form properties -creating stand-alone windows programs -The tool box -Creating controls -The name property -properties of command buttons -Access keys --Image controls -Text boxes -labels - Message boxes .

UNIT II
Statements -Data Types - Working with variables -Constants -Input boxes - Format function - Picture boxes -Rich Text Boxes-Determinate loops -Indeterminate loops -Making decisions - Select case- Nested If-Then's -Go To,String,Numeric,Date and Time functions.

UNIT III
Function procedures -sub procedures -Advanced uses of procedures and functions - One-dimensional arrays - Arrays with more than one dimension -Using Lists and Arrays with functions and procedures - The new array-based string -Records (User-Defined Types).

UNIT IV
The With statement - Enums -Control arrays- List and Combo Boxes -Code Modules: Global Procedures -The Do Events Function and Sub Main -Accessing Windows functions -Error Trapping -Creating an Object in Visual Basic -Building your own classes.

UNIT IV
Fundamentals of graphics -Screen scales -The line and shape controls -Graphics via code - Lines and Boxes -Circles, Ellipses-File commands -Sequential files -Random access files - Binary files -File System Controls.

Text book:
1. Gary Kernell, Visual Basic 6 from the Ground Up, Tata McGraw- Hill Publishing Company, NewDelhi.

Reference books:
1. Peter Norton's & Michael Groh, Guide to Visual Basic 6 Tec media.
2. Paul sheriff, Visual Basic, Prentice Hall International.
3. Francesco Balena, Programming Microsoft Visual Basic, Microsoft Press.

B.Sc (C.S) III Year	Skill-Based	Max Marks 100 Int: 40 Ext: 60
Semester – V	Networking Lab	2 hrs week
Code: 16BSCCSS5P		Credits: 2

Objective:
To train the students to configure and maintain the network with Transport Layer Protocols, invoking the Remote Methods and configure the Router via Routing Protocols

1. Get detailed IP address of a system
2. Send data from client to server using UDP
3. Send data from client to server using TCP
4. Use Threads to receive multiple connections for a single server socket
5. Send a file from server to multiple clients
6. Create a Chat room using TCP and UDP
7. Using RMI do mathematical operations by sending data from client to server
8. Using RMI do banking transaction between client and server
9. Using RMI prepare EB bill
10. Using RMI do payroll processing
11. Using RMI perform inventory processing
12. Router Configuration using CISCO Packet Tracer
   - A. Static Routing
   - B. Dynamic Routing
   - C. Link State Routing Protocols

B.Sc (C.S) III Year	Elective	Max Marks 100
Semester – VI		Int: 25 Ext: 75
16BSCCSE61	Computer Graphics	6 hrs week
		Credits: 4

Unit I

A Survey of computer graphics – visualization – image processing – Graphical user interfaces. Overview of Graphics Systems: Video display devices – graphics software.

Unit II

Output Primitives: DDA Line algorithm - Bresenham's Line algorithm - Midpoint Circle algorithm - Flood fill algorithm – fill area functions and cell array.

Unit III

Attributes of output primitives: Line Attributes: Line color, Line width , Line type – character attributes: Character Height, character Width, Type face – Bundled attributes – inquiry functions.

Unit IV

Two Dimensional viewing : Window – to – viewport coordinate transformation - two dimensional viewing functions - clipping operations - point clipping – curve clipping – text clipping – exterior clipping.

Unit V

Graphical user interfaces and interactive input methods: Input of graphical data – logical classications of input devices – locator device – stroke device – string device – valuator device – choice device – pick device.

Text book:

1. Donald Hearn and M. Pauline Baker, Computer Graphics, 5thEdition, Prentice Hall of India, C Version.

Reference book:

1. William M. Newman and Robert F. Sproull, Principles of Interactive Computer Graphics, Tata McGraw- Hill Publishing Company, NewDelhi.

2. Mitchell Waite, Computer Graphics Primer, 4th Edition, Howard w. Sams & Co.

3. Wayne Carlson, A Critical History of Computer Graphics and Animation, The Ohio State University.

B.Sc (C.S) III Year	Elective	Max Marks 100 Int: 25 Ext: 75
Semester – VI	Compiler Design	6 hrs week
Code: 16BSCCSE62		Credits: 4

UNIT I :

Introduction – Structure of a Compiler – Compiler writing tools – Basic constructs of High level programming languages – Data structures – Parameter transmission. Lexical Analysis – Role of Lexical analyzer – Finite Automata – Regular Expressions to Finite Automata – Minimizing number of states of Deterministic Finite Automaton – Implementation of Lexical analyzer in C.

UNIT II:

Parsing Techniques – Context free Grammars – Derivations and Parse trees – Ambiguity – Capabilities of Context free grammar - Top down and Bottom up Parsing – Handles – Shift Reduce parsing – Operator precedence parsing – Recursive Descent parsing – Predictive Parsing .

UNIT III :

Automatic Parsing Techniques – LR parser – Canonical Collection of LR(0) items – Construction of SLR parsing tables – LR(1) sets of items construction – Construction of canonical LR parsing tables.

UNIT IV :

Syntax Directed Translation – Semantic action – Implementation of syntax directed translators – Intermediate code: Prefix notation, Quadruples, Triples, Indirect triples – Methods of translation of assignment statements, Boolean expressions and Control statements.

UNIT V:

Symbol Tables and Code Generation: Representing information in a symbol table – Data structures for symbol table – Introduction to code optimization – Basic blocks – DAG representation – Error detection and Recovery – Introduction to Code generation.

Text book :

1.Alfred V. Aho, Ravi Sethi, Jeffrey D. Ullman, "Compilers : Principles, Techniques, and Tools, Pearson Education Asia,

Reference books:

1. Dhamdhere D.M., "Compiler Construction: Theory and Practice", McMillan India Ltd,
2. Holub Allen, "Compiler Design in C", Prentice Hall of India.
3. V.Raghavan, Principles of Compiler design, Tata McGraw- Hill Publishing Company, NewDelhi.

B.Sc (C.S) III	Elective	Max Marks 100
Semester – VI		Int: 25 Ext: 75
16BSCCSE63	Information Security	6 hrs week
		Credits: 4

UNIT I:

Introduction:History of Information security - What is Security? - CNSS Security Model - Components of an Information System - Balancing Information security and Access – Approaches to Information security implementation - The SDLC - The Security SDLC.

UNIT II:

Security Investigation: Need for Security, Business Needs, Threats, Attacks, Professional, Legal and Ethical Issues in Information security.

UNIT III:

Managing IT Risk:An overview of Risk Management - Risk Identification – Risk Assessment - Risk Control Strategies- Selecting Risk Control Strategy – Quantitative Versus Qualitative Risk Control Practices.ling Risk.

UNIT IV:

How to plan for security:Information security Planning and Governance - Information Security Policy, Standards and Practices - ISO 17799/BS 7799, NIST Models, VISA International Security Model, Design of Security Architecture – Continuity strategies.

UNIT V :

Security Technology:Introduction – Intrusion detection and prevention systems - Scanning and Analysis Tools – Biometric access controls – Cipher methods – Cryptographic algorithms – Cryptographic tools – Protocols for secure communication- Attacks on Cryptosystems.

Text book:

1. Michael E Whitman and Herbert J Mattord, Principles of Information Security, Fourth Edition, CENGAGE Learning, 6th Indian Reprint, 2013.

Unit I: Chapter 1.
Unit II: Chapter 2. Chapter 3
Unit III: Chapter 4
Unit IV: Chapter 5
Unit V: Chapter 7, Chapter 8

Reference books:

1. Micki Krause, Harold F. Tipton, Handbook of Information Security Management, Vol. 1-3, CRCPressLLC,2004.

2. Hacking Exposed, Stuart McClure, Joel Scrambray, George Kurtz, Tata McGraw- Hill Publishing Company, NewDelhi.

3. Matt Bishop, Pearson Computer Security Art and Science, PHI.

B.Sc (C.S) III Year	Skill Based	Max Marks 100
		Int: 25 Ext: 75
Semester – V	Quantitative Aptitude	2 hrs week
16BSCCSS51		Credit: 2

UNIT I:
Numbers - HCF & LCM of numbers – Decimal Fractions

UNIT II:
Square roots and Cube roots- Average – Problems on ages.

UNIT III:
Percentage – Profit and Loss – Ratio and Proportion

UNIT IV:
Time and Work – Time and Distance

UNIT V:
Simple Interest – Compound Interest.

Text Book:
Quantitative Aptitude, R.S. Aggarwal, Reprint 2011, S. Chand & Company Ltd, New Delhi

Unit I   : Page nos. 3-29, 30-45, 46-66.

Unit II : Page nos. 117-138, 139-160, 182-194

Unit III: Page nos. 208-250, 251-293, 294-310

Unit IV: Page nos. 341-370, 384-404

Unit V : Page nos. 445-465, 466-486

Reference Books:

1. R.V. Praveen, Quantitative Aptitude and reasoning, 2nd Edition 2013, PHI Learning.
2. M.Tyra, Magical book on Quicker Maths, BSC Publishing Co. Pvt.Ltd, Delhi. Reprint, 2011.
3. Quantitative Aptitude for Competitive Exams, AbhijitGuha, 4th Edition, Tata McGraw- Hill Publishing Company, NewDelhi.

	Core	Max Marks 100
		Int: 25 Ext: 75
B.Sc(IT) – I	INTRODUCTION TO IT& HTML	5 hrs week
Semester – I		Credits: 5
16BSCITC11		

OBJECTIVES:

1. To understand Information Technology.
2. To understand usage of computer.
3. To enable the students to understand the architecture of the information system.

Unit I
Introduction: Types of computers – Characteristics of computer – Classification of Digital Computer System – Anatomy of Computer: Central Processing unit – Memory – How the CPU and Memory work. Computer Architecture: Introduction: The first Electronic computers – Low Level Languages – High level languages

Unit II
Computer Architecture: Introduction: The first Electronic computers – Low Level Languages – High level languages – Peripheral devices: systems: Input Devices: Keyboard – Mouse – Trackball – Joystick – MICR – OCR – OMR –BCR – Touch Screen – Scanner

Unit III
Output Devices: Monitor – Characteristics of Monitor – Video standards – Printers – Plotters Introduction: information systems – software and data – IT in Business and Industry – IT in the Home and at Play – IT in education and Training – IT in Entertainment and the Arts – IT in science; Engineering and Mathematics – Computers in Hiding

UNIT IV
Introduction to HTML: Designing a Home Page - History of HTML - Hyperlinks. **Head and Body Sections:** Header Section - Title - Prologue - Links - Colorful web page - Comment lines. **Designing the Body Section:** Heading printing - Aligning the Headings - Paragraph - Tab settings - Images and Pictures - Embedding PNG format images. **Ordered and Unordered Lists**: Lists - Unordered List - Headings in a list - Ordered List - Nested List.

UNIT V:
Table Handling: Tables - Table creation in HTML - Width of the table and cells - Cells Spanning Multiple Rows/Columns - Coloring cells - Column Specification. **Frames:** Frameset Definition - Frame Definition - Nested Framesets.

Text book:

1. Alexis Leon, Mathews Leon, Introduction to Information System, 4th Edition, Vijay Cole Imprints Pvt Ltd.
2. Laura Lemay, Web Publishing with HTML 4, 2nd Edition, SAMS Tech media, New Delhi.

Reference book:

1. Vikas Gupta, IT Tools and Applications, 3rd Edition, DreamTech Press Publication.
2. Pradeep K.Sinha, Pritisinha, Computer Fundamental Concepts, Systems and Application, 3rd Edition, BPB Publications.
3. Dennis P.Curtin, Kim Foley, Kunal Sen & Catheleen Morin, Information Technology, The Breaking Wave, 2nd Edition, Tata McGraw-Hill Publishing.
4. David Mercer, "HTML Introduction to Web Page Design and Development", Tata Mc-Graw Hill Publishing Company Limited, New Delhi.

BSc(IT) - I	CORE	Max Marks 100
Semester – 1	HTML PROGRAMMING LAB	Int: 40 Ext:60
16BSCITC1P		5 hrs week
		Credits: 4

HTML:

1. a. Write HTML code to develop a web page having the background in red and body "My First Page" in any other color.

b. Create a HTML document giving details of your name, age, telephone, address, roll no. using align tag.

c. Write HTML code to design a page containing a text in a paragraph give suitable heading style.

d. Design a page having background color given text color red and using all the attributes of font tab.

2. a. Write HTML code to create a WebPage that contains an Image at its center.

b. Create a web Page using href tag having the attribute alink, vlink.

c. Write a HTML code to create a web page of pink color and display moving message in red color.

3. a. Create a web page, showing an ordered list of name of your five friends.

b. Create a HTML document containing a nested list showing the content page of any book

c. Create a web page, showing an unordered list of name of fruits

4. Create a table in HTML with Dummy Data Name of Train Place Destination Train No

Time Fare Arrival Departure

5. Write HTML code to create a web page that displays your class time table.

6. a. Create a web page with Table using Frame concept

b. Create a web page having two frames one containing links and another with contents of

the links. When link is clicked appropriate contents should be displayed on Frame2.

7. Design an application form using all input types.

8. Design a website of your own by using all html

B.Sc(IT) II	Allied	Max Marks 100
Semester – IV	OPERATING SYSTEM	Int: 25 Ext: 75
16BSCITA41		4 hrs week
		Credits: 4

Objectives:
1. To know the components of an operating system.
2. To have a thorough knowledge of process and storage management.
3. To know the concept of I/O and file systems.

UNIT I
Introduction – Definition – sample operating systems – protection mechanisms – operating system services, calls, structure of operating systems – Virtual machines – system design, implementation. Overview of system programs – Assembler – linker and loader.

UNIT II
Process Management: process concepts, operations on process – process states transitions – threads and multi threading models. CPU scheduling: process scheduling – basic concepts – scheduling algorithms.

UNIT III
Semaphores – classical synchronization problems – IPC mechanisms. Deadlock: System model – deadlock characterization – prevents a dead lock – deadlock avoidance, detection – recover from a deadlock. Memory management – memory partitioning – paging segmentation

UNIT IV
Virtual memory system – virtual memory basics – hardware and control structures – operating system soft wares. I/O systems: I/O devices – concepts – organization of the I/O function – I/O design issues, buffering – input and output mechanisms.

UNIV V
File Systems: concepts - descriptors – Access methods – file systems – UNIX file systems- file system mounting – file sharing – protection-file system structures – recovery – disc formatting. Linux: main difference between UNIX and Linux – process, file management – device drivers – security.

Text book:
1. Achyut S Godbole, Atul Kahate, Operating Systems, Tata McGraw Hill Publication, New Delhi.

Reference books:
1. Milan Milenkovic, Operating System (Concepts and Design), 3rd Edition, Tata McGraw Hill, New Delhi.
2. Deitel, Harvey M.Deitel, Paul Choffnes, David, Operating Systems. Pearson/Prentice Hall.
3. Stallings, Operating Systems, Internals and Design Principles, Pearson Prentice Hall.

B.Sc(IT)- II	Core	Max Marks 100 Int: 25 Ext: 75
Semester – III	OBJECT ORIENTED PROGRAMMING WITH C++ AND DATA STRUCTURE	6 hrs week
16BSCITC31		Credits: 5

Objectives:

1. To understand the basic concept of OOP.
2. To become familiar in object oriented programming.
3. To understand the concepts of Data structures.

UNIT I
Principles of Object Oriented Programming (OOP) Software Evolution -OOP Paradigm . Basic Concepts of OOP - Benefits of OOP- Object Oriented Languages - Applications of OOPS. Introduction - Structures of C++. Functions in C++ - Main function - Function Prototyping -Call by reference -Return by reference

UNIT II
Classes and Objects: Constructors and Destructors –Implicit Constructor –Explicit Constructor - Copy Constructor – Constructor Overloading. Inheritance: Single Inheritance - Multilevel Inheritance -Multiple Inheritance - Hierarchical Inheritance -Hybrid Inheritance, Pointers, Virtual Functions and Polymorphism.

UNIT III
Working with files: classes for file stream operations -Opening and Closing a file - End-of-file detection -File pointers -Updating a file -Error handling during file operations - Command line arguments.

UNIT IV
Arrays, Records and Pointers: Linear arrays-representation in memory-traversing linear array- inserting, deleting, sorting, bubble sort, searching: linear search, binary search – multidimensional array.

UNIT V
Trees: Introduction-binary trees-representing binary trees in memory-traversing binary trees-traversal algorithms using stacks.

Text books:
1. E. Balagurusamy, Object Oriented Programming with C++, Tata McGraw- Hill, New Delhi.
2. Ellis Horowitz, Sartaj Sahani, Fundamentals of Data Structures, Galgotia Publishers.

Reference books:
1. Herbert Schildt, C++ from the Ground Up, 3rd Edition, Tata McGraw Hill Edition, New Delhi.
2. Al.Stevens, C++ Programming, 7th Edition, Willey Dream Tech India Pvt Ltd.
3. Sutter, Herb, Alexandrescu, Andrei, C++ coding Standards, 3rd Edition. Addison Weslly Ltd.

B.Sc(IT) III	Elective	Max Marks 100
Semester – V	VISUAL PROGRAMMING	Int: 25 Ext: 75
16BSCITE52		6 hrs week
		Credits: 5

Objectives:

1. To develop programming skills in GUI based language visual basic
2. To understand the concepts of visual programming.
3. To understand the concepts of Graphics.

UNIT I

Starting a new project -The properties window -Common form properties -creating stand-alone windows programs -The tool box -Creating controls -The name property -properties of command buttons -Access keys --Image controls -Text boxes -labels - Message boxes .

UNIT II

Statements -Data Types - Working with variables -Constants -Input boxes - Format function - Picture boxes -Rich Text Boxes-Determinate loops -Indeterminate loops -Making decisions - Select case- Nested If-Then's -Go To,String,Numeric,Date and Time functions.

UNIT III

Function procedures -sub procedures -Advanced uses of procedures and functions - One-dimensional arrays - Arrays with more than one dimension -Using Lists and Arrays with functions and procedures - The new array-based string -Records (User-Defined Types).

UNIT IV

The With statement - Enums -Control arrays- List and Combo Boxes -Code Modules: Global Procedures -The Do Events Function and Sub Main -Accessing Windows functions -Error Trapping -Creating an Object in Visual Basic -Building your own classes.

UNIT IV

Fundamentals of graphics -Screen scales -The line and shape controls -Graphics via code - Lines and Boxes -Circles, Ellipses-File commands -Sequential files -Random access files - Binary files -File System Controls.

Text book:

1. Gary Kernell, Visual Basic 6 from the Ground Up, Tata McGraw Hill Edition, New Delhi.

Reference books:

1. Peter Norton's & Michael Groh, Guide to Visual Basic 6 Tec media.
2. Paul sheriff, Visual Basic, Prentice Hall International.
3. Francesco Balena, Programming Microsoft Visual Basic, Microsoft Press.

B.Sc(IT) III	Elective	Max Marks 100 Int: 25 Ext: 75
Semester – V 16BSCITE53	INFORMATION SECURITY	6 hrs week Credits: 5

UNIT I:
Introduction: History of Information security - What is Security? - CNSS Security Model - Components of an Information System - Balancing Information security and Access - Approaches to Information security implementation - The SDLC - The Security SDLC.

UNIT II:
Security Investigation: Need for Security, Business Needs, Threats, Attacks, Professional, Legal and Ethical Issues in Information security.

UNIT III:
Managing IT Risk: An overview of Risk Management - Risk Identification – Risk Assessment - Risk Control Strategies- Selecting Risk Control Strategy – Quantitative Versus Qualitative Risk Control Practices.ling Risk.

UNIT IV:
How to plan for security: Information security Planning and Governnance - Information Security Policy, Standards and Practices - ISO 17799/BS 7799, NIST Models, VISA International Security Model, Design of Security Architecture – Continuity strategies.

UNIT V :
Security Technology: Introduction – Intrusion detection and prevention systems - Scanning and Analysis Tools – Biometric access controls – Cipher methods – Cryptographic algorithms – Cryptographic tools – Protocols for secure communication- Attacks on Cryptosystems.

Text book:

Michael E Whitman and Herbert J Mattord, Principles of Information Security,Fourth Edition, CENGAGE Learning, 6th Indian Reprint.

Unit I: Chapter 1
Unit II: Chapter 2, Chapter 3
Unit III: Chapter 4
Unit IV: Chapter 5
Unit V: Chapter 7, Chapter 8

Reference books:

1. Micki Krause, Harold F. Tipton, Handbook of Information Security Management, Vol. l-3, CRC Press LLC.

2. Joel Scrambray, George Kurtz, Hacking Exposed, Stuart McClure, Tata McGraw-Hill Publication, New Delhi.

3. Matt Bishop, Pearson ,Computer Security Art and Science, PHI.

B.Sc (CS) II Year	Skill Based	Max Marks 100 Int: 40 Ext: 60
Semester – IV Code: 16BSCCSS4P	Multimedia Lab	2 hrs week
		Credit: 2

Objectives:

1. To make the students to understand logic of Multimedia.
2. To understand the implementation of Multimedia Techniques.
3. To enrich the knowledge about Adobe Flash.

List of Programs:

1. Creating a sample image
2. Editing existing image's brightness, mode colors and ads edit layer style.
3. Stitch and edit two images into single image. Use selection tools Lasso tool, clone stamp.
4. Study about timeline concepts. Insert Text, and image. Use scaling rotation alignment.
5. Study masking concepts. Use audio in the movie.
6. Add buttons, menus, and actions to the movie.
7. Export movie. Use multiple scenes.
8. Insert text, image, and sprite to the movie.
9. Add effects to the text.
10. Export movie to html. GIF, Flash formats.
11. Create simple 3D animation and export.

<u>Objective:</u>

To train the students to configure and maintain the network with Transport Layer Protocols, invoking the Remote Methods and configure the Router via Routing Protocols

1. Get detailed IP address of a system

2. Send data from client to server using UDP

3. Send data from client to server using TCP

4. Use Threads to receive multiple connections for a single server socket

5. Send a file from server to multiple clients

6. Create a Chat room using TCP and UDP

7. Using RMI do mathematical operations by sending data from client to server

8. Using RMI do banking transaction between client and server

9. Using RMI prepare EB bill

10. Using RMI do payroll processing

11. Using RMI perform inventory processing

12. Router Configuration using CISCO Packet Tracer

      A. Static Routing

      B. Dynamic Routing

      C. Link State Routing Protocols

B.Sc(IT) III	Elective CRYPTOGRAPHY & NETWORK SECURITY	Max Marks 100
Semester – VI		Int: 25 Ext: 75
16BSCITE63		6 hrs week
		Credits: 4

OBJECTIVES:
- Understand OSI security architecture and classical encryption techniques.
- Acquire fundamental knowledge on the concepts of finite fields and number theory.
- Understand various block cipher and stream cipher models.
- Describe the principles of public key cryptosystems, hash functions and digital signature.

UNIT I:INTRODUCTION & NUMBER THEORY

Services, Mechanisms and attacks-the OSI security architecture-Network security model-Classical Encryption techniques (Symmetric cipher model, substitution techniques, transposition techniques, steganography).FINITE FIELDS AND NUMBER THEORY: Groups, Rings, Fields-Modular arithmetic-Euclid"s algorithm-Finite fields- Polynomial Arithmetic –Prime numbers-Fermat"s and Euler"s theorem-Testing for primality -The Chinese remainder theorem- Discrete logarithms.

UNIT II:BLOCK CIPHERS & PUBLIC KEY CRYPTOGRAPHY

Data Encryption Standard-Block cipher principles-block cipher modes of operation-Advanced Encryption Standard (AES)-Triple DES-Blowfish-RC5 algorithm. **Public key cryptography:** Principles of public key cryptosystems-The RSA algorithm-Key management - Diffie Hellman Key exchange-Elliptic curve arithmetic-Elliptic curve cryptography.

UNIT III:HASH FUNCTIONS AND DIGITAL SIGNATURES

Authentication requirement – Authentication function – MAC – Hash function – Security of hash function and MAC –MD5 - SHA - HMAC – CMAC - Digital signature and authentication protocols – DSS – EI Gamal – Schnorr.

UNIT IV:SECURITY PRACTICE & SYSTEM SECURITY

Authentication applications – Kerberos – X.509 Authentication services - Internet Firewalls for Trusted System: Roles of Firewalls – Firewall related terminology- Types of Firewalls - Firewall designs - SET for E-Commerce Transactions. Intruder – Intrusion detection system – Virus and related threats – Countermeasures – Firewalls design principles – Trusted systems – Practical implementation of cryptography and security.

UNIT V:E-MAIL, IP & WEB SECURITY

E-mail Security: Security Services for E-mail-attacks possible through E-mail - establishing keysprivacy-authentication of the source-Message Integrity-Non-repudiation-Pretty Good Privacy-S/MIME. **IPSecurity:** Overview of IPSec - IP and IPv6-Authentication Header-Encapsulation Security Payload(ESP)-Internet Key Exchange (Phases of IKE, ISAKMP/IKE Encoding). **Web Security:** SSL/TLS Basic Protocol-computing the keys- client authentication-PKI as deployed by SSLAttacks fixed in v3-Exportability-Encoding-Secure Electronic Transaction (SET).

TEXT BOOKS:

1. William Stallings, Cryptography and Network Security, 6th Edition, Pearson Education, March 2013. (UNIT I,II,III.IV).
2. Charlie Kaufman, Radia Perlman and Mike Speciner, "Network Security", Prentice Hall of India. (UNIT V).

REFERENCES:

Behrouz A. Ferouzan, "Cryptography & Network Security", Tata McGraw Hill,New Delhi.
Man Young Rhee, "Internet Security: Cryptographic Principles", "Algorithms and Protocols", Wiley Publications.
Charles Pfleeger, "Security in Computing", 4th Edition, Prentice Hall of India.
Ulysess Black, "Internet Security Protocols", Pearson Education Asia.
Charlie Kaufman and Radia Perlman, Mike Speciner, "Network Security, Second Edition, Private Communication in Public World".

Seventh Academic Council – Syllabus BSc. I.T.

B.Sc(IT) III	Skill Based	Max Marks 100
Semester – V	QUANTITATIVE APTITUDE	Int: 25 Ext: 75
16BSCITS51		2 hrs week
		Credits: 2

UNIT I:

Numbers - HCF & LCM of numbers – Decimal Fractions

UNIT II:

Square roots and Cube roots- Average – Problems on ages.

UNIT III:

Percentage – Profit and Loss – Ratio and Proportion

UNIT IV:

Time and Work – Time and Distance

UNIT V:

Simple Interest – Compound Interest.

Text Book:

R.S. Aggarwal, Reprint 2011,Quantitative Aptitude, S. Chand & Company Ltd, New Delhi.

  Unit I : Page nos. 3-29, 30-45, 46-66.

  Unit II : Page nos. 117-138, 139-160, 182-194

  Unit III: Page nos. 208-250, 251-293, 294-310

  Unit IV: Page nos. 341-370, 384-404

  Unit V : Page nos. 445-465, 466-486

Reference Books:

1. R.V. Praveen, Quantitative Aptitude and reasoning, 2nd Edition 2013, PHI Learning.

2. M.Tyra, Magical book on Quicker Maths, BSC Publishing Co. Pvt.Ltd, Delhi. Reprint.

3. AbhijitGuha, Quantitative Aptitude for Competitive Exams, 4th Edition, Tata McGrawHill Company, New Delhi.

		Max Marks 100
	Elective	Int: 25 Ext: 75
B.Sc (IT) III	COMPILER DESIGN	6 hrs week
Semester – VI 16BSCITE62		Credits: 4

UNIT I :
Introduction – Structure of a Compiler – Compiler writing tools – Basic constructs of High level programming languages – Data structures – Parameter transmission. Lexical Analysis – Role of Lexical analyzer – Finite Automata – Regular Expressions to Finite Automata – Minimizing number of states of Deterministic Finite Automaton – Implementation of Lexical analyzer in C.

UNIT II:
Parsing Techniques – Context free Grammars – Derivations and Parse trees – Ambiguity – Capabilities of Context free grammar - Top down and Bottom up Parsing – Handles – Shift Reduce parsing – Operator precedence parsing – Recursive Descent parsing – Predictive Parsing .

UNIT III :
Automatic Parsing Techniques – LR parser – Canonical Collection of LR(0) items - Construction of SLR parsing tables – LR(1) sets of items construction – Construction of canonical LR parsing tables.

UNIT IV :
Syntax Directed Translation – Semantic action – Implementation of syntax directed translators – Intermediate code: Prefix notation, Quadrples, Triples, Indirect triples – Methods of translation of assignment statements, Boolean expressions and Control statements.

UNIT V:
Symbol Tables and Code Generation: Representing information in a symbol table – Data structures for symbol table – Introduction to code optimization – Basic blocks – DAG representation – Error detection and Recovery – Introduction to Code generation.

Text book :
Alfred V. Aho, Ravi Sethi, Jeffrey D. Ullman, "Compilers : Principles, Techniques, and Tools, Pearson Education Asia.

Reference books:
1. Dhamdhere D.M., "Compiler Construction: Theory and Practice", McMillan India Ltd.
2. Holub Allen, "Compiler Design in C", Prentice Hall of India.
3. V.Raghavan, Principles of Compiler design, Tata McGraw Hill Education, New Delhi.

B.Sc (IT) III	Elective	Max Marks 100
		Int: 25 Ext: 75
Semester – VI	DATA MINING	6 hrs week
16BSCITE61		Credits: 4

Objectives:
1. To gain an exhaustive knowledge on the fundamentals of Client server computing.
2. To gain knowledge on the fundamentals of Networks.
3. To understand the client server techniques.

Unit I
Introduction to Client/Server Computing – What is Client/Server Computing – Benefits of Client/Server Computing – Evolution of C/S computing – Hardware Trends – Software Trends – Evolution of Operating Systems – Networking (N/W) Trends – Business Considerations.

Unit II
Overview of e/S Applications: Components of C/S Applications – Classes of C/S applications – Categories of C/S Applications. Understanding C/S Computing: Dispelling the Myths – Obstacles – Upfront & Hidden – Open Systems & Standards – Standards – Setting Organizations – Factors for Success.

Unit III
The Client Hardware & Software : Client Component – Client Operating Systems – What is GUI – Database Access – Client Software products: GUI Environments – Converting 3270/5250 Screens – Database Tools – Client Requirements : GUI Design Standards – Open GUI Standards – Interface Independence – Testing Interfaces.

Unit IV
The Server : Categories of Servers – Features of Server Machines – Classes of Server Machines – Server Environment : N/W Management Environment – N/W Computing Environment – Extensions – Network Operating System – Loadable Module.

Unit V
Server Operating System :Windows New Technology – Unix Based OS – Server Requirements : Platform Independence – Transaction Processing – Connectivity – Intelligent database – Stored Procedure – Triggers – Load Leveling – Optimizer – Testing and Diagnostic Tools – Backup & Recovery Mechanisms.

Text book:
1. Dawna Travis Dewier, Client/Server Computing, Tata McGraw Hill Publication, New Delhi
2. Patrick Smith and Steve Guengerich, Client/Server Computing, 4th Edition, Prentice Hall of India.

Reference book:
1. Chris Loosley, Frank Douglas, High Performance Client/Server, John Wiley & Sons.
2. David Linthicum, Guide to Client/Server and Intranet Development, John Wiley & Sons.
3. Robert Orfali, T.Hudson, Dan Harkey, Client/Server Survival Guide, 3rd Edition, John Wiley & Sons.

MSW II	Core: Human Resource Management	Max Marks 100 Int: 25 Ext: 75
Semester – IV		6 hrs week
15MSWHR42	HUMAN RESOURCE MANAGEMENT –II	Credit: 5

UNIT I

Compensation Management System- Wage and Salary , Wage Structure , Compensation Survey , Impact on Industry , Perks and Benefits , ESOP , Incentive and Bonus, Profit Sharing , Managerial Remuneration – Tax Planning – Salary Structuring – Recent trends in Taxation – Case Studies

UNIT II

Modern Manufacturing practices: ISO certifications, types, Quality Circles, JIT, Benchmarking, Kaizen, Five 'S', Six Sigma, Lean manufacturing. –concept, meaning and importance. Total Quality Management, Total Production Maintenance its implementation and its impact on present industries.

UNIT III

Human Resource Audit: Concept of HR audit, nature, scope, need & significance, approaches to HR audit, HRD Climate, Knowledge Management, Business Process Outsourcing, Business Process Management, HR Bench marking,

UNIT IV

Organizational Culture- concept, factors and impact- Developing sound organizational culture; Organizational change and Development- definition, concept-Organizational development approaches and techniques. Team Building. Concepts-Team effectiveness, significance of team working.

UNIT V

Internal Trends in HR Management Gurus and Business Leaders In India: C.K.Prahalad, Ratan Tata, Ram Charan, S.Kris Gopalakrishnan, Vijay Govindarajan, Rakesh Khurana, their contribution to the Business world, approaches and achievements. Case Studies on Successful Innovative HR practices

REFERENCE:

1. Ghosh, Biswanath (2014), Human Resources Development and Management
2. Michael Muller et all (2016), Human Resource Management
3. Aswathappa, K. (2008). International Human Resource Management, New Delhi, Tata-McGraw Hill.
4. Aswathappa. (2009). Human Resource Management, New Delhi, TataMc.Growhill
5. Shahbaz and Anita(2010), Contemporary Human Resource Management, Altantic Publications.
6. Aswathappa.K.(2013), Human Resource Management, Text and Cases, New Delhi, McGraw Hill Education (India) Private Limited

		Max Marks 100
	Elective	**Int: 25 Ext: 75**
		6 hrs week
B.Sc (CS) III Year		**Credits: 4**
Semester – VI	**Embedded System**	
Code: 17BSCCSE64		

UNIT I
Introduction to Embedded systems – processor in the system – software embedded into a system – structural units in a processor – processor, memory selection, Memory devices - Allocation of memory to program segments and blocks and memory map of a system.

UNIT II
Device drivers – Interrupt servicing mechanisms – context and periods for context switching - Programming concepts and Embedded programming in C and C++: Software programming in ALP and in high level language 'C' – 'C' program elements: Header source files and preprocessor directives – Macros and functions: Data types – data structures – modifiers – statements – loops and pointers – Embedded programming in C++ and Java.

UNIT III
Program modeling concepts in single and multiprocessor systems – software – development process: modeling process for software analysis – programming model for event controlled or response time constrained real time program- modeling of multiprocessor systems. Multiple processes – sharing data by multiple tasks and routines – inter process communications.

UNIT IV
Real time operating systems: OS services – IO sub systems – Real time and embedded operating systems – Interrupt routines in RTOS environment – RTOS task scheduling models, Interrupt latency and response times of the task as performance metrics – performance metrics in scheduling models.

UNIT V
Hardware Software code design: Embedded system project management – Embedded system design and Co-design Issues – Design Cycle – uses of target system – use of software tools for development – use of scopes and logic analysers for system hardware tests – issues in embedded system design.

Text Book
1. Embedded systems – Architecture, Programming and Design By Raj Kamal – TMH, 2007.

REFERENCE:
1. Mohamed Ali Maszidi & Janice Gillispie Maszidi, "The 8051 Microcontroller and Embedded System", Pearson Publishers

B.Sc(CS)III Year	Core	Max Marks 100 Int: 25 Ext: 75
Semester – VI	NET Programming	6 hrs week Credits: 4
Code: 17BSCCSE54		

Objectives:
1. To understand the concepts of advanced visual Programming.
2. To understand the concepts of Dot Net Technologies.
3. To develop programming skills in VB.net

UNIT I
Introduction to VB.net: Basics-Language innovations-AD features-web forms- web services-windows forms-Object Oriented programming & VB.Net- Encapsulation- inheritance-Polymorphism-How to work VB.Net.

UNIT II
Data types: VB.Net data types-reference types verses value types-types as classes-declaring variables - Type conversion- structures-Operators - Arithmetic, concatenation, assignment, comparison, comparing strings & numbers, logical & bitwise operators.

UNIT III
Arrays: Introduction Dynamic arrays-the Redim statement-preserve keyword-error statement-the get upper bound function-the get lower bound function—get length function-set value.

UNIT IV
Procedures: Overview-procedure access-Modifiers-Advantages-types of procedure-sub procedure-function procedure-Dialog box-Introduction-Message box-show method-message box function-input box function-common dialog class.

UNIT V
Classes and Objects: Introduction to classes-instance and static classes-creating a class-component classes-inside classes-methods-properties-events-field-overloading and overriding-constructors-destructors.

Text book:
1. Bill Evjen & Jason Beres, Visual Basic.Net Programming Bible, Wiley Publishing

Reference books:
1. Daniel cazzulino, Beginning web programming in VB.Net, 1st Edition, Apress.
2. Matthew MacDonald, The book of VB.Net, 1st Edition, No Starch Press.
3. Jessie Liberty Dave Grundgeiger, Programming Visual Basic.net, 2nd Edition, O'Reilly

B.Sc (IT) III	Elective	Max Marks 100 Int: 25 Ext: 75
Semester – VI 17BSCITE64	EMBEDDED SYSTEM	6 hrs week Credits: 4

UNIT I
Introduction to Embedded systems – processor in the system – software embedded into a system – structural units in a processor – processor, memory selection, Memory devices - Allocation of memory to program segments and blocks and memory map of a system.

UNIT II
Device drivers – Interrupt servicing mechanisms – context and periods for context switching - Programming concepts and Embedded programming in C and C++: Software programming in ALP and in high level language 'C' – 'C' program elements: Header source files and preprocessor directives – Macros and functions: Data types – data structures – modifiers – statements – loops and pointers – Embedded programming in C++ and Java.

UNIT III
Program modeling concepts in single and multiprocessor systems – software – development process: modeling process for software analysis – programming model for event controlled or response time constrained real time program- modeling of multiprocessor systems. Multiple processes – sharing data by multiple tasks and routines – inter process communications.

UNIT IV
Real time operating systems: OS services – IO sub systems – Real time and embedded operating systems – Interrupt routines in RTOS environment – RTOS task scheduling models, Interrupt latency and response times of the task as performance metrics – performance metrics in scheduling models.

UNIT V
Hardware Software code design: Embedded system project management – Embedded system design and Co-design Issues – Design Cycle – uses of target system – use of software tools for development – use of scopes and logic analysers for system hardware tests – issues in embedded system design.

Text Book
1. Embedded systems – Architecture, Programming and Design By Raj Kamal – TMH, 2007.

REFERENCE:
1. Mohamed Ali Maszidi & Janice Gillispie Maszidi, "The 8051 Microcontroller and Embedded System", Pearson Publishers

B.Sc (IT) III Year	Core	Max Marks 100
Semester – VI	.NET Programming	Int: 25 Ext: 75
Code: 17BSCITE54		6 hrs week / Credits: 4

Objectives:
1. To understand the concepts of advanced visual Programming.
2. To understand the concepts of Dot Net Technologies.
3. To develop programming skills in VB.net

UNIT I
Introduction to VB.net: Basics-Language innovations-AD features-web forms- web services-windows forms-Object Oriented programming & VB.Net- Encapsulation- inheritance-Polymorphism-How to work VB.Net.

UNIT II
Data types: VB.Net data types-reference types verses value types-types as classes-declaring variables - Type conversion- structures-Operators - Arithmetic, concatenation, assignment, comparison, comparing strings & numbers, logical & bitwise operators.

UNIT III
Arrays: Introduction Dynamic arrays-the Redim statement-preserve keyword-error statement-the get upper bound function-the get lower bound function—get length function-set value.

UNIT IV
Procedures: Overview-procedure access-Modifiers-Advantages-types of procedure-sub procedure-function procedure-Dialog box-Introduction-Message box-show method-message box function-input box function-common dialog class.

UNIT V
Classes and Objects: Introduction to classes-instance and static classes-creating a class-component classes-inside classes-methods-properties-events-field-overloading and overriding-constructors-destructors.

Text book:
1. Bill Evjen & Jason Beres, Visual Basic.Net Programming Bible, Wiley Publishing
Reference books:
1. Daniel cazzulino, Beginning web programming in VB.Net, 1st Edition, Apress.
2. Matthew MacDonald, The book of VB.Net, 1st Edition, No Starch Press.
3. Jessie Liberty Dave Grundgeiger, Programming Visual Basic.net, 2nd Edition, O'Reilly