Kodaikanal Christian College
(Autonomous)
Affiliated to Madurai Kamaraj University Approved by UGC under 12(b), 2(f) status

Bachelor of Science in Network Security

Syllabus 2020

Department of Computer Science & Information Technology

SEMESTER I

Part	Course Code	Course Type	Title of the Paper	Hours /Week	Credits	Marks		
						Continuous Internal Assessment	End Term	Total
I	20ULT01 / 20ULF01	Language – I	General Tamil – I / Introduction to French – I	3	3	40	60	100
II	20UET01	English – I	Functional English(Professional Communication Skills-I)	3	3	40	60	100
III	20NSC11	Core – I	Data Structures and Algorithms	3	5	40	60	100
	20NSC12	Core-II	Web Applications Development	4	5	40	60	100
	20NSC13	Core - III	Emerging Technologies And Society	5	5	40	60	100
	20NSC14	Core-IV	Fundamentals of Multimedia	4	5	40	60	100
	20NSC15	Core-V	Programming in Java	4	5	40	60	100
IV		Non Major Elective – I	Offered by other Departments	2	2	40	60	100
VI	20NSC1P	Core Lab – I	Object Oriented Programming Lab	3	5	40	60	100
	Total			**30**	**38**			

* For students of other majors who opt for the course "General Tamil – II"

IV	20CANAA	Non Major Elective – I*	Introduction to Information Technology					

Prerequisites for Language – I and Non Major Elective – I

1. Students who have studied Tamil in school till Standard XII, can opt for the course 'General Tamil – I' / 'Introduction to French – I'
    - Those opting for the course 'General Tamil – I', should choose a 'Non Major Elective – I' offered by any other department.
    - Those opting for the course 'Introduction to French – I', should choose the course 'Advanced Tamil – I' as Non Major Elective – I.
2. Students who have not studied Tamil in School, should opt for the course 'Introduction to French – I'

(Language – I) and ‘Basic Tamil – I’ (Non Major Elective – I)

Part	Course Code	Course Type	Title of the Paper	Hours /Week	Credits	Marks		
						Continuous Internal Assessment	End Term	Total
I	16ULT02/ 16ULF02	Language – II	General Tamil – II / Introduction to French – II	3	3	40	60	100
II	16UBE02	English – II	English in Professional and Business Settings-2	3	3	40	60	100
III	16NSC21	Core – VI	Software Engineering and Design	3	5	40	60	100
	16NSC22	Core – VII	Data base design and management	3	5	40	60	100
	16NSC23	Core – VIII	Networking Infrastructure	3	5	40	60	100
	16NSA20	Allied I	Computer Systems Architecture	3	3	40	60	100

SEMESTER II

IV	16NSNAB	Non Major Elective – II	Offered by other Departments	2	2	40	60	100
VI	16NSC2P	Core Lab – II	DBMS LAB	3	5	40	60	100
Total				**23**	**31**			

* For students of other majors who opt for the course "General Tamil – II"

IV	16CANAB	Non Major Elective -II*	Interactive Animation					

Note

Prerequisite for 'General Tamil – II' is 'General Tamil – I'
Prerequisite for 'Introduction to French – II' is 'Introduction to French – I'
Prerequisite for 'Basic Tamil – II' is 'Basic Tamil – I'
Prerequisite for 'Advanced Tamil – II' is 'Advanced Tamil – I'

SEMESTER III

Part	Course Code	Course Type	Title of the Paper	Hours /Week	Credits	Marks		
						Continuous Internal Assessment	End Term	Total
I	16ULT03/ 16ULF03	Language – III	General Tamil – III / Introduction to French – III	3	3	40	60	100
II	16UBE03	English – II	Executive Communication	3	3	40	60	100
III	16NSC31	Core –IX	Employability and Professional Development	3	5	40	60	100
	16NSC32	Core – X	Networking Technologies	5	5	40	60	100
	16NSC33	Core – XI	Computer And Network Security	5	5	40	60	100
	16NSA30	Allied II	Information Storage And Management	3	3	40	60	100
IV	16BTNAA/ 16ATNAA	Non Major Elective – II	Basic Tamil – I / Advanced Tamil – I	2	2	40	60	100
	16CANAC	Non Major Elective – III*	Web Designing with html			40	60	100
VI	16qNSC3P	Core lab - III	Advanced Network Programming Lab	3	5	40	60	100
Total				**26**	**31**			

* Course offered by the Department of CS&IT for students of other majors (Similarly Student should take a Non Major Elective offered by other Departments)

SEMESTER IV

Part	Course Code	Course Type	Title of the Paper	Hours /Week	Credits	Marks		
						Continuous Internal Assessment	End Term	Total
I	16ULT04/ 16ULF04	Language – IV	General Tamil – IV / Introduction to French – IV	3	3	40	60	100
II	16UEB04	English – IV	Executive Communication	3	3	40	60	100
III	16NSC41	Core – XII	Mathematics for Software Development	4	5	40	60	100
	16NSC42	Core – XIII	Programming in .NET	4	5	40	60	100
	16NSC43	Core –XIV	Operating System	4	5	40	60	100
	16NSA40	Allied – III	Cyber Security	2	3	40	60	100
IV	16BTNAB/ 16ATNAB	Non Major Elective – II	Basic Tamil – II / Advanced Tamil – II	2	2	40	60	100
	16CANAD	Non Major Elective – IV*	Computer Security			40	60	100
VI	16NSC4P	Core Lab IV	DOTNET Lab	4	5	40	60	100
Total				**28**	**31**			

* Course offered by the Department of CS&IT for students of other majors (Similarly Student should take a Non Major Elective offered by other Departments)

SEMESTER V

Part	Course Code	Course Type	Title of the Paper	Hours /Week	Credits	Marks		
						Continuous Internal Assessment	End Term	Total
III	16NSC51	Core-XV	Linux and Shell Programming	4	5	40	60	100
	16NSC52	Core-XVI	Wireless Networks	4	5	40	60	100
	16NSA51	Allied Elective–I	Cryptography & Network Security	3	3	40	60	100
	16NSA52		Artificial Intelligence					
	16NSA53		Computer Security					
V	16SBA51	Skill-Based – I	Numerical Aptitude and Logical Reasoning	2	2	40	60	100
	16UES51	Compulsory Course–UGC	Environmental Science	2	2	40	60	100
VI	16NSC5P	Core Lab-V	Linux Lab	5	5	40	60	100
			Total	**20**	**22**			

SEMESTER VI

Part	Course Code	Course Type	Title of the Paper	Hours /Week	Credits	Marks		
						Continuous Internal Assessment	End Term	Total
III	16NSC61	Core-XVII	Ethical Hacking	5	5	40	60	100
	16NSC62	Core-XVIII	Cloud Computing	3	5	40	60	100
	16NSA61	Allied Elective–II	1. Biometrics	3	3	40	60	100
	16NSA62		2. Distributed Computer Architecture					
	16NSA63		3. Neural Networks					
V	16VED04	Part – V Course –III	Value Education	2	2	40	60	100
	16SBC61	Skill-Based – II	Resource Management Techniques	2	2	40	60	100
VI		Project–I	Project Work	5	5	40	60	100
			Total	**20**	**22**			

Total Credits: 175

SEMESTER – I

16ULT01 **nghJj-jkpo- – I (GENERAL TAMIL – I)**

OBJECTIVE

To introduce students to the linguistic patterns of Tamil and to teach them the appropriate Tamil usage for communicating technical information. This course also prepares students for competitive examinations.

ghl Nehf-fk- : -g-ghlj-jpl-lj-jpd- Nehf-fk- ftpijj- jkpo- fl-Liuj-jkpopd- jdpr-rpwg-Gf-fs- kw-Wk- fl-Liuj- jkpopd- gad-ghLfs- Nghd-wtw-iw mwpTWj-jNy -g-ghlj-jpl-lj-jpd- Nehf-fk- MFk-. NgRtjw-Fk- vOJtjw-Fk- gad-gLk- tifapy- -yf-fzk- gad-ghl-Lj- jkpo- tpsq-FtJld- jkpof muR elj-Jk- nghJj- Njh-Tfspy- gq-Fngw-W khzhf-fh- gadilAk- tifapy- -g-ghlj-jpl-l Kiw mike-Js-sJ.

Fwpg-G : [***Njh-e-njLf-fg-gl-l ghly-fs- (ftpij thpfs-) kw-Wk- fl-Liufs- kl-Lk-***]

gFjp 1 -f-fhy -yf-fpak-
ghlj-jpd- gFg-G Kiw

myF : 1 kuGf-ftpijfs-

- ghujpahh- - jkpo-ehL –nre-jkpo- ehL 1- 7 ghly- thpfs-
- ghujpjhrd- - Gjpa cyfk- - cyf xw-Wik -1-15g hly-f thpfs-
- ftpkzp - ftpkzp - Mrpa N[hjp –Gj-jUk- Vior-rpWtDk-
- ehkf-fy- ftpQh- - Njrpag- ghly-fs- -210tJghly-(fj-jpapd-wp uj-jkpd-wp)
- gl-Lf-Nfhl-il fy-ahzRe-judhh- - tptrhak- -fhNtup

myF : 2 GJf-ftpijfs-

- mg-Jy-uFkhd- - nfhLf-fpNwd-….(Myhgid)
- K.Nkj-jh - Ra jhprdk- (fz-zPh-g+f-fs-)
- kPuh -55 tJftpij(jkpo- ehL -jopy- 16.10.1962 -y-ntspte-jJ
- eh. fhkuhrd-- - Cik (fWg-G kyh-fs-)
- gokya- - mk-kh –tJ ftpij (rdq-fspd- fij)

myF : 3. fl-Liuj- jkpo-

1. jkpo- gz-ghL - lhf-lh- nj.ngh.kPdhl-rp Re-judhh-
2. jkpOk- tpQ-QhdKk- - eh. thdkhkiy
3. vq-Fk- vjpYk- mwptpay- - kzit K]-jgh.
4. mwptpay- jkpo- - njh. Gukrptd-
5. -yf-fpag- gilg-gpy- mwptpay- jkpo- nra-jp - kzit K]-jgh.

myF : 4. -yf-fzk-

- Kjy- vOj-Jf-fs-
- rhh-G vOj-Jf-fs-

- nkhop Kjy- vOj-Jf-fs-
- nkhop -Wjp vOj-Jf-fs-
- ty-ypdk- kpFk- -lq-fs-
- ty-ypdk- kpfh -lq-fs-
- GJf-ftpijapy- gbkk- FwpaPL

myF : 5. gad-ghl-Lj- jkpo-
m. nkhopngah-g-G

- fiyr-nrhw-fs-
- gj-jp nkhopngah-g-G

M. gpioaw-w njhliuj- Njh-e-njLj-jy-> xypNtWghLfSk- kw-Wk- nghUs-NtWghLfSk-.
ghlE}y-

1. nra-As- njhFg-G

jkpo-j-Jiw
nfhilf-fhdy- fpwpj-Jtf-fy-Y}up – jd-dhl-rp
nfhilf-fhdy-

2. fl-Liuj-njhFg-G

jkpo-j-Jiw
nfhilf-fhdy- fpwpj-Jtf-fy-Y}up – jd-dhl-rp
nfhilf-fhdy-

3. -yf-fzk- -njhFg-G

jkpo-j-Jiw
nfhilf-fhdy- fpwpj-Jtf-fy-Y}up – jd-dhl-rp
nfhilf-fhdy-.

ghh-it E}y-fs- kw-Wk- gupe-Jiu E}y-fs-

1. ghujpahh- ftpijfs- njhFg-G
2. ghujpjhrd- ftpijfs- njhFg-G
3. ftpkzp Njrpf tpehafk-gps-is - Mrpa N[hjp
4. ehkf-fy- ftpQh-. Nt. -uhkypq-fk-gps-is – ftpijj- njhFg-G
5. fz-zPh- g+f-fs- - K.Nkj-jh>

   Fkud- gjpg-gfk-> 19>
   fz-zjhrd- rhiy> (ghyh[p fy-ahz kz-lgk- mUfpy-)
   jp.efh-> nrd-id – 600017.

7 . fWg-G kyh-fs- - eh.fhkuhrd->

   Fkud- gjpg-gfk-> 19>
   fz-zjhrd- rhiy> (ghyh[p fy-ahz kz-lgk- mUfpy-)
   jp.efh-> nrd-id – 600017.

8. kPuh -jkpo- ehL -jopy- 16.10.1962 -y-ntspte-jJ

9. gokya- -rdq-fspd- fij
10. kzit. K]-jgh. - jkpopy- mwptpay- gilg-gpyf-fpak-
11. lhf-lh-. nj.ngh. kPdhl-rp Re-juk-> - jkpOk- gpwgz-ghLk-

    mk-kh Gf- nrd-lh-> 2-A > fPo- Mtdp %y tPjp>
    kJiu – 625001. Nghd- 623984.
12. jkpoh- tuyhWk- gz-ghLk- (Muha-r-rpf-fl-Liufs-)

    eh. thdkhkiy>
    epa+ nrQ-Rhp Gf- `T]- gpiuNtl- ypkpnll->
    41 – gp> rpl-Nfh -z-l]-bhpay- v]-Nll->
13. Gjpa Nehf-fpy- jkpo- -yf-fpa tuyhW – jkpoz-zy->

    epA+nrQ-Rhp Gf- `T]- gpiuNtl- ypkpl->41- gp>
    rpl-Nfh. v]-Nll-> nrd-id -98.
14. ed-D}y- vOj-J mjpfhuk- - fof ntspaPL>

    irtrpj-jhe-jf fofk-> jpUney-Ntyp.

15. njhy-fhg-gpak- vOj-J mjpfhuk- - fofntspaPL

    irtrpj-jhe-jf fofk-> jpUney-Ntyp>
16. ehs-kyh-fs- - njh. gukrptd->

    ghit gg-spNfrd-]-> 162>
    [hdp [hd- fhd-NuhL -uhag-Ngl-il>
    nrd-id – 600016.

-izaKfthp :

1. Tamil virtual university.com.
2. Chennai library.com

16ULF01 **FRENCH – I**

AIM

The objective of the introductory course in French is to acquaint the student with the basic linguistic patterns of the language- and to drill these patterns into the formation of language skills appropriate to an elementary course. These skills are stated as follows:

1) Auditory comprehension.
2) Comprehensible pronunciation.
3) Formation of self generated sentences of simple to medium complexity.
4) Recognition and manipulation of the grammatical structures used in reading and writing.

Methodology

Strong emphasis will be placed on listening and speaking skills. The formal study of grammar- reading and writing will be developed conjointly in the measure that comprehension and oral skills have been adequately mastered.

At the initial stage of learning- the methodology employed will use classroom exercises that build from the recognition and reproduction of isolated sounds- to the larger configuration of words and their grouping into the grammatical (rhythmic) patterns that make meaning. Vocabulary lists and simple sentences of common usage will be drilled- often as dialogue.

Formal study will begin with the written passages- grammar- and exercises from the course textbook- and these will analyzed and tested orally and in writing.

Reading aloud- dictation- and role play will AIM to maintain an interactive class.

Learning Outcomes

- An elementary understanding of spoken and written French and the ability to use the basic language patterns that have been studied
- Five (5) study units will be covered in each of the two semesters
- The class time allotted to each unit will be determined by the difficulty of material under study and the student's understanding and ability to use that material.

An approximate breakdown of the study units follows.

UNIT – I: PHONETICS – FRENCH VOWELS & CONSONANTS

- Nasal Vowels – Semi Vowels – Distinct Consonants
- Distinction – Pronunciation Exercises
- Vocabulary– Common Expressions – Role Playing
- Phonetic Alphabet – Spelling Equivalents

UNIT – II: PHONETICS – VOCABULARY- COMMON EXPRESSIONS & SIMPLE SENTENCE PATTERNS

- Phonetic Alphabet and Spelling Equivalents – Grammatical Groups
- Role Playing – Reading aloud – Dictation – Elementary Grammatical Patterns – Essential Verbs

UNIT – III: SELECTIONS FROM TEXT- READING ALOUD & DICTATION

- Exercises (Oral) – Grammar: Nouns and Their Determinants – Verbs and their Nominative Pronouns

UNIT – IV: SELECTIONS FROM TEXT- INTERROGATIVE & POSSESSIVE

- Demonstrative Adjectives – Vocabulary Building – Comprehension and Oral Exercises – Role Playing – Irregular Verbs

UNIT – V: SELECTIONS FROM TEXT – READING & TRANSLATION

- Imperative – Future – Sentence Construction – Dictation
- Review of All Material

TEXT BOOK

Mandanagobalane- K.- *"Synchronie I and Pronunciation CD"*- Samhita Publications

ADDITIONAL READING

Mathurin Dondo- Ph.D- *"Modern French Course"*- Oxford University Press- New Delhi

Websites as indicated by instructor

Handouts given by instructor

Le Nouvel Entrainez-Vous Siréjols / Renaud- CLE International- Paris

16UES01 **ENGLISH**

AIM

1. Enable students to develop their communication skills
2. To inculcate the four basic skills of English: Reading- Writing- Listening and Speaking

UNIT – I

1. The Judgment Seat of Vikramaditya - Sister Nivedita
2. Selfish Giant - Oscar Wilde
3. Uncle Podger hangs a picture - Jerome K Jerome
4. The Conjuror's Revenge - Stephen Leacock

1. All the World's a Stage - William Shakespeare
2. Nutting - William Wordsworth
3. Ozymandias of Egypt - P.B. Shelly
4. Night of the Scorpion - Nissim Ezekiel

UNIT – II

Soft Skills – Public Speaking – Seminars and Conferences – Interviews – Group Discussion

UNIT – III

Principles of Good Writing – Paragraph Writing – Curriculum Vitae – Report Writing – Correspondence Techniques

UNIT – IV

Question Tags – Interchange of Sentences – Synthesis and Transformation Sentences (Simple-Compound & Complex)

UNIT – V

Theoretical Communication – Linguistic Communication – Barriers to Communication – Importance of Communication – Non- Verbal Communication – Personal Appearance – Posture – Gestures – Facial Expressions – Eye Contact – Space Distancing – Communication in Organization – Pattern of Communication – Management of Information

TEXT BOOKS

1. AH.Tak & Mohammad Aslam- *"Varieties of Expression"*- Foundation Books Pvt.- Ltd
2. Shri. Lanvande N.A- *"Wisdom & Experience"*- Publication Orient Longman ELT
3. G. Radha Krishna Pillai- *"Emerald English Grammar & Composition"*- Emerald Publishers
4. Krishna Mohan- *"Developing Communication Skills"*- Macmillan India Ltd

REFERERNCE BOOKS

1. Scot Ober- Ph.D.- *"Contemporary Business Communication"*- Biztantra Publications

16NSC11 **DATA STRUCTURES AND ALGORITHMS**

AIM

Understand common data structures and the algorithms that build and manipulate them including various sorting, searching, and Tree Terminology.

UNIT 1 : BASICS OF ALGORITHMS

Algorithms : Steps to plan algorithm ,Efficiency of an Algorithm(Time Space tradeoff) , Complexity of Algorithms , Asymptotic Notations (Big-O notation, Theta notation and Omega notation.)

Data Structure: Definition of data structure, types, data structure operations, ADT , Arrays, Operations in Array, Order list , String Processing: Definition, Storing Stings, String as ADT, String operations

UNIT 2: STACK, QUEUE AND LINKED LISTS

Stack: Array Representation of Stack ,stack operations,, Application of stack,

Queue: Array Representation of Queue, Queue operations, Applications of queue

Linked lists: Representation of linked lists in Memory, Traversing a linked list, Searching a linked list, Memory allocation and Garbage collection, insertion into linked list, Deletion from a linked list, Types of linked list.

UNIT 3 : TREES AND GRAPH

Tree : Introduction and Definition of Trees, Tree Terminology, Binary Tree, Representing Binary Tress in Memory, Traversing Binary Tree: Preorder, In-order, Post-ordered traversal ,Binary search tree, Searching and Inserting in Binary Search trees, Deleting in a Binary search tree

Graph : Definitions, Types of graph, Traversals ,Shortest path Algorithms ,Dijkstra,s Algorithm

UNIT 4: SORTING AND SEARCHING

Sorting: Bubble Sort, Insertion sort, Quick Sort, Selection sort, Merge-sort ,Heap sort.
Searching : Sequential and binary searches, Indexed search, Hashing Schemes

UNIT 5: ANALYSE ALGORITHM USING PROBLEM SET

Divide and Conquer Strategy, Greedy Method Strategy, Optimistic Storage on Tapes, Knapsack Problem , Dynamic Programming Strategy ,All Pair Shortest Paths, Travelling Salesman Problems, Backtracking Strategy ,8-Queens Problem, Knapsack Problem.

TEXT BOOK:

1. E.Horowitz and S.Shani Fundamentals of Data Structures in C++, Galgotia Pub. 1999.
2. Horowitz, S. Sahni, and S. Rajasekaran, Computer Algorithms, Galgotia Pub. Pvt. Ltd., 1998.

REFERENCE BOOK

1. R. Kruse C.L. Tondo and B. Leung, Data Structures and Program design in C, PFU, 1997.

E-BOOK

1. https://jumpshare.com/b/MMH3KZXmfl6hvj123axo

16NSC12 **WEB APPLICATIONS DEVELOPMENT**

AIM

Enable learners to understand the concepts of web applications and apply the skills to develop and test web applications using server-side technologies.

UNIT I INTRODUCTION TO WWW

Introduction to www: Protocols and programs, secure connections, Application and development tools, the web browser

Web Design: Web site design principles, Planning the site and navigation

UNIT II INTRODUCTION TO HTML

Introduction to HTML: The development process, Basic HTML, Formatting and fonts, Commenting code, Color, Hyperlink, lists, Tables, Images, Simple HTML forms, Web site structure.

Introduction to XHTML: XML, Move to XHTML, Meta tags, Character entities, Frames and frame sets, inside browser.

Style sheets :Need for CSS, Introduction to CSS, Basic syntax and structure, Using CSS, Background images, Colors and properties, Manipulating texts, Using fonts, Borders and boxes, Margins, Padding lists, Positioning using CSS, CSS2

UNIT III INTRODUCTION TO JAVASCRIPT

Client side scripting: What is JavaScript, How to develop JavaScript, simple JavaScript, variables, functions, conditions, loops and repetition JavaScript

Advance script: JavaScript and objects, JavaScript own objects, the DOM and web browser environments, forms and validations DHTML: Combining HTML, CSS and JavaScript, events and buttons, controlling your browser,

UNIT IV INTRODUCTION TO XML

Introduction to XML: Uses of XML, Simple XML, XML key components, DTD and Schemas, , XML with application.

Introduction to XSL and XSLT: XML transformed simple example, XSL elements, transforming with XSLT.

Web services: Feeds and and Blogs Need for web services, SOAP, SOAP XML and HTTP, Web feeds, Blogs

The server side: What is server, choices, setting up UNIX and Linux web servers, Logging users, dynamic IP

UNIT V INTRODUCTION TO PHP

Server side Scripting : Arrays, function and forms, Advance PHP Databases : Basic command with PHP examples, Connection to server, creating database, selecting a database, listing

database, listing table names creating a table, inserting data, altering tables, queries, deleting database, deleting data and tables, PHP my admin and database bugs.

Text Books

1. Robin Nixon, Learning PHP, MySQL & JavaScript: With jQuery, CSS & HTML5 (Learning Php, Mysql, Javascript, Css & Html5), 4th Edition

Reference Book

1. **Black Book (Covers CSS3, JavaScript, XML, XHTML, AJAX, PHP, jQuery) 2Ed.**

E-Book

1. https://doc.lagout.org/programmation/Learning%20PHP,%20MySQL%20%26%20JavaScript_%20with%20jQuery,%20CSS%20%26%20HTML5%20(4th%20ed.)%20%5BNixon%202014-12-14%5D.pdf

16NSC13 EMERGING TECHNOLOGIES AND SOCIETY

AIM:

Enable learners to explore current and cutting-edge technological developments- disciplines and advancements that have been and are still being made within the field of emerging technologies and to understand ethical legal regulatory issues related to technologies

UNIT I: EMERGING TECHNOLOGIES

Low carbon technologies and fuels- nanotechnologies- biotechnology- robotics- genetic engineering- artificial intelligence- neural network-swarm technologies- Telemedicine

UNIT II: IT AND SOCIETY

Development in last 50 years, Ethical legal regulatory issues, Impact on society, Digital citizenship-gender age culture, living in information age, shaping future developments

UNIT III: UPCOMING TECHNOLOGIES

Edge computing- 5G technology- 4th industrial revolution-soft computing- 3D printing-quantum computing

UNIT IV: ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

Artificial intelligence: basics, applications, neural network

Machine learning: Generative modeling, linear regression, optimization, decision trees, clustering

UNIT V: DATA SCIENCE

Data science: big data, data mining, deep learning, machine learning, data analysis

Fin tech: introduction, digital finance, block chain, crypto currency

RESOURCES:

1. www.cesweb.org/emergingTech/default.asp
2. www.technologyreview.com/special/emerging/

16NSC14 FUNDAMENTALS OF MULTIMEDIA

AIM:

It will provide an understanding of the fundamental elements in multimedia. The emphasis will be on learning the representations, perceptions and applications of multimedia. Software skills and hands on work on digital media will also be emphasized.

UNIT 1: INTRODUCTION TO MULTIMEDIA

Multimedia: Needs and areas of use, Development platforms for multimedia – DOS, Windows, Linux. Identifying the multimedia elements – Text, Images, Sound, Animation and Video.

Text : Concepts of plain & formatted text, RTF & HTML texts, Conversion to and from of various text formats, Text compression principles, Source Encoder and Destination Decoder.

Images : Importance of graphics in multimedia, Vector and Raster graphics, image capturing methods – scanner, digital camera etc. various attributes of Images – size, color, depth etc, Various Image file format – BMP, DIB, EPS, CIF, PEX, PIC, JPG, TGA, PNG and TIF format – their features and limitations.

UNIT II SOUND AND ITS PROPERTIES

Sound: Sound and it Attributes, Mono V/s Stereo sound, Sound channels, Sound and its effect in multimedia, Analog V/s Digital sound, Basics of digital sound - Sampling, Frequency, Sound Depth, Channels, Sound on PC, Sound standards on PC, Capturing and Editing sound on PC. Overview of various sound file formats on PC – WAV, MP3, MP4, Ogg etc., Differential Pulse Coded Modulation (DPCM), Adaptive Differential PCM (ADPCM), and MPEG Audio Coding.

UNIT III ANIMATION STANDARDS

Animation: Basics of animation, Principle and use of animation in multimedia, Effect of resolutions, pixel depth, Images size on quality and storage. Overview of 2-D and 3-D animation techniques and software, Animation on the Web – features and limitations, Software for animation

UNIT-IV VIDEO AND ITS PROPERTIES

Video: Basics of Video – Analog and Digital Video, How to use video on PC. Introduction to graphics accelerator cards, DirectX, Introduction to AV/DV and IEEE 1394 cards , Digitization of analog video to digital video, Interlacing and non-interlacing, Brief note on various video standards – NTSC, PAL, SECAM, HDTV

Introduction to video capturing Media & instrument – Videodisk, DVCAM, Camcorder, Introduction to digital video compression techniques and various file formats – AVI, MPEG, MOV Real Video.

UNIT V HUMAN COMPUTER INTERACTION

The Human: I/O channels, Memory, Reasoning and problem solving.

The computer: Processing and networks, Interaction: Models, frameworks, Ergonomics, styles, elements, interactivity- Paradigms.

Interactive Design basics: process, scenarios, navigation, screen design, Iteration and prototyping, Cognitive models

.

TEXT BOOKS

1. Multimedia: Making It Work (4 th Edition) – by Tay Vaughan, Tata Mcgraw Hills.
2. Fundamentals of Multimedia – Ze-Nian Li and Mark S. Drew, Pearson Prentice Hall.
3. Alan Dix, Janet Finlay, Gregory Abowd, Russell Beale, "Human Computer Interaction", 3rd Edition, Pearson Education, 2004

REFERENCE BOOKS

1. Multimedia In Action – James E Shuman – Vikas Publishing House.
2. Multimedia Basics – Volume – 1 Technology, Andreas Holzinger, Firewall Media(Laxmi Publications Pvt. Ltd) New Delhi.

E BOOKS:

1. .https://drive.uqu.edu.sa/_/mskhayat/files/MySubjects/20178FS%20Multimedia%20Systems/Fundamentals_of_multimedia_2e.pdf
2. https://ayomenulisfisip.files.wordpress.com/2018/01/fundamentals-of-multimedia-ebook.pdf

16NSC15 PROGRAMMING IN JAVA

AIM:

The aim of the course is to give a thorough grounding in object-oriented techniques for Java, as well as to examine the major uses of Java internet programming, graphics, user interfaces and networking using classes, instances and objects.

UNIT I : INTRODUCTION TO JAVA

Java : Features of java ,JDK Environment & tools like (java, javac, appletviewer, javadoc, jdb) , Difference between C++ and JAVA ,

OOPs Concepts: Class, Abstraction, Encapsulation, Inheritance, Polymorphism

Structure of java program and properties :Data types ,Variables ,Operators , Keywords ,Naming Convention ,Decision Making ,Looping, Type Casting , Array :Creating an array , Types of Array (One Dimensional arrays - Two Dimensional array) , String, Methods

UNIT II: CLASSES AND OBJECTS

Java Classes and Objects :Creating Classes and objects ,Memory allocation for objects ,Constructor ,Implementation of Inheritance ,Types of inheritance ,Interfaces , Abstract classes and methods , Implementation of Polymorphism , Method Overloading, Method Overriding, Modifiers and Access Control , Packages, Creating user defined packages.

UNIT III: FILE AND EXCEPTION HANDLING

Exception: Exception types, Using try catch and multiple catch Nested try, throw throws and finally, Creating user defined Exceptions

File Handling: Stream, ByteStream, Classes , CharacterStream Classes , File IO basics , File operations ,Creating file Reading file (character, byte), Writing file (character, byte)

Java Thread: Creating thread, Suspending, Resuming and stopping threads, Multithreading, Inter thread Communication

UNIT IV: APPLETS AND EVENT HANDLING

The Applet Class: The Applet and HTML, Life Cycle of an Applet, The Graphics Class, Painting the Applet, User Interfaces for Applet, Adding Components to user interface AWT (Abstract Windowing Toolkit) Controls

Event Handling: Components of an Event, Event Classes, Event Listener, Event-Handling, Adapter Classes, Inner Classes, Concepts of Swing

UNIT V: JAVA NETWORKING AND DATA BASE CONNECTIVITY

Java Networking: RMI, CORBA, Java Beans, Networking in Java, URL Objects

Java Server Pages (JSP): writing JSP based web application test a JSP, Servlets , History of Web Application, Web Architecture, Servlet Life Cycle

Java Data Base Connectivity: Database Management; Mechanism for connecting to a back end database; Loading the ODBC driver

TEXT BOOKS:

1. Programming with JAVA - E Balagurusamy
2. The Complete Reference – JAVA Herbert Scheldt

E BOOKS:

1. http://www.rjspm.com/PDF/JavaTheCompleteReference.pdf

16NSC1P **OBJECT ORIENTED PROGRAMMING LAB**

1. Create a Java Application to Multiply Two Matrix
2. Create a Java Application to Implement Function Overloading
3. Create a Java Application to Find Maximum and Minimum value using Command line argument
4. Create a Java Application to Implement Single Inheritance
5. Create a Java Application to Implement Multiple Inheritance
6. Create a Java Application to Implement Abstract Classes
7. Create a Java Application to Implement Built-In Exception and User-Defined Exception
8. Create a Java Application to Create Package
9. Create a Java Application to Implement Multiple Inheritance using Interfaces
10. Create a Java Application to Implement Multithreading
11. Create a Java Application to Store and Retrieve Student Details in Database using JDBC
12. Create a Java Application to Implement Animation in Applet

16CANAA INTRODUCTION TO INFORMATION TECHNOLOGY

OBJECTIVE

The main objective of this course is to:

- Acquire basic knowledge of Information Technology applications
- equip students with computer components and internet basics

UNIT – I

Introduction: Information Systems – Software and Data – IT in Business and Industry – IT in the Home and at Play – IT in Education and Trading – IT in Entertainment and the Arts – IT in Science- Engineering And Mathematics – Computers In Hiding – Computers in Satellite – Computers in Medical.

UNIT – II

Components of Computer: Block diagram of a Computer -The Computer System and Central Processing Unit – Types of Computers – Corporate and Departmental Computers – Desktop- Super Computers and Personal Computers – The Anatomy of Computer – The Foundation of Modern Information Technology: Binary Numbers – Digital Signals – Bits Bytes – Central Processing Unit – Memory.

UNIT – III

INPUT and OUTPUT: I/O Devices – Keyboards – Inputting Text – Graphics – Pointing Devices – The Foundation of Modern Outputs: Pixels and Resolutions – Fonts – Color – Display Screens – Printers Secondary Storage: How Data is Stored? Storage Characteristics – Storage Media: Floppy Disk Drives – Optical Disk – Backing Up Data – Storage devices (Primary and Secondary)

UNIT – IV

Software: Introduction – User Interface – Application Programs- System Software – Operating Systems: Mobile OS- Introduction – Types – File Management and Utilities – Major Software Issues

UNIT – V

Internet and World Wide Web: Introduction – History of Internet - The Web – Getting Connected to the Web – Locating Information on the Web – Web Multimedia – Web Browsers – Search Engine – Social Networks.

TEXT BOOK:

1. Dennis P. Curtin- Kim Foley- Kunal Sen- Cathleen Morin- “Information Technology: The breaking Wave”- Tata McGraw-Hill Publishing

REFERENCE BOOK

1. S. Maria John-“Information Technology: Its application on the SSI Sector”- Discovery Publishing House- 2003

SEMESTER II

16ULT02 nghJj-jkpo-–II (GENERAL TAMIL – II)

OBJECTIVE

The AIM of this course is to help students understand the situations and background of underprivileged people. This course also helps students to know about the realities behind scientific essays in Tamil. Further- this course enhances the knowledge in basic Tamil literature.

ghl Nehf-fk- : -g-ghlj-jpl-lj-jpd- %ykhf -t-Tyfpy- -d-iwa #oypy- tpspk-G epiy khe-jh-fspd- tho-tpay- epiyfisg- gw-wp mwpe-J nfhs-tJk-> jkpo- topapy- mwptpay- tpQ-Qhd uPjpahd fUj-Jf-ffis fl-Liuj- jkpo- thapyhf njhpe-J nfhs-tJk- kw-Wk- mbg-gil mofpayhd mzpfs- Mfpaitfisg- gw-wp mwpe-J nfhs-tJk- -g-ghlj-jpl-lj-jpd- Nehf-fkhFk-.

jhs- : 2. fij -yf-fpaKk- ciueilAk-
nghJj- jkpOf-Fhpa ghlj-jpl-l mikg-G Kiw :

ghl Nehf-fk- : -g-ghlj-jpl-lj-jpd- %ykhf -t-Tyfpy- -d-iwa #oypy- tpspk-G epiy khe-jh-fspd- tho-tpay- epiyfisg- gw-wp mwpe-J nfhs-tJk-> jkpo- topapy- mwptpay- tpQ-Qhd uPjpahd fUj-Jf-ffis fl-Liuj- jkpo- thapyhf njhpe-J nfhs-tJk- kw-Wk- mbg-gil mofpayhd mzpfs- Mfpaitfisg- gw-wp mwpe-J nfhs-tJk- -g-ghlj-jpl-lj-jpd- Nehf-fkhFk-.

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5. Qhdr-nrUf-F - jPgk-.eh. ghh-j-jrhujp
6. neUg-Gf-Nfhop - eh.gpr-r%h-j-jp
7. flTSk- fe-jrhkpg-gps-isAk- -GJikg-gpj-jd-
8. el-rj-jpuf-Foe-ijfs- - gp.v]- uhikah
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4. jkpOk- gpwgz-ghLfSk- - lhf-lh-. nj.ngh.kPdhl-rpRe-judhh-
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m. gilg-ghw-wy-
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4. rpWfij - njhFg-G

jkpo-j-Jiw
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6. -yf-fzk- -njhFg-G

jkpo-j-Jiw
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ghh-it E}y-fs- kw-Wk- gupe-Jiu E}y-fs-(Reference books)
1. jkpOk- gpwgz-ghLk- - lhf-lh-. nj.ngh. kPdhl-rp Re-juk->

mk-kh Gf- nrd-lh-> 2-A > fPo- Mtdp %y tPjp>
kJiu – 625001. Nghd- 623984.

17. jkpoh- tuyhWk- gz-ghLk- (Muha-r-rpf-fl-Liufs-)
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41 – gp> rpl-Nfh -z-l]-bhpay- v]-Nll->

18. Gjpa Nehf-fpy- jkpo- -yf-fpa tuyhW – jkpoz-zy->

    epA+nrQ-Rhp Gf- `T]- gpiuNtl- ypkpl-> 41- gp>
    rpl-Nfh. v]-Nll-> nrd-id -98.

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-izaKfthp :

3. Tamil virtual university.com.
4. Chennai library.com

16ULF02 **FRENCH – II**

AIM

The objective of the introductory course in French is to acquaint the student with the basic linguistic patterns of the language- and to drill these patterns into the formation of language skills appropriate to an elementary course. These skills are stated as follows:

1) Auditory comprehension.
2) Comprehensible pronunciation.
3) Formation of self generated sentences of simple to medium complexity.
4) Recognition and manipulation of the grammatical structures used in reading and writing.

Methodology

Strong emphasis will be placed on listening and speaking skills. The formal study of grammar- reading and writing will be developed conjointly in the measure that comprehension and oral skills have been adequately mastered.

At the initial stage of learning- the methodology employed will use classroom exercises that build from the recognition and reproduction of isolated sounds- to the larger configuration of words and their grouping into the grammatical (rhythmic) patterns that make meaning. Vocabulary lists and simple sentences of common usage will be drilled- often as dialogue.

Formal study will begin with the written passages- grammar- and exercises from the course textbook- and these will analyzed and tested orally and in writing.

Reading aloud- dictation- and role play will AIM to maintain an interactive class.

Learning Outcomes

- An elementary understanding of spoken and written French and the ability to use the basic language patterns that have been studied
- Five (5) study units will be covered in each of the two semesters
- The class time allotted to each unit will be determined by the difficulty of material under study and the student's understanding and ability to use that material.

An approximate breakdown of the study units follows.

UNIT – I

Revision and Exercises of Comprehension – Speaking – Vocabulary and Grammatical Patterns Covered to Date.

UNIT – II

Textbook: Reading and Grammatical Analysis from Text – Irregular Verbs – Object Pronouns – Imperative – Interrogative Adverbs – Dictation

UNIT – III

Textbook: Reading from Text – Role Playing – Dictation – Grammar: Revision of Future – Irregular Verbs – Introduction of Partitive Article

UNIT – IV

Textbook: Selected Texts – Reading Aloud – Questions (Oral) – Dictation – Grammar – Past Tense – Object Pronouns – Direct and Indirect – Transformation Exercises

UNIT – V

Textbook: Selections from Text – Exercises as above – Revision of all Material Covered – Grammar: Past Tense of Pronominal Verbs – Intransitive Verbs of Motion – Intensive Comprehension and Oral Drills.

TEXT BOOK

1. Mandanagobalane- K.- *"Synchronie I and Pronunciation CD"*- Samhita Publications

ADDITIONAL READING

1. Mathurin Dondo- Ph.D.- *"Modern French Course"*- Oxford University Press- New Delhi
2. Websites as indicated by instructor
3. Handouts given by instructor
4. Le Nouvel Entrainez-Vous Siréjols / Renaud- CLE International- Paris

16UBE02 **Professional Communication Skills II**

Credits: 3

Objective: Objectives for this course are the same as those for Professional Communication Skills I. This course is a continuation of our efforts to help the learner achieve professional competence in the use of English for effective communication.

Unit I Prose

A Glory has departed – Jawaharlal Nehru
The Aim of Education – Livingstone
Arguing – Robert Lynd

Unit II CV and Resume Preparation

Distinction between CV and Resume – Resume for the corporate sector- Preparation of an effective Resume – Cover Letter

Unit III Grammar

Sentence Structure
Voice
Direct and Indirect Speech
Question Tags

Unit –IV Language and technology

The history of technologies for writing , Typesetting and printing ,Technologies for communicating remotely, How to acquire example texts: Suitable texts, How to obtain texts, Sharing the texts, Using the texts, Considering the authors and the audiences, Use of computers for social interaction, Cyberspace as a social context

Unit V Language of computer

Types of computer grammar: Type 0, Type 1, Type 2, Type 3, Automata

Telephony, Pragmatics, Discourse features, Interaction by text messaging, Lexis and orthography

Inside Communication: process, shared memory message passing, Multithread program communication

Organization communications with customers- effectiveness of social media communion –impact on effectiveness of communication in business- designing and presenting oral information effectively and communicate effectively in writing

Note: Handouts / online resources will be provided by the department faculty.

16NSC21 SOFTWARE ENGINEERING AND DESIGN

AIM

Provide learners with the knowledge and skills needed to undertake a systems analysis investigation by following a recognized methodology.

UNIT I : INTRODUCTION TO SYSTEM AND SYSTEM ANALYST

Fundamentals of System: Important Terms related to Systems, Classification of Systems, Real Life Business Subsystems, Real Time Systems, Distributed Systems, Development of a successful System, and Various Approaches for development of Information Systems.

System Analyst :Why do Businesses need Systems Analysts? Users, Analysts in various functional areas, Role of a Systems Analyst Duties of a Systems Analyst, Qualifications of a Systems Analyst, Analytical Skills, Technical Skills, Management Skills, Interpersonal Skills.

UNIT II: SOFTWARE DEVELOPMENT MODELS AND PRACTICES

SDLC models: examples eg Systems Development Life Cycle (SDLC)- Rapid Applications Design (RAD)- Spiral- Agile- Dynamic Systems Design Methodology (DSDM)- Waterfall and Prototyping

UNIT III: DATA COLLECTION AND VERIFICATION TECHNIQUES

Process of System Planning and Research techniques: Fact finding Techniques, Interviews, Group Discussion, Site Visits, Presentations, Questionnaires, Data collection issues, desk research, ethnography, online communities

Data collection methods: exploratory, descriptive, analytical/explanatory, predictive

Feasibility Study, Cost Benefit Analysis

Data analysis techniques: qualitative Methods, quantitative methods.

UNIT IV: RESEARCH PROPOSAL STRUCTURE AND SAMPLING TECHNIQUES

Research proposal structure: Focus, relevant, literature, methods, ethics, decisions, schedule, recourse, reference

Sampling techniques: probability-based, selective, convenience-based, ethnographic methods

UNIT V : SYSTEMS ANALYSIS TERMINOLOGY AND RESEARCH TOOLS

Techniques: examples relevant to methodology chosen eg Context Diagrams- Data FlowDiagrams (DFDs)- Entity Relationship Diagrams (ERDs)- Business Systems Options (BSOs)- Technical Systems Options (TSOs)- quality considerations eg Total Quality Management (TQM) .

Computer based research tools: Online tools, Offline tools, Data collection tools ,Data Analysis tools

TEXT BOOK:

1. Elias M. Award : System Analysis and design; Galgotia
2. James A. Sen : Analysis of Design of Information System TMH
3. Rojer S. Pressman : Software Engineering : A Practitioners Approach,MCH
4. Pankaj Jalote : An Integrated Approach to Software Engineering; Springer.

REFERENCE BOOK :

1. J. L. Whitten & L. D. Bentley : System Analysis and Design Method; TMH

2. J. B. Dixit & Rajkumar : Structured system Analysis and Dseign; University Science Press

E BOOKS :

1. https://ff.tusofia.bg/~bogi/knigi/SE/Mcgraw%20Hill%20%20Software%20Engineering%20%20A%20Practitioner's%20Approach%20%20Pressman%20(5Th%20Ed,2001,Bookmarked,Cover).pdf
2. http://164.100.133.129:81/econtent/Uploads/System_Analysis.pdf

16NSC22 DATABASE DESIGN AND MANAGEMENT

AIM:

To provide learners with the knowledge and skills needed to understand design, query and implement database systems.

UNIT I : UNDERSTAND DATABASE MANAGEMENT SYSTEM

Data: structured, semi-structured and unstructured data, Concept & Overview of DBMS, Data Models, Database Languages, Database Administrator, Database Users, Three Schema architecture of DBMS.

Entity-Relationship Model: Basic concepts, Design Issues, Mapping Constraints, Keys , Entity

UNIT II: RELATIONAL DATABASE

Structure of relational Databases: Integrity Constraints, synthesizing ER diagram to relational schema, Relational Algebra, DML ,DDL,DCL ,TCL

Structured Query Language (SQL): Basic SQL Structure, examples, Set operations, Aggregate Functions, nested sub-queries, Views, assertions and triggers

UNIT III: DESIGNING AND NORMALIZE A DATABASE

Different anomalies in designing a database, normalization, functional dependency (FD), Armstrong's Axioms, closures, Equivalence of FDs. Normalization using functional dependencies, INF, 2NF, 3NF and BCNF, lossless and dependency preserving decompositions

UNIT IV: DATABASE ORGANIZATION TECHNIQUES

Physical Data Organization: index structures, primary, secondary and clustering indices, single level and Multi-level indexing, B+- Trees.

New developments: dynamic storage- data mining and data warehousing- web enabled database applications- other developments eg multimedia databases- document management systems- digital libraries

UNIT V : INTRODUCTION TO DATABASE TRANSACTION PROCESSING

Transaction Processing Concepts: overview of concurrency control and recovery acid properties, serial and concurrent schedules, conflict serializability. Two-phase locking, failure classification, storage structure, stable storage, log based recovery, check-pointing

TEXT BOOKS:

1. Elmasri R. and S. Navathe, Database Systems: Models, Languages, Design andApplication Programming, Pearson Education, 2013.

2. Sliberschatz A., H. F. Korth and S. Sudarshan, Database System Concepts, 6/e, McGraw Hill, 2011.

REFERENCES:

1. Powers S., Practical RDF, O'Reilly Media, 2003.

2. Plunkett T., B. Macdonald, et al., Oracle Big Data Hand Book, Oracle Press, 2013.

E BOOKS :

1. http://site.iugaza.edu.ps/ilubbad/files/2016/09/3-Database-System-Concepts-6th-edition-_-Henry-F-Korth-Abraham-Silberschatz-S-Sudharshan.pdf
2. http://www.uoitc.edu.iq/images/documents/informaticsinstitute/Competitive_exam/Database_Systems.pdf

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16NSC23 NETWORKING INFRASTRUCTURE

AIM

To provide learners with an understanding of networking infrastructures- the directory based system that supports the addressing and resource management of any large scale networked system.

UNIT I : INTRODUCTION TO COMPUTER NETWORKS

Introduction: Definition of a Computer Network; What is a Network?, Components of a computer network: Use of Computer networks; transmission technology,

Network scale : Local area networks, Metropolitan area networks, Wide area networks, Wireless networks

Transmission Medium: Introduction: Guided & Unguided Transmission medium, Twisted pair, Coaxial cable, Optical fiber, Comparison of fiber optics and copper wire: Wireless transmission; Electromagnetic spectrum, Radio transmission, Microwave transmission

UNIT II : DATA COMMUNICATIONS:

Components of a Data Communication System: Simplex, Half Duplex and Duplex Modes of Communication; Analog and Digital Signals; Noiseless and Noisy Channels; Bandwidth, Throughput and Latency; Digital and Analog Transmission; Data Encoding and Modulation Techniques; Broadband and Baseband Transmission; Multiplexing, Transmission Media, Transmission Errors, Error Handling Mechanisms.

UNIT III : NETWORK REFERENCE MODELS

Reference models: The OSI Reference Model, The TCP/IP Reference Model, Comparison of the OSI & the TCP/IP Reference Models , Physical Layer, Data Link, Network Layer , Transport Layer, Presentation Layer ,Session Layer, Layer , Medium Access Control Layer

UNIT IV : NETWORK ADDRESSING AND NETWORK PROTOCOLS

IPv4 AND IPv6 Packet Format: Address Space; Glassful and Classless Addressing; Datagram, Fragmentation and Checksum; Mapping Logical to Physical Address (ARP), Direct and Indirect Network Layer Delivery; Routing Algorithms, TCP, UDP Protocols, Flow Control, Error Control and Congestion Control in TCP.

UNIT V:NETWORKING DEVICES

Networking devices: Repeaters; Uses of Repeaters: Hubs; Classification of Hubs, Stackable Hubs, USB Hub: Switches; Switching Methods, Comparison of switching methods, Working with Hubs and Switches, Cables Connecting Hubs and Switches, Managed Hubs and Switches, Port Density: Bridges; Bridge Implementation Considerations, Types of Bridges: Routers; Dedicated Hardware versus Server-Based Routers, Advantages and Disadvantages of dedicated hardware routers, Drawbacks of Routers: Gateways; Advantages of gateways, Gateways Functionality: Other Devices; Modems, Proxy Server, Wireless router, Brouter, Wireless Access Point (WAPs).

TEXT BOOKS:

1. Data communication & Networking by Bahrouz Forouzan. Published by McGraw-Hill,
2. Computer Networks by Andrew S. Tanenbaum

REFERENCE BOOK:

1. Data and Computer Communications by William Stallings

E BOOK

1. .http://widi.lecturer.pens.ac.id/Teori/Komunikasi%20Data/Data%20Communications%20and%20Networking%20By%20Behrouz%20A.Forouzan.pdf
2. https://theswissbay.ch/pdf/Gentoomen%20Library/Networking/Prentice%20Hall%20-%20Computer%20Networks%20Tanenbaum%204ed.pdf

16NSA20 **COMPUTER SYSTEMS ARCHITECTURE**

AIM

To enable learners to understand the underlying architecture and components behind the functioning of computer systems.

UNIT I : HOW DATA CAN BE REPRESENTED WITHIN COMPUTER SYSTEMS

Numeric data: conversions between different representations of data - representing integer numbers in different number bases - converting between number bases using integer numbers eg denary to binary - denary to hexadecimal - binary to hexadecimal - performing arithmetic operations in different number bases - representing fixed-point numbers in different number bases - representing floating-point numbers in binary

UNIT II: UNDERSTAND THE LOGICAL OPERATIONS AND CODING OF DATA

Boolean logic: logic gates - truth tables - use of logic gates in integrated circuits - logical operations eg AND - OR - NOT - NAND - NOR - XOR

Coding of data: sign and magnitude - two's compliment - floating point - binary coded decimal - coding of character data eg ASCII (American Standard Code for Information Interchange)

UNIT III: UNDERSTAND THE FUNCTIONS OF PROCESSING UNIT

Key components: Central Processing Unit (CPU) - memory - interfaces - clock - buses - diagrammatic representation - Von Neuman architectures

Central Processing Unit: control unit - ALU (Arithmetic Logic Unit) - general purpose registers - special purpose registers eg instruction pointer - accumulator - core eg single - multiple - features eg pipelining - multiprocessing - parallel processing - polling - interrupts

UNIT IV: THE FUNCTIONS OF COMPUTER SYSTEM COMPONENTS

Memory: I/O maps - Direct Memory Access (DMA) - ROM (Read Only Memory) - cache - RAM (Random Access Memory) eg static - dynamic - flash

Buses: system bus - address bus - control bus - physical connections to components eg Central Processing Unit - memory - input/output (I/O) devices - system buses

Peripherals: Types eg hard disc - printer - scanner - network card

UNIT V: UNDERSTAND THE PRINCIPLES OF PROCESSOR OPERATIONS

CPU instruction sets: Reduced Instruction Set Computer (RISC) -Complex Instruction Set Computer (CISC) - clock rate - performance levels

Addressing: modes eg immediate - relative - address bus - addressing in the fetch-execute cycle

REFERENCE BOOKS

1. Blum R – *Professional Assembly Language Programming* (John Wiley & Sons - 2005) ISBN-10 0764579010 - ISBN-13 978-0764579011
2. Gaura E - Hibbs D and Newman R – *Computer Systems Architecture* (Lexden - 2008) ISBN-10 1904995098 - ISBN-13 978-1904995098
3. Goodstein R – *Boolean Algebra* (Dover - 2007) ISBN-10 0486458946 - ISBN-13 978-0486458946

WEBSITE / E BOOKS

1. freecomputerbooks.com/compscArchitectureBooks.html

16NSC2P DATABASE MANAGEMENT SYSTEM LAB

1. Define and manipulate table using SQL commands (DDL, DML and DCL).
2. Practical Based on Implementing the Constraints.
   • NULL and NOT NULL, • Primary Key and Foreign Key Constraint
   • Unique, Check and Default Constraint
3. Practical for Retrieving Data Using following clauses.
   • Simple select clause, • Accessing specific data with Where, Ordered By, Distinct and Group By
4. Practical Based on Aggregate Functions.
   • AVG, • COUNT, • MAX, • MIN, • SUM, • CUBE
5. Practical Based on implementing all String functions, date, time .
6. Practical Based on implementing use of union, intersection, set difference.
7. Implement Nested Queries & JOIN operation.
8. Write a PL/SQL program to create employee pay bill using if statement.
9. Write a PL/SQL program using looping statements.
10. Write a PL/SQL program to implement exception Handling.
11. Write a PL/SQL program to create procedure.
12. Write a PL/SQL program to implement function
13. Write a PL/SQL program to implement Cursor.
14. Write a PL/SQL program to create package with function and procedure
15. Write a PL/SQL program to create trigger.

SEMESTER - III

16NSC31 EMPLOYABILITY AND PROFESSIONAL DEVELOPMENT

Aim

To provide learners with the opportunity to acquire employability skills required for effective employment and to manage their own personal and professional development.

UNIT I: Be able to take responsibility for own personal and professional development

Responsibilities: own responsibilities eg personal responsibility, direct and indirectrelationships and adaptability, decision-making processes and skills, ability to learn and develop within the work role; other eg employment legislation, ethics, employment rights and responsibilities

Performance objectives: setting and monitoring performance objectives

Individual appraisal systems: uses of performance appraisals eg salary levels and bonuspayments, promotion, strengths and weaknesses, training needs; communication; appraisal criteria eg production data, personnel data, judgemental data; rating methods eg ranking, paired comparison, checklist, management by objectives; skills audit (personal profile using appropriate self-assessment tools); evaluating self-management; personal and interpersonal skills; leadership skills

UNIT II:

Motivation and performance: application and appraisal of motivational theories andtechniques, rewards and incentives; manager's role; self-motivational factors.

Development plan: current performance; future needs; opportunities and threats to careerprogression; aims and objectives; achievement dates; review dates; learning programme/activities; action plans; personal development plan

Portfolio building: developing and maintaining a personal portfolio Transcripts: maintaining and presenting transcripts including curriculum vitae

UNIT III:Be able to demonstrate acquired interpersonal and transferable skills

Effective communication: verbal and non-verbal eg awareness and use of body language,openness and responsiveness, formal and informal feedback to and from colleagues; IT as an effective communication medium; team meetings

Interpersonal skills: soft skills eg personal effectiveness, working with others, use of initiative,negotiating skills, assertiveness skills, social skills

Time management: prioritising workloads; setting work objectives; using time effectively;making and keeping appointments; reliable estimates of task time

UNIT IV:Understand the dynamics of working with others

Working with others: nature and dynamics of team and group work; informal and formalsettings; purpose of teams and groups eg long-term corporate objectives/strategy; problem solving and short-term development projects; flexibility/adaptability; team player

Teams and team building: selecting team members eg specialist roles, skill andstyle/approach mixes; identification of team/work group roles; stages in team development eg team building, identity, loyalty, commitment to shared beliefs, team health evaluation; action planning; monitoring and feedback; coaching skills; ethics; effective leadership skills, eg, setting direction, setting standards, motivating, innovative, responsive, effective communicator, reliability, consistency

UNIT V:Be able to develop strategies for problem solving

Specification of the problem: definition of the problem; analysis and clarification

Identification of possible outcomes: identification and assessment of various alternativeoutcomes

Tools and methods: problem-solving methods and tools

Plan and implement: sources of information; solution methodologies; selection andimplementation of the best corrective action eg timescale, stages, resources, critical path analysis

Evaluation: evaluation of whether the problem was solved or not; measurement of solutionagainst specification and desired outcomes; sustainability

TEXT BOOKS:

1. NCCER – Basic Employability Skills: Trainee Guide 00108-09 (Prentice Hall, 2009) ISBN 013609919X
2. Thompson Leigh, L – Making the Team: A Guide for Managers (Pearson Education, 2008) ISBN 9780136037767

WEBSITES :

1. www.prospects.ac.uk
2. www.stemnet.org.uk/resources/employability_skills_guide.cfm

16NSC32 **NETWORKING TECHNOLOGIES**

AIM

To enable learners to understand computer networking concepts - how they work - how they operate and the protocols - standards and the models associated with networking technology.

UNIT – I NETWORKING PRINCIPLES:

Role of networks: purpose – benefits - resource implications - communications - working practice - commercial opportunity - information sharing - collaboration - System: types - eg peer based - client-server - cloud - cluster - centralised - virtualized - Networking standards: conceptual models eg OSI model - TCP/IP model - standards: eg IEEE 802.x –

UNIT – II NETWORK TOPOLOGIES AND PROTOCOLS

Topology: logical eg Ethernet - Token Ring - physical eg star - ring - bus - mesh - tree - ring Communication: bandwidth - throughput - Protocols: relationship to networking standards - purpose of protocols - routed protocols eg IPv4 - IPv6 - FTP - HTTP - SMTP - POP3 - SSL - management of protocols for addressing - routing protocols eg RIP - RIPv2 - OSPF - OSPFv3 - BGP

UNIT – III NETWORKING COMPONENTS

Hardware components: workstation eg mobile - fixed - handheld - console - servers - switches - routers - cabling - hubs - repeaters - bridges - wireless devices - mobile eg 3G - 4G - GPRS - Software components: software eg client software - server software - client operating system - server operating system - Server: type eg firewall - email - web - file - database - combination - virtualisation - terminal services server - Server selection: cost - purpose - operating system requirement - Workstation: hardware eg network card - cabling - permissions - system bus - local-system architecture eg memory - processor - I/O devices

UNIT – IV DESIGN NETWORKED SYSTEMS

Bandwidth: expected average load - anticipated peak load - local internet availability - cost constraints - Users: quality expectations - concept of system growth Applications: security requirements - quality of service needs - Communications: suited to devices - suited to users - supportive of lifestyle desires - supportive of commercial requirements - Scalable: able to support device growth - able to support addition of communication devices - able to cope with bandwidth use and trend changes - protocol utilization - addressing - Selection of components: supporting infrastructure needs - supporting connectivity requirements

UNIT – V: SUPPORT NETWORKED SYSTEMS:

Devices: installation of communication devices - allocation of addresses - local client configuration - server configuration - server installation - Connectivity: installation of internet work communication medium Testing: communication - bandwidth - User access: bandwidth -

applications - devices Policy review: bandwidth - resource availability - System monitoring: utilisation - bandwidth needs - monitoring user productivity Maintenance schedule: backups - upgrades - security - auditing

TEXT BOOKS :

1. Burgess M – Principles of Network and System Administration, 2nd Edition (John Wiley and Sons Ltd, 2003) ISBN 0470868074
2. Hallberg B – Networking: A Beginner's Guide, 4th Edition (Osborne/McGraw-Hill US, 2005) ISBN 0072262125
3. Limoncelli T and Hogan C – The Practice of System and Network Administration (Addison Wesley, 2001) ISBN 0201702711
4. Lowe D – Networking All-in-One Desk Reference for Dummies, 2nd Edition (Hungry Minds Inc US, 2005) ISBN 0764599399
5. More M, Southwick P, Pritsky T and Riggs C – Telecommunications: A Beginner's Guide (McGraw-Hill Education, 2001) ISBN 0072193565
6. Olifer N and Olifer V – Computer Networks: Principles, Technologies and Protocols for NetworkDesign (John Wiley and Sons Ltd, 2005) ISBN 0470869828
7. Schiller J – Mobile Communications, 2nd Edition (Addison Wesley, 2003) ISBN 0321123816
8. Subramanian M – Network Management: An Introduction to Principles and Practice (Addison Wesley, 2000) ISBN 0201357429

Websites / EBOOKS

1. .http://widi.lecturer.pens.ac.id/Teori/Komunikasi%20Data/Data%20Communications%20and%20Networking%20By%20Behrouz%20A.Forouzan.pdf
2. https://theswissbay.ch/pdf/Gentoomen%20Library/Networking/Prentice%20Hall%20-%20Computer%20Networks%20Tanenbaum%204ed.pdf

16NSC33 COMPUTER AND NETWORK SECURITY

AIM:

The course content should be taught and implemented with the aim to develop different types of skills so that students are able to acquire following competencies:

- Determine appropriate mechanisms for protecting networked systems by applying various cryptographic techniques.
- Secure the network by using firewalls on various networks in order to identify various network attacks and resolve them.

UNIT -1: INTRODUCTION TO COMPUTER SECURITY

Introduction : Seven Classes of Computer Security and Crime, Physical Security: Side-Channel Attacks, Physical Threats, Laptop Security , Control hijacking attacks – buffer overflow, integer overflow, bypassing browser memory protection, Sandboxing and Isolation

UNIT 2: SECURITY THREATS

Viruses: Computer Viruses ,Virus Writers ,Virus Propagation ,Virus Classification , Worms : Worming Techniques Proposing a CCDC ,The Internet Worm , Trojan Horses : Applications of Trojans ,Installing a Trojan , Examples of Malware

Prevention and Defenses: Understanding Vulnerabilities ,Defenses Against Malware ,Anti-Virus Software ,Backups and Such ,Hoaxes

UNIT -3: NETWORK SECURITY

Internet Vulnerabilities: Port Scanning, Spoofs, Spam, Denial of Service

Network Defense tools : Firewalls, Intrusion Detection, Filtering ,DNSSec, NSec3, Distributed Firewalls, Intrusion Detection tools ,Threat Models

UNIT: 4 SECURITY ARCHITECTURES

Security Architectures: Security architecture of World Wide Web, Security Architecture of Web Servers, and Web Clients,

Web Application Security: Cross Site Scripting Attacks, Cross Site Request Forgery, SQL Injection Attacks, Content Security Policies (CSP) in web ,Session Management and User Authentication, Session Integrity ,Https, SSL/TLS

UNIT: 5 CYBER ATTACKS AND SECURITY POLICES

How internet fraud works: Identity theft, phishing, cyber stalking, Cyber terrorism, Forensics

Protecting yourself against cyber crime: Protecting against investment fraud, protecting against Identity theft, secure browser settings.

Security policy: Defining user policies, Defining system administration policies, Access policies

TEXT BOOK :

1. Foundations of Computer Security by ‘David Salomon’ , British Library Cataloguing , Library of Congress Control Number: 2005932091 , ISBN-10: 1-84628-193-8 e-ISBN 1-84628-193-8 , ISBN-13: 978-1-84628-193-8
2. Computer Security Fundamentals 3edition [2016], Chuck Easttom , by Pearson Education, Inc

E BOOKS:

1. https://www.mobt3ath.com/uplode/book/book-26252.pdf
2. https://dynacorps.net/downloading/Computer%20Security%20Fundamentals%203ed%20%5B2016%5D.pdf

16NSA30 INFORMATION STORAGE AND MANAGEMENT

AIM

To provide learners with an understanding of how organizations use information systems to help them manage their specific needs.

UNIT I: Introduction to Information Storage

Information Storage, Evolution of Storage Architecture, Data Center Infrastructure: Core Elements of a Data Center , key Characteristics of a Data Center, Managing a Data Center ,Virtualization and Cloud Computing

UNIT II: Data Center Environment

Application, Database Management System (DBMS), Host : Operating System ,Memory Virtualization Device Driver ,Volume Manager ,File System. Connectivity: Physical Components of Connectivity, Interface Protocols , Storage : Disk Drive Components, Disk Drive Performance

UNIT III : **Data Protection**

RAID Implementation Methods :Software RAID, Hardware RAID ,RAID Array Components, RAID Techniques :Striping ,Mirroring ,Parity ,RAID Levels : RAID 0, RAID 1 , Nested RAID ,RAID 3 ,RAID 4 , RAID 5 ,RAID 6 ,RAID Impact on Disk Performance , RAID Comparison

UNIT IV : Intelligent Storage Systems

Components of an Intelligent Storage System: Front End , Cache, Back End ,Physical Disk, Types of Intelligent Storage Systems, Traditional Storage Provisioning, Virtual Storage Provisioning

UNIT V: Introduction to MIS

Information system ,features ,MIS planning and development, BPR ,7s Integration,Supply chain management,CRM ,KMS ,ERP ,Impact of MIS,Developing effective MIS ,Trends in MIS :DSS,AI

TEXTBOOK:

1. Information Storage and Management Storing, Managing, and Protecting Digital Information in Classic, Virtualized, and Cloud Environments , 2nd Edition , Edited by Somasundaram Gnanasundaram Alok Shrivastava.

EBOOKS :

1. http://aad.tpu.ru/practice/EMC/Information%20Storage%20and%20Managem-v.2.pdf

16CANAC WEB DESIGNING WITH HTML

AIM

The main objective of this course is to

- Impart the knowledge about the World Wide Web- Internet- web pages.
- Prepare the students to designs websites using HTML- DHTML.

UNIT – I

Internet Basics: Web browser – Web Sites - URL – DNS – Portals –Security and Privacy issues-**HTML**: Basic tags- Elements – Attributes- Headings –Paragraphs- Formatting.

UNIT – II

Basic HTML: HTML Hyperlinks-Images- Tables –Lists- Blocks –Comments –Frames-Layout-Colors-Color names.

UNIT – III

Forms: Text field- Password field- Radio Button- Checkbox- Submit button- Text area- Drop-down List- Form Attributes- Video- Audio.

UNIT – IV

CSS: Introduction- Syntax- Selectors- Backgrounds- Text- Fonts-Links- Tables- Box Model-Types of CSS-Align.

UNIT – V

CSS 3: Introduction- Borders- Background- Gradients- Font effects- Font- 2D Transforms-3D Transforms-Transitions-Animation.

TEXT BOOKS

1. HTML-XHTML & CSS-6th Edition- Elizabeth Castro

REFERENCE BOOK

1. McGraw-Hill Glencoe-“Introduction to Web Design Student Edition”- Illustrated Edition-McGraw-Hill- 2010

SEMESTER - IV

16NSC41 MATHEMATICS FOR SOFTWARE DEVELOPMENT

Objectives

To provide learners with an understanding of the underlying mathematical concepts that support the diverse fields supported by software engineers.

UNIT -1 MATHEMATICAL SKILLS FOR SOFTWARE ENGINEERS

Algebra: basic notation and rules of algebra - multiplication and factorization of algebraic expressions involving brackets - algebraic equations and simultaneous linear equations - quadratic equations involving real roots

Vectors: representation of a vector by a straight line - equal and parallel vectors - magnitude of a vector - vector addition and subtraction - scalar multiplication - linear transformations - rotations - reflections - translations - inverse transformations - axioms of a vector space

UNIT – 2 APPLICATION OF RELATIONS AND MATRIX CONCEPTS

Relations: domain - range - Cartesian product - universal relation - empty relation - inverse relation - reflexive - symmetric and transitive properties - equivalence relations

Matrices: addition and subtraction - scalar multiplication - matrix multiplication - properties of addition and multiplication of matrices - transpose of a matrix - determinant - identify matrix - inverse of a matrix - condition for a matrix to be singular - solution of simultaneous linear equations

Application in programming: use of variables and operators - using mathematics based commands - arrays - conditional statements - pseudo code - demonstration code

UNIT – 3 UNDERSTAND THE APPLICATION OF SETS

Sets: definitions of set and element - representation of sets using Venn diagrams - universal and empty sets - finite and infinite sets - N - Z and R - operations on sets - subsets - notation - predicates - laws of set theory - idempotent - associative - commutative - distributive - identity - involution - complement - De Morgan’s laws

UNIT -4 UNDERSTAND THE APPLICATION OF PROPOSITIONAL CALCULUS

Propositional calculus: simple and compound propositions - conjunction - disjunction - negation - implication and bi-implication - truth tables - validity - principle of mathematical induction - logical argument and deductive proof

Boolean laws of propositional calculus: idempotent - associative - commutative - distributive -

identity - involution - complement - De Morgan's Laws
Logic theory – Proportional Logic – and , or , if then and if and only if – contradiction

UNIT -5 BE ABLE TO APPLY STATISTICAL TECHNIQUES TO ANALYZE DATA

Techniques: frequency distribution - mean - median - variance - deviation - correlation probability - factorial notation - permutations and combinations - laws of probability - conditional probability - Bayesian Networks

REFERENCE BOOKS :

1. Press W et al – Numerical Recipes 3rd Edition: The Art of Scientific Computing (Cambridge University Press - 2007) ISBN-10: 0521880688
2. Press W et al – Numerical Recipes Source Code CD-ROM 3rd Edition: The Art of Scientific Computing (Cambridge University Press - 2007) ISBN-10: 05217068583
3. Golub G - Van Loan C – Matrix Computations (Johns Hopkins Studies in the Mathematical Sciences) John Hopkins University Press - 1996) ISBN-10: 0801854168
4. Haggarty R – Discrete Mathematics for Computing (Addison Wesley - 2001) ISBN-10: 0201730472
5. Schwartz JT et al – Set Theory for Computing: From Decision Procedures to Declarative Programming with Sets (Monographs in Computer Science) (Springer 2001) ISBN-10: 0387951970
6. Rothenberg R – Basic Computing for Calculus (McGraw Hill - 1985) ISBN-10: 007054011X

WEBSITES :

1. www.mathsandcomputing.com/

16NSC42 **PROGRAMMING IN DOT NET**

AIM

To provide learners with an understanding of the principles of programming using a .NET framework as an underpinning technological concept in the fields of programming and systems development.

UNIT I : UNDERSTAND THE PRINCIPLES OF PROGRAMMING USING .NET

Evolution of web development: - HTML and HTML forms - Problems of earlier web development technologies - client-side programming -server-side programming, IDE , backwards compatibility

.NET Design features: interoperability - common runtime engine - language independence -class library - deployment - security - portability

.NET languages: eg C# - C++ -F# -J# - PowerShell - JScript .NET- IronPython - IronRuby - VisualBasic - IronLISP- L# - P#

UNIT II : UNDERSTAND THE ARCHITECTURE OF .NET FRAMEWORK

.NET Architecture: CLR, Framework Class Library, Base Class Library, working with various programming languages(IL), .NET versions

Design methodology: reuse of existing system –GUI - Delivery environment: mobile (handheld - web based - desktop - dedicated device - server) - Interaction: exchange of data - compliance - compatibility

UNIT III : BE ABLE TO DESIGN SOLUTIONS USING VISUAL BASIC

Developing .NET Applications using Visual Studio*:* Designing a Webpage- The anatomy of a Web Form – Writing Code

Tools and techniques : Adding ASP.Net Controls to Web Forms Label Control ,Textbox, List box ,Radio Button ,Checkbox ,Button ,Event Handler in ASP.Net

Data: *variables* - data types - declaring variables -scope of variables

UNIT IV : BE ABLE TO IMPLEMENT ASP .NET SOLUTIONS

Web Form Fundamentals: The anatomy of an ASP.NET Application, ASP.NET Application & PAGE Life Cycle

State Management: The problem of State – View State – Transferring Information between Pages – Cookies – Session State– Application State

UNIT V : WORKING WITH DATA & ADO.NET FUNDAMENTALS

Fundamentals of Database connectivity: Understanding Data Management Configuring Your Database – SQL Basics – ADO.NET

TEXT BOOK:

1. Matthew MacDonald, *"Beginning ASP.NET 3.5 in VB 2008"*, A press, Berkeley, CA, USA, Second Edition. ISBN: 978-81-8128-868-4
2. Esposito D – Programming Microsoft ASP.NET MVC (Microsoft - 2010) ISBN-10: 073562714
3. .Libert J - Horovitz A – Programming .NET 3.5 (O'Reilly - 2008) ISBN-10: 059652756X
4. Lowy J – Programming .NET Components: Design and Build .NET Applications Using Component-Oriented Programming (O'Reilly - 2005) ISBN-10: 0596102070

WEBSITES / EBOOKS

- https://www.w3schools.com/asp/
- https://www.tutorialspoint.com/asp.net/index.htm
- https://www.guru99.com/asp-net-tutorial.html
- http://eng.harran.edu.tr/~msuzer/files/vp/CSharp.pdf
- http://www.sipecom.com/documento/bliblioteca/Pro%20ASP.NET%203.5%20in%20C%23%202008.pdf
- https://theswissbay.ch/pdf/Gentoomen%20Library/Misc/OReilly.Programming.dot.NET.3.5.Aug.2008.pdf

16NSA41 **CYBER SECURITY**

AIM:

To make students aware about the field of security and equip them to tackle issues pertaining the domain of security

UNIT : 1 INTRODUCTION TO CYBER CRIME

Classification of Cyber crime :Insider attack,External attack,Unstructured attack,structre attack .Reasons of crime ,Malware and its types

Kinds of cyber crime : Cyber Stalking, Forgery and Counterfeiting, Software Piracy and Crime related to IPRs, Cyber Terrorism, Computer Vandalism, Computer Hacking, Cyber Squatting, Web Jacking, Data Diddling , Email Spoofing

UNIT 2 : INTRODUCTION TO CYBER FORENSIC

Computer forensics , incident management processes, forensic investigation, why should we report cyber crime?, Study of recent cyber security attacks, Cyber security initiatives in India

UNIT 3 : CYBER LAW IN INDIA

Information Technology Act, 2000 – Digital Signature; E-Governance; Regulation of Certifying Authorities; Duties of Subscribers; Penalties and Adjudications; Offences under the Act; Making of Rules and Regulations etc.

UNIT 4: INTRODUCTION TO CRYPTOGRAPHY

Introduction to Cryptography, Symmetric key Cryptography, Asymmetric key Cryptography, Message Authentication, Applications of Cryptography., User Management, VPN Security Security ProtocolsPGP and S/MIME, Security at Transport Layer- SSL and TLS, Security at Network Layer-IPSec.

UNIT 2 : CYBER SECURITY TECHNIQUES

Authentication, Encryptions, Digital signature, , Firewalls, Steganography, Physical security : building security, proxy access, vendor access and security measures. Guidelines for secure password, Two step verification and using free antivirus, guidelines for safe internet browsing

TEXT BOOK :

1. An Introduction to Cybersecurity ,APSCO Cybersecurity Committee
2. Introduction to cybersecurity ,Jeetendra Pande , Uttarakhand Open University, Haldwani-263139
3. Information Technology -Law and Practice – Vakul Sharma, Universal Law Publication Ltd.

EBOOKS:

1.

16NSC43 OPERATING SYSTEM

AIM

The main objective of this course is to:

- have basic knowledge about Operating Systems
- impute basic features of operating system
- provide practical knowledge in Operating System

UNIT – I INTRODUCTION TO OPERATING

Introduction: Definition – Mainframe – Multiprocessor – Distributed – Clustered – Real-Time – Hand-Held System – Input Output and Storage Structure– Network Structure

System Components: Services – System Calls, System Programs, OS Generation and System Boot.–Mobile OS.

UNIT – II PROCESS MANAGEMENT AND PROCESS SYNCHRONIZATION

Process Management: Process Concepts – Scheduling – Operations – Co-Operation Processes – Inter-Process Communication.

Process Synchronization: Critical Section Problem – Synchronization Hardware – Semaphores – Classic Problems – Critical Regions

UNIT – III DEADLOCKS

Deadlocks: System model-Methods for handling deadlocks -Deadlock Characterization – Prevention- Avoidance & Detection - Recovery From Deadlock.

UNIT – IV STORAGE MANAGEMENT

Storage Management: Swapping – Contiguous Memory Allocation – Paging – Segmentation – Segmentation with Paging – Demand Paging – Process Creation – Page Replacement – Implementation of Virtual Memory

UNIT – V FILE MANAGEMENT

File Management: File Concepts and Access Methods – Directory Structure & Implementation Allocation Methods – Free Space Management

TEXT BOOK

1. Silbeschartz- A.Galvin P.B- Gaghe.G- “Operating System Concepts”- John Wiley & Sons
2. Achyut S.Godbole “Operating Systems”- Tata McGraw Hill

REFERENCE BOOKS

1. Milan Kovic- “Operating System Concepts and Design”- Tata McGraw Hill- 1997.

E BOOKS:

1. http://www.uobabylon.edu.iq/download/M.S%202013-2014/Operating_System_Concepts,_8th_Edition%5BA4%5D.pdf

16NSC4P .NET PROGRAMMING LAB

1. Create a simple web site using VB.Net
2. Implement Cookies in VB.NET
3. Create a website to transfer the information between pages using VB.Net
4. Implement session state using ASP.Net
5. Implement Application State using ASP.Net
6. Create a program using Validation controls using VB.Net
7. Create a calendar using Rich-Controls using VB.Net
8. Create a Ad-Rotator using Rich-Controls using VB.Net
9. Create a program to insert and display data in to data based using ADO using VB.Net
10. Create a program to update data in database using ADO using VB.Net
11. Display the data from database using Grid view using VB.Net

16CANAD COMPUTER SECURITY

OBJECTIVE

The goal for students in this course is to learn the Fundamentals of Computer Security- including:

- Principles of Computer Security
- Basic Cryptography
- Authentication
- Program Security
- Malicious code (viruses- worms- Trojan horses)
- Firewalls

UNIT – I

Principles of Computer Security: The Meaning of Computer Security – Attacks – Methods of Defense

UNIT – II

Elementary Cryptography: Terminology and Background – Substitution Ciphers – Transpositions (Permutations) – Symmetric Encryption – Public Key Encryption Systems (Asymmetric Encryption) – The Data Encryption Standard – The AES Encryption Algorithm

UNIT – III

Malicious Code: Trojan Horses – Computer Viruses – Computer Worms – Other Forms of Malicious Logic – Defenses Viruses – Trapdoors – Salami Attack – Threats in Networks

UNIT – IV

User Authentication Basics: Biometrics – Using GPS to Determine Location – File Protection Mechanisms – Firewalls – Secure E-Mail

UNIT – V

Privacy Concepts: Privacy Principles and Policies – Authentication and Privacy – Privacy on the Web – E-Mail Security – Impacts on Emerging Technologies

TEXT BOOK

1. Charles P. Pfleeger- Shari L. Pfleeger- “Security in Computing”- Prentice Hall- 2006.

REFERENCE BOOKS

1. Micki Krause- Harold F. Tipton- “Handbook of Information Security Management”- Vol.1-3 CRC Press LLC- 2004.
2. Matt Bishop- “Computer Security Art and Science”- Pearson/PHI- 2002.

SEMESTER V

16NSC51 LINUX AND SHELL PROGRAMMING

AIM :

To understand and make effective use of Linux utilities and Shell scripting language (bash) to solve problems.

UNIT 1: LINUX AND UNIX

History of Unix and Linux, · Directory structure of Unix & Linux ,Comparison of various operating systems · Advantages of Linux, Flavours of Linux, Linux Architecture , Types of Shells ,Installation notes, Linux Loader, Linux kernel, Distributions

UNIT 2 : FILE SYSTEM AND DEVICES

File System, Hierarchy of File system, ext3, ext2, Devices and Drives in Linux, Mounting Devices File System parts- Boot Block, Super Block, Inode Block, Data Block

Commands, Utilities and File Management : Managing file and directories(mkdir, cd and pwd, ls, cat, more, less), File and Directory Operations (find, cp, mv, rm, ln etc), Filters (head, tail , pr, cut, paste , sort, uniq, grep, egrep, fgrep) , Text Editors (vi,vim) , File and Directory permissions (chmod, chown, chgrp)

UNIT 3 : USERS, GROUPS AND PERMISSIONS

Create Users ,Create groups, Special groups, Assigning permissions to users and groups ,Assigning file permission · Directory Permission ,Using text editors , Working with vi & emacs ,System services and run levels ,Controlling services at boot with administration tools (chkconfig & using GUI based services) , Communication commands :- write, wall, talk, mesg, motd

UNIT 4 : SHELL PROGRAMMING AND PROCESS MANAGEMENT

Shell Variables, Shell Scripts , Control and Loop structure, User defined commands, I/O and Redirection,

Process Management : Shell process, Parent and children, Process status, System process, Multiple jobs in background and foreground, Changing process priority, listing processes, ps, kill, Premature termination of process.

UNIT 5 NETWORK CONFIGURATION FOR LINUX

Networking services and Configuration files, starting services, Network tools-ping, finger, traceroute, who, host, rlogin, slogin, rcp, rsh, ssh. Protocols and Services- SMB, FTP, DHCP, LDAP, NFS and NIS.

TEXT BOOK / REFERENCE BOOKS:

1. Operating Systems by William Stallings(PHI)
2. Operating System by Achyut Godbole (TMH)

3. Linux the complete refrence by Richard Mathews(TMH)
4. Red Hat Linux :The Complete Reference by Peterson (TMH)
5. Unix Systems V 4 Concepts & Applications by Sumitabha Das

EBOOKS

1. https://doc.lagout.org/operating%20system%20/rhel/Red_Hat_Linux_Complete_Reference.pdf

16NSC52 **WIRELESS NETWORKS**

AIM

To provide an overview of wireless network and its application in communication. To enable students to compare and contrast existing and forthcoming wireless networks

UNIT I: PHYSICAL AND WIRELESS MAC LAYER ALTERNATIVES

Wired transmission techniques: design of wireless modems, power efficiency, out of band radiation, applied wireless transmission techniques, short distance base band transmission, UWB pulse transmission, broad Modems for higher speeds, diversity and smart receiving techniques, random access for data oriented networks, integration of voice and data traffic.

UNIT II: WIRELESS NETWORK PLANNING AND OPERATION

Wireless networks topologies, cellular topology, cell fundamentals signal to interference ratio calculation, capacity expansion techniques, cell splitting, use of directional antennas for cell sectoring, micro cell method, overload cells, channels allocation techniques and capacity expansion FCA, channel borrowing techniques, DCA, mobility management, radio resources andpower management securities in wireless networks.

UNIT III: WIRELESS WAN

Mechanism SEto support a mobile environment, communication in the infrastructure, IS-95 CDMA forward channel, IS – 95 CDMA reverse channel, pallert and frame formats in IS – 95, IMT – 2000; forward channel in W-CDMA and CDMA 2000, reverse channels in W-CDMA and CDMA-2000, GPRS and higher data rates, short messaging service in GPRS mobile application protocols.

UNIT IV : WIRELESS LAN

Historical overviews of the LAN industry, evolution of the WLAN industry, wireless home networking, IEEE 802.11. The PHY Layer, MAC Layer, wireless ATM, HYPER LAN, HYPER LAN–2.

UNIT V : WPAN AND GEOLOCATION SYSTEMS

IEEE 802.15 WPAN, Home RF, Bluetooth, interface between Bluetooth and 802.11, wireless geolocation technologies for wireless geolocation, geolocation standards for E.911 service.

TEXT BOOKS

1. Kaveh Pahlavan, Prashant Krishnamoorthy, Principles of Wireless Networks, - A united approach - Pearson Education, 2010.

REFERENCES

1. Jochen Schiller, Mobile Communications, Person Education – , 2nd Edn.
2. X.Wang and H.V.Poor, Wireless Communication Systems, Pearson education, 2004
3. M.Mallick, Mobile and Wireless design essentials, Wiley Publishing Inc. .

16NSA51 **CRYPTOGRAPHY & NETWORK SECURITY**

AIM

To understand the principles of encryption algorithms- conventional and public key cryptography - detailed knowledge of authentication - hash functions and application level security mechanisms.

UNIT I INTRODUCTION TO ENCRYPTION TECHNIQUES

Classical Encryption techniques – Cipher Principles – Data Encryption Standard – Block Cipher Design Principles and Modes of Operation - Evaluation criteria for AES – AES Cipher – Triple DES – Placement of Encryption Function – Traffic Confidentiality

UNIT II PUBLIC KEY CRYPTOGRAPHY

Key Management – DiffieHellman key Exchange – Elliptic Curve Architecture and Cryptography - Introduction to Number Theory – Confidentiality using Symmetric Encryption – Public Key Cryptography and RSA.

UNIT III AUTHENTICATION AND HASH FUNCTION

Authentication requirements – Authentication functions – Message Authentication Codes – Hash Functions – Security of Hash Functions and MACs – MD5 message Digest algorithm - Secure Hash Algorithm – RIPEMD – HMAC Digital Signatures – Authentication Protocols – Digital Signature Standard.

UNIT IV NETWORK SECURITY SERVICES

Authentication, Applications: Kerberos – X.509 Authentication Service – Electronic Mail Security – PGP – S/MIME - IP Security – Web Security.

UNIT V SYSTEM LEVEL SECURITY

Intrusion detection – password management – Viruses and related Threats – Virus Counter measures – Firewall Design Principles – Trusted Systems.

TEXT BOOK

1. William Stallings - "Cryptography and Network Security – Principles and Practices" - Prentice Hall of India - Third Edition - 2003

REFERENCE BOOKS

1. Atul Kahate - "Cryptography and Network Security"- Tata McGraw-Hill - 2003.
2. Bruce Schneier - "Applied Cryptography" - John Wiley & Sons Inc - 2001.
3. Charles B. Pfleeger - Shari Lawrence Pfleeger - "Security in Computing" - Third Edition - Pearson Education - 2003.

16NSA53 **COMPUTER SECURITY**

OBJECTIVE

The goal for students in this course is to learn the Fundamentals of Computer Security- including:

- Principles of Computer Security
- Basic Cryptography
- Authentication
- Program Security
- Malicious code (viruses- worms- Trojan horses)
- Firewalls

UNIT – I

Principles of Computer Security: The Meaning of Computer Security – Attacks – Methods of Defense

UNIT – II

Elementary Cryptography: Terminology and Background – Substitution Ciphers – Transpositions (Permutations) – Symmetric Encryption – Public Key Encryption Systems (Asymmetric Encryption) – The Data Encryption Standard – The AES Encryption Algorithm

UNIT – III

Malicious Code: Trojan Horses – Computer Viruses – Computer Worms – Other Forms of Malicious Logic – Defenses Viruses – Trapdoors – Salami Attack – Threats in Networks

UNIT – IV

User Authentication Basics: Biometrics – Using GPS to Determine Location – File Protection Mechanisms – Firewalls – Secure E-Mail

UNIT – V

Privacy Concepts: Privacy Principles and Policies – Authentication and Privacy – Privacy on the Web – E-Mail Security – Impacts on Emerging Technologies

TEXT BOOK

2. Charles P. Pfleeger- Shari L. Pfleeger- “Security in Computing”- Prentice Hall- 2006.

REFERENCE BOOKS

1. Micki Krause- Harold F. Tipton- “Handbook of Information Security Management”- Vol.1-3 CRC Press LLC- 2004.
2. Matt Bishop- “Computer Security Art and Science”- Pearson/PHI- 2002.

16NSA52 **ARTIFICIAL INTELLIGENCE**

AIM:

To learn the basics of designing intelligent agents that can solve general purpose problems, represent and process knowledge, plan and act, reason under uncertainty and can learn from experiences.

UNIT I PROBLEM SOLVING

Introduction – Agents – Problem formulation – uninformed search strategies – heuristics – informed search strategies – constraint satisfaction.

UNIT II LOGICAL REASONING

Logical agents – propositional logic – inferences – first-order logic – inferences in firstorder logic – forward chaining – backward chaining – unification – resolution

UNIT III PLANNING

Planning with state-space search – partial-order planning – planning graphs – planning and acting in the real world.

UNIT IV UNCERTAIN KNOWLEDGE AND REASONING

Uncertainty – review of probability - probabilistic Reasoning – Bayesian networks – inferences in Bayesian networks – Temporal models – Hidden Markov models.

UNIT V LEARNING

Learning from observation - Inductive learning – Decision trees – Explanation based learning – Statistical Learning methods - Reinforcement Learning.

TEXT BOOK:

1. S. Russel and P. Norvig, “Artificial Intelligence – A Modern Approach”, Second Edition, Pearson Education, 2003.

REFERENCES:

1. David Poole, Alan Mackworth, Randy Goebel, ”Computational Intelligence : a logical approach”, Oxford University Press, 2004.
2. G. Luger, “Artificial Intelligence: Structures and Strategies for complex problem solving”, Fourth Edition, Pearson Education, 2002.
3. J. Nilsson, “Artificial Intelligence: A new Synthesis”, Elsevier Publishers, 1998.

16SBA51 NUMERICAL APTITUDE & LOGICAL REASONING

OBJECTIVE

- This course is really an asset to those who plan to appear competitive examination conducted by Banks, LIC, Railways, M.C.A, CAT, MAT, etc., and other executive posts.
- It is very much hoped that the subject matter will create a confidence among the students and it will help them like an idle student
- When we follow the reasoning which eliminates the impossible choices until only the correct solution remains, then we will acquire the mastery needed to tackle any problem of logical deduction.

UNIT – I: NUMBERS

Number - Problems on Numbers - HCF & LCM – Square Root & Cube Root – sequences and series .

UNIT – II: PROBLEMS ON AVERAGE, RATIO, AGE AND PROBABILITIES

Average - Ratio & Proportion - Problems on Age - Probabilities

UNIT – III: TIME AND BUSINESS PROBLEMS

Time and work -Time and Distance – Simple Interest - Compound Interest - Profit and Loss

UNIT – IV: VERBAL INTELLIGENCE TEST

Alphabetical Sequence Tests - Analogy Tests - Calendar Tests - Clock Tests - Coding and Decoding Tests - Direction Sense Tests - Relations Tests - Common Sense Test - Odd Man Out Tests - Number Series Tests - Seating Arrangements Tests

UNIT – V: NON VERBAL INTELLIGENCE TEST

Series, Analogies and Classification

REFERENCE BOOKS

- Quantitative Aptitude By R.S.Aggarwal
- A Modern Approach to Verbal & Non verbal Reasoning By R.S.Aggarwal

REFERENCE WEBSITE

- www.indiabix.com
- www.developeyourreasoning.com

16UES51 **ENVIRONMENTAL SCIENCE**

OBJECTIVE

This course AIMs at bringing awareness about the environment among students.

UNIT – I NATURAL RESEOURCES and ECO SYSTEMS

Multidisciplinary nature of environmental studies – Definition – Scope – Importance – Awareness- Forest Resources – Water Resources – Mineral Resources – Food Resources – Energy Resources – Land Resources What is Eco system – Types – Structure and Function – Producer – Consumers and Decomposers – Energy Flow – Ecological Succession – Food Chains- Food Webs and Ecological Pyramids

UNIT – II BIODIVERSITY AND ITS CONSERVATION

Introduction – Definition – Conservation value – Biodiversity Levels – Hotpot – Threats – Endangered and Endemic Species of India – Conservation

UNIT – III SOCIAL ISSUES AND THE ENVIRONMENT

Unsustainable to Sustainable Development – Water Conservation – Urban problems related to energy – Resettlement and Rehabilitation of People – Environmental Pollution Causes Effects and Control measures of Air Pollution – Water pollution – Soil Pollution – Marine Pollution – Noise Pollution – Thermal pollution – Nuclear Hazards- Environmental Ethics

UNIT – IV HUMAN POPULATION AND THE ENVIRONMENT

Population growth – Explosion – Family Welfare Programme – Human Health – Human Rights – Value Education – HIV and AIDS – Women and Child Welfare – Role of IT

UNIT – V FIELD WORK

Visit to local area – Polluted Site – Study of Common Plants- Insects- Birds – Ecosystem – Visit to Sanctuaries

TEXTBOOK

Richard T. Wright- *"Environmental Science: Toward a Sustainable Future"*- 9th Edition

SEMESTER VI

16NSC61 ETHICAL HACKING

AIM

To introduce and elucidate on:

i. Concepts of Hacking

ii. Ethics of Hacking

iii. Defensive mechanisms of Hacking

UNIT – I ETHICS OF ETHICAL HACKING

Control hijacking attacks – buffer overflow, integer overflow-bypassing browser memory protection-Sandboxing and Isolation-Security vulnerability detection tools and techniques – program analysis (static, concolic and dynamic analysis) Privilege, access control, and Operating System Security-Exploitation techniques, and Fuzzing Introduction to Ethical Disclosure: Ethics of Ethical Hacking – Recognizing the Gray Areas in Security – Vulnerability Assessments

UNIT – II PENETRATION TESTING

Penetration Testing – Ethical Hacking and the Legal System – The rise of Cyberlaw – Understanding Individual Cyberlaws – Proper and Ethical Disclosure

Penetration Testing and Tools: Social engineering attacks – Conducting a Social engineering attack – Common attacks used in penetration testing – Physical Penetration attacks – Conducting a physical penetration – Defending against physical penetration – Insider attacks – Conducting an insider attack – Defending against insider attacks.

UNIT – III: VARIOUS SYSTEM EXPLOITS

Exploiting: Basic Linux exploits – Stack operations – Buffer overflows – Local buffer overflow exploits – Exploit Development Process – Windows exploits – Compiling and debugging windows programs – writing windows exploits

UNIT – IV: SEH

Understanding SEH – Understanding Windows memory protections – Bypassing Windows memory protections. Vulnerability Analysis: Passive Analysis – Reverse Engineering – Instrumentation tools – Fuzzing – Instrumented Fuzzing tools and techniques

UNIT – V:PROTECTINON FROM CLIENT SIDE VULNERABILITIES

Client-side: browse exploits – Internet explorer security – Finding new browser-based vulnerabilities – Heap spray to exploits – Protecting from Client-side exploits.

Text Book:

1. Allen Harper - Jonathan Ness - "Gray Hat Hacking: The Ethical Hacker's Handbook" - 3rd edition - Tata McGraw Hill - 2010.

References:

1. Manthan Desai - "Basics of Ethical Hacking: Hacking for Beginners" - Hacking Tech - 2010.

16NSC62 **CLOUD COMPUTING**

AIM

This course focuses on concepts of cloud, fundamental building blocks and specially cloud as IaaS (Infrastructure as a service). It gives students the insight into how to build clouds. And provides practices on building the cloud.

UNIT-I CLOUD COMPUTING BASICS

Cloud Computing Overview - Applications- Intranets and the Cloud- First Movers in the Cloud.

Organization and Cloud Computing: Benefits – Limitations- Security Concerns-Regulatory Issues

Cloud Computing with Titans: Google -EMC- NetAPP- Microsoft Amazon - Salesforce.com- IBM - Partnerships

UNIT-II THE BUSINESS CASE FOR GOING TO THE CLOUD

Cloud Computing Services- business usages-Deleting your datacenter - salesforce.com. Thomson Reuters.

Cloud Computing technology: Hardware and Infrastructure: Clients - Security - Network - Services. Accessing the Cloud: Platforms - Web Applications - Web API's - Web Browsers.

UNIT-III CLOUD STORAGE

Overview of cloud storage- Cloud Storage Service Providers.

Standards: Application-Client –Infrastructure- Service.

UNIT-IV CLOUD COMPUTING AT WORK

Software as a service: Overview - Driving forces - Company offerings - Industries -

Software plus services: Overview mobile Device Integration-Providers - Microsoft Online.

Developing Applications: Google - Microsoft- Intuit Quick base-Cast Iron Cloud - Bungee Connect - Development - Troubleshooting - Application Management.

UNIT-V MIGRATING THE CLOUD

Local clouds and Thin Clients: Virtualization - Server Solutions - Thin clients.

Cloud Services for individuals-Cloud services at the Mid-market-Enterprise-class Cloud offerings-migration.

Future Of Cloud Computing: Analyzing Services - Best Practices.

TEXT BOOK:

1. Cloud Computing - Author Name: Anthony T.Velte - Toby J Velte - Robert Elsenpeter - Publisher: TMH Publications.

E BOOK :

1. https://epdf.pub/queue/cloud-computing-a-practical-approach67610.html

16NSA61 BIOMETRICS

OBJECTIVE

The main AIM of this course are to:

1. understand Biometric Security Methods
2. acquire knowledge on various Biometric components

UNIT – I INTRODUCTION TO BIOMETRIC

Benefits of Biometric Security – Verification and Identification – Basic Working of Biometric Matching – Accuracy – False Match Rate – False Non-Match Rate – Failure to Enroll Rate – Derived Metrics – Layered Biometric Solutions

UNIT – II FINGER SCAN

Features – Components – Operation (Steps) – Competing Finger Scan Technologies – Strength and Weakness. Types of Algorithms used for Interpretation

UNIT – III FACIAL SCAN

Features – Components – Operation (Steps) – Competing Facial Scan Technologies – Strength and Weakness

UNIT – IV IRIS SCAN

Features – Components – Operation (Steps) – Competing Iris Scan Technologies – Strength and Weakness

UNIT – V VOICE SCAN

Features – Components – Operation (Steps) – Competing Voice Scan (Facial) Technologies – Strength and Weakness

Other Physiological Biometrics: Hand Scan – Retina Scan – AFIS (Automatic Finger Print Identification Systems) – Signature Scan- Keystroke Scan

TEXT BOOKS:

1. Samir Nanavati- Michael Thieme- Raj Nanavati- *"Biometrics – Identity Verification in a Networked World"*- Wiley DreamTech

REFERENCE BOOK

1. John D. Woodward Jr.- *"Biometrics- The Ultimate Reference"*- Wiley DreamTech

16NSA62 **DISTRIBUTED COMPUTER ARCHITECTURE**

UNIT I: HARDWARE ARCHITECTURE

Introduction to Hardware Architecture -Symmetric Multiprocessing, Distributed Shared Memory, Multicomputer.

UNIT II: SOFTWARE ARCHITECTURE

Introduction to Software Architecture - Client server architecture, 3-tier architecture, N-tier architecture, Peer-to-peer

UNIT III: CLUSTER COMPUTING

Introduction to Cluster computing, Grid computing.

UNIT IV: SEMANTIC WEB

Introduction to Semantic Web and Virtualization

UNIT V: RECENT TRENDS IN PROCESSOR TECHNOLOGIES

Introduction to Recent trends in processor technologies - Superscalar processors, Multi-core processors, embedded processors.

16NSA63 **NEURAL NETWORKS**

AIM

- To understand the pattern recognition process
- To learn about the structure of the basic neuron
- To explain about the neural networking algorithms

UNIT 1: INTRODUCTION TO NEURAL NETWORKS

Humans and Computers, the Structure of the Brain, learning in Machines, the differences.

Pattern Recognition:

Introduction, pattern recognition in perspective, pattern recognition-a definition, feature vectors and feature space, discriminate functions, classification techniques

UNIT II: THE BASIC NEURON

Introduction: Modeling the single neuron, learning in simple neuron, the perception a vector perspective, the perception learning rule, proof,limitations of perceptions**.**

The multiplayer Perception:

Introduction, altering the perception model, the new model the learning rule, the multiplayer perception algorithm, the XOr problem reverted-applications.

UNIT III KOHENEN SELF-ORGANIZING NETWORKS

Introduction, the Kohenen algorithm, weight-training Neighborhoodds, reducing the neighbourhoods, Learning vector quantization, the Phonetic typewriter.

UNIT IV HOP FIELD NETWORKS

The hope field model, the energy landscape, the Bolt man machine, constraint satisfaction

UNIT V ADAPTIVE RESONANCE MEMORY

Adaptive resonance theory-architecture and operation, ART algorithm, Training the ART network,classification,conclusion,Summary of ART ASSOCIATIVE MEMORY: Hardware and Software implementation, Optical computing, optical computing and neural networks.

REFERENCE BOOKS:

1. Neural Computing: An Introduction-R.Beale and T.Jackson,Adam Hilger,1990

2. Pao.Y.H, Adptive Pattern recognition and Neural Networks, Addison Wesley,1989.

16VED04 **VALUE EDUCATION**

OBJECTIVE

- To sensitize the student towards value formation.
- To deepen the understanding- motivate and take responsibility with regard to making positive personal and social choices.
- To inspire individuals to choose their own personal- social- moral and spiritual values and be aware of practical methods for developing and deepening them.

UNIT – I VALUES AND THE INDIVIDUAL

Values meaning – The Significance of Values – Classification of Values – need of Value Education – Values and the individual: Self Discipline- Self Confidence- Self Initiative- Empathy- Compassion- Forgiveness- honesty and Courage

UNIT – II VALUES AND RELIGION

Karmayoga in Hinduism – Love and Justice in Christianity – Brotherhood in Islam – Compassion in Buddhism – Ahimsa in Jainism and Courage in Sikhism – Need for Religious harmony

UNIT – III VALUES AND SOCIETY

Definition of Society – Democracy – Secularism – Socialism – Gender Justice – Human Rights – Socio-Political Awareness – Social Integration – Social Justice

UNIT – IV PROFESSIONAL VALUES

Definition – Accountability – Willingness to learn – Team Spirit – Competence Development – Honesty – Transparency – Respecting Others – Democratic Functioning – Integrity and Commitment

UNIT – V ROLE OF SOCIAL INSTITUTIONS IN VALUE FORMAITON

Role of Family – Peer Group – Society – Educational Institutions – Role Models- and Mass Media in value formation

REFERENCE

1. Subramanyam. K- *Values in Education*- Madurai- Ramana Publications- 1995
2. Joseph K.P- *Peace and Value Education: A Creative Response to Consumerism and Communalism*- Hyderabad- National Institute of Peace and Value Education- 2003

3. Bedi Kiran- *What Went Wrong . . . and Continues*- Delhi- UBS Publishers and Distributors Pvt. Ltd.- 2005
4. Tagore Rabindranth- *Personality*- New Delhi- Macmillan India Ltd.

16SBC61 **RESOURCE MANAGEMENT TECHNIQUES**

AIM

Introduce students to some of the techniques - methodologies and models used in Operations Research (OR). Operations Research (or Management Science) is a field of Applied Mathematics that uses mathematical methods and computers to make rational decisions in solving a variety of optimization problems. Most OR techniques require the use of computer software to solve large - complex problems in industry - business - science and technology - management - decision support and other areas and disciplines. In this course Deterministic Problems are considered – the data and future outcomes are known with certainty.

UNIT – I

Operations Research: Introduction – Definition – Origin and Development of OR – Models in OR and General Solution Methods for OR – Decision Making – Applications of OR Models – Uses and Limitations of OR – Mathematical Formulation of LPP – Graphical Solution of LPP

UNIT – II

Simplex Method: Definition – Computation procedure – Artificial Variable Techniques – Big-M Method – Two Phase Method

UNIT – III

Assignment Problem: Mathematical Formulation of Assignment Problem – Assignment Algorithm – Assignment Problem – Routing Problem – Traveling Salesman Problem

UNIT – IV

Transportation Problem: Mathematical Formulation of Transportation Problem – Finding Initial Basic Feasible Solution – North West Corner Rule – Least Cost or Matrix Minima Method – Vogel's Approximation Method – Moving Towards Optimality – Degeneracy in Transportation Problem – MODI Method – Unbalanced Transportation Problem

UNIT – V

Numerical Scheduling by PERT/CPM: Introduction – Network Scheduling by PERT/CPM: Introduction – Network & Basic Components – Rules of Network Construction – Critical Path Method –PERT Calculations –Advantages of Network (PERT/CPM)

TEXT BOOKS

1. Swarup Kanti - Gupta .S.P - Mohan Man - "Operations Research" - Sultan and Chand & Sons - Delhi - 2008
2. Kapoor.V.K - "Operations Research" - Sultan and Chand & Sons - Delhi - 1995

REFERENCE BOOKS

1. Sharma.S.D - "Operations Research" - Nath Kedar and Nath Ram & Co.Publication - 2001

Sharma.K - "Operations Research Theory and Applications" - Macmillan India Ltd - 1997

PROJECT WORK

Course Code	Course Type	Title of the Paper	Duration	Credits	Marks		
					Continuous Internal Assessment	End Term	Total
CAC6Q	Project – I	Project Work	3 Months	5	40	60	100