ANNAMALAI UNIVERSITY

ANNAMALAINAGAR

FACULTY OF SCIENCE

DEPARTMENT OF COMPUTER AND INFORMATION SCIENCE

(Syndicate Resolution No: 3 dated 15.12.2015)

M.Sc., Software Engineering

Five Year Integrated Degree

(Credit Based Semester System)

HAND BOOK

2015 – 2016 ONWARDS

ANNAMALAI UNIVERSITY

FACULTY OF SCIENCE

DEPARTMENT OF COMPUTER AND INFORMATION SCIENCE

FIVE YEAR INTEGRATED

M.Sc. SOFTWARE ENGINEERING

(Credit Based Semester System)

REGULATIONS AND SYLLABUS

(2015 – 2016)

Regulations for students admitted from 2015 – 2016

Common to all Departments of Studies in the Faculty of Science

Mathematics, Statistics, Physics, Chemistry, Botany, Zoology, Earth Sciences, Bio Chemistry, Microbiology, Computer and Information Sciences.

Master's Programme

A Master's Programme consists of a number of courses, in M.Sc. A Master's programme consists of a set of compulsory courses and Language Papers.

The entire course carries credit system. The number and distribution of credits for the courses will be decided by the respective faculties.

A Course is divided into two Semesters, Odd Semester and Even Semester.

Credits

The term credit is used to describe the quantum of syllabus for various programmes in terms and hours of study. It indicates differential weightage given according to the contents and duration of the courses in the Curriculum design.

The minimum credit requirement for the award of the Degree of Five Years Master's Programme shall be 225.

Courses

Each course may consist of Lectures/ Tutorials/ Laboratory work/ Seminar/ Project work/ Practical training report/ Viva voce etc.

Normally, in each of the courses, credits will be assigned on the basis of the Lectures/ Tutorials/ Laboratory work and other form of learning in a 18 week scheme schedule.

Eligibility for Admission

Candidates for admission to the first year of the Five Year Integrated M.Sc. Degree Course shall be required to have passed the final examination of the plus 2 Higher Secondary Course or Equivalent thereto with a minimum of 50% aggregate under academic stream with the following subjects as in Appendix - A, conducted by the Board of Secondary Education, Tamilnadu Government or an examination of any other authority accepted by the Syndicate of this University as equivalent thereto. They shall satisfy the conditions regarding qualifying marks, age and physical fitness as may be prescribed by the Syndicate of the Annamalai University from time to time.

Grading System

The term Grading system indicates a 10 point scale of evaluation of the performance of students in terms of marks, grade points, letter grade and class.

Course Duration

The duration for completion of a Five Year Integrated M.Sc. Programme in any course is Ten Semesters.

Student Counselors

To help the students in planning their course of study and for general advice on the academic programme, the Head of the Department will attach a certain number of students to a member of the faculty who shall function as student counselor for those students throughout their period of study.

Attendance

Every teaching faculty handling a course shall be responsible for the maintenance of Attendance Register for candidates who have registered for the course.

The instructor of the course must intimate the Head of the Department at least Seven Calender days before the last instruction day in the semester about the particulars of all students who have secured an attendance of less than 80%.

A candidate who has attendance less than 80% shall not be permitted to sit for the End-Semester Examination in the course in which the shortage exists.

However, it shall be open to the authorities to grant exemption to a candidate who has failed to obtain the prescribed 80% attendance for valid reasons on payment

of a condonation fee and such exemptions should not under any circumstances be granted for attendance below 70%.

Examination

There will be two sessional assessments and one End-Semester Examination during each semester.

Sessional Test - I will be held during Sixth Week for the syllabi covered till then.

Sessional Test - I will be combination of a variety of tools such as class test, assignment and paper presentation that would be suitable to the course. This requires an element of openness. The students are to be informed in advance about the nature of assessment and the procedures. However, the tests are compulsory. Test-I may be for one hour duration. The pattern of question paper will be decided by the respective Faculty. Sessional Test-I will carry 12.5% of marks of the entire course.

Sessional Test - II will be conducted with a variety of assessment tools. It will also have an element of openness. The students are to be informed in advance about nature of assessment and the procedures. However the tests are compulsory. Test II may be for two hours duration. The pattern of question paper will be decided by the respective Faculty. Sessional Test - II will carry 12.5% of marks of the entire course.

There will be one End Semester Examination of 3 hours duration in each course.

The end semester Examination will cover all the syllabus of the course for 75% of marks.

Evaluation

Evaluation will be done by a continuous basis. Evaluation may be Objective Type Questions, Quiz, Short Answers, Essays or a combination of these, but at the End Semester it has to be a Written **Examination.**

The performance of students in each course is evaluated in terms of percentage of marks (PM) with a provision for conversion of Grade point (GP). The sum total performance in each semester will be rated by GPA while the continuous performance from the 2nd Semester onwards will be marked by OGPA.

Marks and Grading

A student cannot repeat the assessment of Sessional Test - I and Sessional Test - II. However, if for any compulsive reason the student could not attend the test, the prerogative of arranging a special test lies with the teacher in consultation with the Head of the Department.

A minimum of 50% marks in each course is prescribed for a pass. A student has to secure 50% minimum in the End Semester Examinations.

If a candidate who has not secured a minimum of 50% of marks in a course shall be deemed to have failed in that course.

The student can repeat the End Semester Examination when it is offered next in the subsequent Odd/Even Semesters till the regulations are in force. However, a candidate cannot move to the next odd/even semester if he/she has more than six papers as arrears at any point of time.

A candidate who has secured a minimum of 50% marks in all courses prescribed in the programme and earned a minimum of the credits will be considered to have passed the Master's Programme.

Grading

A ten point rating is used for the evaluation of the performance of the student to provide letter grade for each course and overall grade for the Master's Programme.

Marks	Grade point	Letter grade	Class
90+	10	S	Exemplary
85-89	9.0	D++	Distinction
80-84	8.5	D+	Distinction
75-79	8.0	D	Distinction
70-74	7.5	A++	First Class
65-69	7.0	A+	First Class
60-64	6.5	A	First Class
55-59	6.0	B	Second Class
50-54	5.5	C	Second Class
49 or Less		F	Fail

The Successful candidates in the Core Subjects are classified as follows.

I-Class 60% marks and above in over all percentage of marks (OPM)

II-Class 50-59% marks in over all percentage of marks.

Candidates who obtain 75% and above but below 90% of marks (OPM) shall be deemed to have passed the examination in First Class (Distinction) provided he/she passes all the courses prescribed for the programme at the first appearance.

Candidates who obtain 90% and above (OPM) shall be deemed to have passed the examination in First Class (Exemplary) provided he/she passes all the courses prescribed for the programme at the first appearance.

Candidates who obtain highest marks in all examinations at the first appearance alone considered for ranking.

For the Internal Assessment Evaluation the break up marks shall be as follows:

Theory	**Marks**	**Practical**	**Marks**
Test – I	10	Test – I	15
Test – II	10	Test – II	15
Assignment	5	Record	10
Total	**25**	**Total**	**40**

The Project work will be assessed for 50 marks by a committee consisting of the Head of the Department, the guide and a minimum of two members nominated by the Head of the Department. The Head of the Department will be the chairman. 150 marks are allotted for the project work and viva-voce examination at the end of the semester.

Course-Wise Letter Grades

The percentage of marks obtained by a candidate in a course will be indicated in a letter grade.

A Student is considered to have completed a course successfully and earned the credits if he/she secures over all grades other than F. A letter grade F in any course implies a failure in that course. A course successfully completed cannot be repeated for the purpose of improving the Grade Point.

The F Grade once awarded stays in the grade card of the student and is not deleted even when he/she completes the course successfully later. The grade acquired later by the student will be indicated in the grade sheet of the Odd/Even semester in which the candidate has appeared for clearance of the arrears.

If a student secures F grade in the Project Work/ Field Work/ Practical Work/ Dissertation, either he/she shall improve it and resubmit it if it involves only rewriting

incorporating the clarification of the evaluators or he/she can re-register and carry out the same in the subsequent semesters for evaluation.

Transitory Regulations

Wherever there had been change of syllabi, examinations based on the existing syllabus will be conducted for three consecutive times after implementation of the new syllabus in order to enable the students to clear the arrears. Beyond that the students will have to take up their examinations in equivalent subjects, as per the new syllabus, on the recommendations of the Head of the Department concerned.

APPENDIX-A

M. Sc. Software Engineering	:	A Pass in H.Sc. (10+2 level) and Equivalent thereto under academic stream with the following subjects viz. Mathematics, Physics, Chemistry and Computer Science.

M.Sc. SOFTWARE ENGINEERING (FIVE YEAR INTEGRATED DEGREE)
SUBJECTS OF STUDY AND SCHEME OF EXAMINATIONS

FIRST SEMESTER

Code	Subject	L	T	P	Exam Duration in hours	Exam Marks	Sess. Marks	Total Marks	Credit points
ITAC 11	Tamil–I/Hindi–I	3	–	–	3	75	25	100	3
IENC 12	English–I	3	–	–	3	75	25	100	3
ICEC 13	Civics, Environmental and Health Sciences	3	–	–	3	75	25	100	3
IMAC 14	Mathematics–I	4	-	–	3	75	25	100	4
IAPC 15	Applied Physics	4	–	–	3	75	25	100	4
Total		**17**	–	–		**375**	**125**	**500**	**17**

SECOND SEMESTER

Code	Subject	L	T	P	Exam Duration in hours	Exam Marks	Sess. Marks	Total Marks	Credit points
ITAC 21	Tamil–II / Hindi –II	3	–	–	3	75	25	100	3
IENC 22	English – II	3	–	–	3	75	25	100	3
IMAC 23	Mathematics –II	4	-	–	3	75	25	100	4
ISET 24	Computer Organization and Architecture	4	–	–	3	75	25	100	4
ISET 25	Programming in C	5	–	–	3	75	25	100	5
ISEP 26	*Programming in C Lab*	*–*	*–*	*4*	*3*	*60*	*40*	*100*	*2*
Total		**19**		**4**		**435**	**165**	**600**	**21**

THIRD SEMESTER

Code	Subject	L	T	P	Exam Duration in hours	Exam Marks	Sess. Marks	Total Marks	Credit points
ITAC 31	Tamil–III / Hindi –III	3	–	–	3	75	25	100	3
IENC 32	English – III	3	–	–	3	75	25	100	3
ISET 33	Discrete Mathematics	4	–	–	3	75	25	100	4
ISET 34	OOPs using C++	5	–	–	3	75	25	100	5
ISET 35	Data Structures	5	–	–	3	75	25	100	5
ISEP 36	*Data Structure using 'C++' Lab*	-	–	*4*	*3*	*60*	*40*	*100*	*2*
Total		**20**	**–**	**4**		**435**	**165**	**600**	**22**

FOURTH SEMESTER

Code	Subject	L	T	P	Exam Duration in hours	Exam Marks	Sess. Marks	Total Marks	Credit points
ITAC 41	Tamil–IV / Hindi –IV	3	–	–	3	75	25	100	3
IENC 42	English – IV	3	–	–	3	75	25	100	3
ISET 43	Resource Management Techniques	4	–	–	3	75	25	100	4
ISET 44	Operating System	5	–	–	3	75	25	100	5
ISET 45	Visual Programming	5	–	–	3	75	25	100	5
ISET 46	Microprocessor and its Applications	5	–	–	3	75	25	100	5
ISEP 47	*Visual Programming Lab*	*–*	*–*	*4*	*3*	*60*	*40*	*100*	*2*
Total		**25**	**–**	**4**		**510**	**190**	**700**	**27**

FIFTH SEMESTER

Code	Subject	L	T	P	Exam Duration in hours	Exam Marks	Sess. Marks	Total Marks	Credit points
ISET 51	Data Base Management System	5	–	–	3	75	25	100	5
ISET 52	Software Engineering	5	–	–	3	75	25	100	5
ISET 53	Programming in JAVA	5	–	–	3	75	25	100	5
ISET 54	Computer Networks	5	–	–	3	75	25	100	5
ISEP 55	*Programming in JAVA Lab*	*–*	*–*	*4*	*3*	*60*	*40*	*100*	*2*
ISEP 56	*DBMS Lab*	*–*	*–*	*4*	*3*	*60*	*40*	*100*	*2*
Total		**20**	**–**	**8**		**420**	**180**	**600**	**24**

SIXTH SEMESTER

Code	Subject	L	T	P	Exam Duration in hours	Exam Marks	Sess. Marks	Total Marks	Credit points
ISET 61	Computer Graphics	5	–	–	3	75	25	100	5
ISET 62	Software Architecture	5	–	–	3	75	25	100	5
ISET 63	Web Technology	5	–	–	3	75	25	100	5
ISET 64	Open Source Software	5	–	–	3	75	25	100	5
ISEP 65	*Computer Graphics Lab*	*–*	*–*	*4*	*3*	*60*	*40*	*100*	*2*
ISEP 66	*Web Technology Lab*	*–*	*–*	*4*	*3*	*60*	*40*	*100*	*2*
Total		**20**	**–**	**8**		**420**	**180**	**600**	**24**

SEVENTH SEMESTER

Code	Subject	L	T	P	Exam Duration in hours	Exam Marks	Sess. Marks	Total Marks	Credit points
ISET 71	Software Design	5	–	–	3	75	25	100	5
ISET 72	Design and Analysis of Algorithms	5	–	–	3	75	25	100	5
ISET 73	Soft Skills Development	4	–	–	3	75	25	100	4
ISEE 74	Elective – I	5	–	–	3	75	25	100	5
ISEP 75	*DAA Lab*	–	–	*4*	*3*	*60*	*40*	*100*	*2*
ISEP 76	*CASE Tools and UML Lab*	–	–	*4*	*3*	*60*	*40*	*100*	*2*
Total		**20**	**–**	**8**		**420**	**180**	**600**	**23**

EIGHTH SEMESTER

Code	Subject	L	T	P	Exam Duration in hours	Exam Marks	Sess. Marks	Total Marks	Credit points
ISET 81	Principles of Marketing and Management	4	–	–	3	75	25	100	4
ISET 82	Advanced Java (J2EE)	5	–	–	3	75	25	100	5
ISET 83	Software Testing	5	–	–	3	75	25	100	5
ISEE 84	Elective – II	5	–	–	3	75	25	100	5
ISEP 85	*Open Source Software Lab*	–	–	*4*	*3*	*60*	*40*	*100*	*2*
ISEP 86	*J2EE Lab*	–	–	*4*	*3*	*60*	*40*	*100*	*2*
Total		**20**	**–**	**8**		**420**	**180**	**600**	**23**

NINTH SEMESTER

Code	Subject	L	T	P	Exam Duration in hours	Exam Marks	Sess. Marks	Total Marks	Credit points
ISET 91	Object Oriented Analysis and Design	5	–	–	3	75	25	100	5
ISET 92	Software Project Management	5	–	–	3	75	25	100	5
ISET 93	Software Metrics	5	–	–	3	75	25	100	5
ISEE 94	Elective – III	5	–	–	3	75	25	100	5
ISE*P 95*	*C# and Dot Net Lab*	–	–	*4*	*3*	*60*	*40*	*100*	*2*
ISE*P 96*	*Mini Project*	–	–	*4*	*3*	*60*	*40*	*100*	*2*
Total		**20**	**–**	**8**		**420**	**180**	**600**	**24**

TENTH SEMESTER

Code	Subject	L	T	P	Exam Duration in hours	Viva voce	Reviews	Total Marks	Credit points
ISEP 101	Project & Viva voce	–	–	–	–	60	40	100	20
Total		**–**	**–**	**–**		**60**	**40**	**100**	**20**

L- Lecture; T-Tutorial; P-Practical

Semester	Credit	Description
1	17	1st to 6th Semester Total Credit : 135
2	21	
3	22	
4	27	
5	24	
6	24	
7	23	7th to 10th Semester Total Credit : 90
8	23	
9	24	
10	20	
Total	**225**	

ELECTIVES

Elective I		
Sl. No.	**Subject Code**	**Subject Name**
1.	ISEE 74	Design Pattern
2.		Windows Architecture and Programming
3.		User Interface Design
4.		Neural Network & Fuzzy Logic
Elective II		
5.	ISEE 84	Soft Computing
6.		Cloud Computing
7.		Data warehousing & Data Mining
8.		Personal Software Process and Team Software Process
Elective III		
9.	ISEE 94	C# and Dot Net
10.		Software Reliability
11.		Digital Image Processing Techniques
12.		Artificial Intelligence and Expert Systems

FIRST YEAR : FIRST SEMESTER
PART–I : Language

ITAC 11 : TAMIL (Option) தமிழ் – 1

தாள்:-1 - ITAC-11 - செய்யுளும் உரைநடையும்

மதிப்பெண்: 75
கிரடிட்: 3

அலகு:-1 - குறுந்தொகை
பாடல் எண்கள்:- 3, 6, 16, 18, 24, 28, 32, 37, 40, 54, 57, 60, 69, 74, 77, 83, 85, 93, 97, 99
(இருபது பாடல்கள் மட்டும்)

அலகு:-2 - புறநானூறு
பாடல் எண்கள்:- 9, 19, 27, 34, 38, 45, 51, 55, 66, 71, 76, 82, 86, 92, 96
(பதினைந்து பாடல்கள் மட்டும்)

அலகு:-3 - திருக்குறள்

அன்புடைமை, செய்நன்றி அறிதல், அடக்கமுடைமை, புறங்கூறாமை, ஈகை, அருளுடைமை (ஆறு அதிகாரங்கள் மட்டும்)

நாலடியார் கல்வி, கல்லாமை (20 பாடல்கள்)

அலகு:-4 - கம்பராமாயணம்

குகப்படலம் (அயோத்தியா காண்டம்)

அலகு:-5 – உரைநடை

மா.பெரியசாமி தூரன்- சிற்பி. பாலசுப்பிரமணியன்
காப்பியத்திறன் - சோம. இளவரசு

பார்வை நூல்கள்:

1 குறுந்தொகை - உ.வே.சா. பதிப்பு
2. புறநானூறு - உ.வே.சா. பதிப்பு
3. திருக்குறள் - பரிமேலழகர் உரை
4. கம்பராமாயணம் - அண்ணாமலைப் பல்கலைக்கழகப் பதிப்பு
5. குறுந்தொகைச் சொற்பொழிவுகள்
6. குறுந்தொகைத் திறனாய்வு - சோ.ந. கந்தசாமி
7. எட்டுத்தொகைச் செல்வம் - லெ.ப.கரு. இராமநாதன் செட்டியார்
8. மா.பெரியசாமி தூரன் - சிற்பி. பாலசுப்பிரமணியன், சாகித்யஅகாதெமி, முதற்பதிப்பு 2000
9. காப்பியத்திறன் - சோம. இளவரசு- மணிவாசகர் பதிப்பகம், சென்னை

ITAC 11 : HINDI–I (Option)

TEXT BOOK

I. NAVEEN HINDI PATMAALA-I
First 15 lessons only (Poems omitted)
Published by Dakshina Bharatha Hindi Prachar Sabha, T. Nagar, Chennai-17

II SARAL HINDI VYAKARAN
Part-I by S.R. Sastri Pub. By DBHP Sabha, Chennai-17.

PART–II : English – I

IENC 12 : ENGLISH THROUGH LITERATURE I: PROSE

Objective:

To develop the communicative competence of learners in the English Language through training them in the skills of listening, speaking, reading and writing.

Unit I

Bonnie Chamberlain	"The Face of Judas Iscariot"
Swami Vivekananda	"Speech at World Parliament of Religion"

Unit II

Stephen Leacock	"My Financial Career"
BhimraoAmbedkar	"Speech on 4th November 1948 in the Constituent Assembly"

Unit III

Robert Lynd	"On Forgetting"
Nirad C. Chaudhuri	"Indian Crowds"

Unit IV

A. G. Gardiner	"All about a Dog"
Ruskin Bond	"My Eccentric Guests"

Unit V

Martin Luther King (Jr.)	"I Have a Dream"
Khushwant Singh	"The Portrait of a Lady"

Text Book:

1. Ayyappa Raja. S., Shanmugasundari. P., Deivasigamani. T., SaravanaPrabhakar. N., Karthikeyan. B. *English Through Literature: Prose.*

ICEC 13 : CIVICS, ENVIRONMENT AND HEALTH SCIENCES

Unit–I

Introduction: Democracy – Citizenship – Duties of Good Citizen – Society, State and Citizen – Limits of State Activity.

Indian Constitution: Preamble – Basic Features – Citizenship – Fundamental Rights – Fundamental Duties.

Unit–II

Political System: Union Government: President – Prime Minister – Parliament – Supreme Court – Electoral System

State Government: Governor – Chief Minister – Center State Relations.

Local Government: Urban Administrative System – Panchayat Raj System.

Unit–III

Ecosystems: Fundamental concepts and Principles – structure and function classification – modern concept of Ecosystem – Energy flow – ecological indicators.

Unit–IV

Environment: Definition – Natural Resources – classification – conservation – Development of public water supply – Need for protected water supply – per capita consumption – Sanitation – Sewerage system – disposal of sewage – kinds of pollution – their effects on human beings – Impact of Environment on society.

Unit–V

Physical Health – Introduction to health – Food, Meaning of balanced diet, sources, Common

Nutritional deficiencies and prevention.

Personal Health – Cleanliness of body, Care of Skin, Nails, Eyes, hair, Oral Health, Clothing, Body posture and good habits such as exercises – Importance of avoiding smoking, alcoholism, drugs etc.,

Population explosion and Family Planning – Importance, Common methods of family planning for Men and Women.

Mothers and Children – Immunization of Children (importance, schedule) care of mothers during Pregnancy and after delivery.

Communicable Diseases – Symptoms and Prevention.

Unit–VI

1. Mental Health – Factors for Maintenance of Good Mental Health.
2. Adolescent Problems.
3. First Aid.

Environment – Ventilation, Lighting, Simple Methods of purification of water, sanitary latrine, prevention of worm infestation (round worm, hook worm)

Text Books

1. Fadia, B.L. "*Indian Government and Politics"*, Sahitya Bhawan Publication, Agra. 1999.
2. Maheswari, S.R. "*Local Government in India"*, Lakshmi Narain Agarwal, Agra. 1996.
3. Agarwal, R.C. "*Indian Political System"*, New Delhi S.Chand of Company, 2000.
4. James H. Mccrocklin, "*Building Citizenship"*, USA, Allyn and Bacon, INC., 1961.
5. Agarwal & Rana, S.V.S. "*Environment & Natural Resources"*, Society of Biosciences, 1985.

6. Duggal, K.N. "A Text Book on Public Health Engineering", S.Chand & Co, Ram Nagar, New Delhi, 1994.

IMAC 14: MATHEMATICS–I

Unit–I : Matrices

Rank of a matrix – Computation of the inverse of a matrix by elementary transformation – Characteristic equations – Eigen values and Eigen vectors and their properties – inverse of a matrix using cayley–Hamilton theorem – real quadratic forms – Reduction to canonical form by elementary congruent transformations – Nature of quadratic forms.

Unit–II : Alegbra and Trignometry

Binomial, exponential and logarithmic series (without proof) – Problems on summation of series.

Expansions of Cos n ø and sin n ø in powers of sin ø and cos ø – Expressing $\cos^n$ ø and $\sin^n$ ø in terms of sines and cosines of multiples of ø – hyperbolic functions.

Unit–III : Differential calculus

Curvature – radius of curvature – centre and circle of curvature – Evolutes – Envelopes – Taylor and Maclaurin series of functions of two variables – Jacobians – Maxima and minima of functions of two variables – constrained maxima and minima – Lagrange's method of multipliers.

Analytical Geometry of three dimensions.

Unit–IV

Direction cosines and direction ratios – Planes – different forms – Equation of plane passing through the line of intersection of two planes – straight lines – Symmetric form – Planes and straight lines – Coplanar lines – Shortest distance between two skew lines.

Unit–V

Spheres – plane section of a sphere – orthogonal spheres – cone – equation of cone having its vertex at the origin or at a given point – right circular cone.

Text Book

Venkataraman, "M.K. *Engineering Mathematics – Series",* National Publishing Company, Chennai.

Reference Books

1. Kreyszig, E. "*Advanced Engineering Mathematics", (8th Edition)*, John Wiley & Sons (Asia) Pvt Edition, Singapore, 2001.
2. Kandasamy, P., Thilagavathy, K. and Gunavathy, K. "*Engineering Mathematics",* Series (4th Revised Edition) S.Chand & Co., New Delhi, 2000.

IAPC 15: APPLIED PHYSICS

Unit–I : Laser and Fibre Optics

Construction and working of He–Ne Laser – CO_2 Laser – Ruby Laser – Semiconductor Laser – Applications, Types of optical fibres – Single and bundled fibres – Fibre materials – Attenuation – Dispersion – Fibre optic light sources – Detectors – Fibre optic communication – Principles of optical recording.

Unit–II : Electrical Properties and Super Conductivity

Free electron theory of Drude and Lorentz – Weidmann – Franz Law – phenomenon of Super conductivity – Critical temperature and critical field – Meissner effect – Josephson effect – Type I and II super conductors, BCS theory of super conductivity (Qualitative) – High temperature super conductors, Applications: Cryotron, Magnetic levitation – Super conducting magnets.

Unit–III : Semiconducting Materials

Distinction between conductors, semi conductors and insulators on the basis of band theory – Factors affecting resistivity of a conductor, temperature, alloying, pressure, strain, magnetic field and environment – Intrinsic, Extrinsic Semiconductors – Materials preparation: Czochralski method – Zone refining, Hall effect in semiconductor – Applications of Hall effect, IC fabrication (Qualitative).

Unit–IV : Magnetic Properties

Dia, Para and Ferromagnetism – Domain theory – Hysteresis – Hard and soft magnetic materials – Curie – Weiss Law – Magnetostriction, Ferrites: preparation, properties, applications – Magnetic bubble memory.

Unit–V : Dielectric Properties

Qualitative study of three types of polarisation – effect of temperature and frequency on dielectric constant – Determination of Dielectric constant – Dielectric Loss – Ferro–electric materials – Behaviour of barium Titanate – Piezo Electric materials – Classification of insulators on the basis of temperature.

Text Books

1. Seth and Gupta, "*Course in Electrical Engg., Materials"*, Dhanpai Raj & Sons, 1990.
2. Brijlal and Subramaniam, "*Optics"*, Chand & Co., 1995.
3. Raghavan, V. "*Materials Science and Engineering – A First Course"*, PHI. 1991.
4. Arumugam, M. "*Materials Science"*, Anuradha Publishers, 1994.
5. Srinivasan, M.R. "*Physics for Engineers"*, New Age International (P) Ltd., 1996.

FIRST YEAR : SECOND SEMESTER

Part-I – Language – தமிழ்

தாள்:-2 -ITAC-21 – பயன்பாட்டுத்தமிழும் செம்மொழி வரலாறும்

மதிப்பெண்: 75
கிரடிட்: 3

நோக்கம்

மொழியமைப்பினை விளக்குதல்

மொழிப் பயன்பாட்டில் உருவான - உருவாகும் மாற்றங்களைப் புலப்படுத்துதல்
திசைமொழிகளின் கலப்பினால் தமிழ்மொழியில் ஏற்படும் மாற்றங்களை விளக்குதல்
மொழிக் குடும்பங்கள் குறித்தும் செம்மொழித் தமிழின் சிறப்புகள் குறித்தும் செம்மொழி ஏற்புக் குறித்தும் விளக்குதல்

அலகு-1

எழுத்துக்களின் எண்ணிக்கையும் வகைகளும், எழுத்துக்களின் மாத்திரை,கால இடைநிலைகள்,மூவகைப் போலிகள் , இருவகைப் பதங்கள், புணர்ச்சிகள்.

அலகு-2

சொற்றொடர் வகைகள் (மூவகை மொழி) தொடரிலக்கணத்தில் காணப்பெறும் வழுவும் வழு அமைதியும் பத்தியமைப்பும் நிறுத்தற் குறியீடுகள் பயன்பாடும். உரைநடை எழுதும் போது மேற்கொள்ள வேண்டிய விதிமுறைகள்.

அலகு -3

மேடைத்தமிழ்

நீங்களும் பேச்சாளர் ஆகலாம்-குமரி அனந்தன் மேடைப்பேச்சுக்குத் தயார் செய்தல்- பேச்சாளருக்குரிய தகுதிகள்- பேசும் முறைகள் - பழக்க வழக்கங்கள்.

அலகு-4

படைப்புத்திறன்

சிறுகதை- கவிதை- கட்டுரை- ஓரங்க நாடகம் - நூல் குறித்த திறனாய்வு
எழுதப் பயிற்சிதரல்.

அலகு-5

பயன்பாட்டுத் தமிழும் செம்மொழி வரலாறும்

மொழி- விளக்கம்- மொழிக்குடும்பங்கள்- உலகச் செம்மொழிகள்- இந்தியச் செம்மொழிகள்- செம்மொழித் தகுதிகள்- வரையறைகள்- வாழும் செம்மொழித் தமிழ்- தமிழின் தொன்மை- தமிழின் சிறப்புக்கள்- தமிழ்ச் செம்மொழி நூல்கள். தமிழ் செம்மொழி அறிந்தேற்பு- பரிதிமாற்கலைஞர் முதல் தற்கால அறிஞர்கள் வரை (அறிஞர்கள்- அமைப்புகள்- நிறுவனங்கள்- இயக்கங்கள் தொடர்முயற்சிகள்- அறப்பேராட்டங்கள்- உலத் தமிழ்ச் செம்மொழி மாநாடு, கோவை-2010)

பார்வை நூல்கள்

1. சோம. இளவரசு, நன்னூல் காண்டிகை உரை, மணிவாசகர் பதிப்பகம், சென்னை.
2. அ.கி பரந்தாமனார், நல்ல தமிழ் எழுத வேண்டுமா? பாரி , நிலையம், சென்னை.
3. பேச்சுக்கலை- கே. வீ. வீரராகவன், வலம்புரி பதிப்பகம், திருநின்றவூர்- 602 024.

4. குமரி அனந்தன், நீங்களும் பேச்சாளர் ஆகலாம், பூம்புகார் பிரசுரம், சென்னை.

5. எழுதுவது எப்படி? மகரம் (தொ. ஆ) பழனியப்பா பிரதர்ஸ், சென்னை.

6. ம. திருமலை- பேச்சுக்கலை- மீனாட்சி புத்தக நிலையம்-2008, மதுரை.

7. சாலினி இளந்திரையன், தமிழ் செம்மொழி ஆவணம், மணிவாசகர் பதிப்பகம், சென்னை, 2005.

8. கால்டுவெல், "திராவிட மொழிகளின் ஒப்பிலக்கணம்"- கழக வெளியீடு, சென்னை.

9. ச. சாரதாம்பாள் - சங்கச் செவ்வியல், மீனாட்சி புத்தக நிலையம், மதுரை,(1993)

10. வா.செ. குழந்தைசாமி - உலகச் செவ்வியல் மொழிகளின் வரிசையில் தமிழ், பாரதி பதிப்பகம், சென்னை.

11 ஜி. ஜான்சாமுவேல் - செம்மொழிகள் வரிசையில் தமிழ், சென்னை 2004.

12. சாலினி இளந்திரையன் - தமிழ்ச்செம்மொழி ஆவணம், மணிவாசகர் பதிப்பகம் சென்னை-2005

13. ச. அகத்தியலிங்கம் -சங்கஇலக்கியம்-செவ்வியல் பார்வை மெய்யப்பன் பதிப்பகம், சிதம்பரம்-2004.

14. மணவை. முஸ்தபா - செம்மொழி உள்ளும் புறமும், அறிவியல் தமிழ் அறக்கட்டளை, சென்னை.

ITAC 21 : HINDI – II (Option)

TEXT BOOK

I NAVEEN HINDI PATMAALA-II
First 10 lessons (including poems) Pub. by DBHP Sabha, Chennai-17

II MANOHAR KAHANIYAM – PART-II
First 10 stories only Pub. by DBHP Sabha, Chennai-17

ENGLISH – II

IENC 22 : ENGLISH THROUGH LITERATURE II: POETRY

Objective:

To ensure and enhance:

- the ability of the learner to comprehend and appreciate poems in English
- the competence of the learner in using English language, and
- the interest of the learner in human values and perceptions

Unit I

1. William Shakespeare — "Sonnet 29"
2. William Blake — "A Poison Tree"
3. Robert Bridges — **"**A Red, Red Rose"

Unit II

4. PB Shelley — "Ozymandias"
5. Alfred Tennyson — "The Brook"
6. HillaireBellock — "Matilda"

Unit III

7. Robert Frost — "Stopping by Woods on a Snowy Evening"
8. Walt Whitman — "O Captain, My Captain"
9. Sylvia Plath — "Mirror"

Unit IV

10. Toru Dutt — "The Lotus"
11. A. K. Ramanujan — "A River"
12. Keki N. Daruwala — "Pestilence in Nineteenth Century

Unit V

13. Gabriel Okara — "Once Upon a Time"
14. Maki Kureshi — "The Kittens"
15. Robert Finch — "Peacock and Nightingale"

Text Book:

Karthik Kumar. S., Gnanaprakasam.V., Arputhavel Raja. G., Shanmugasundaram. C., Vijaya. R.*English Through Literature:Poetry*

IMAC 23 : MATHEMATICS–II

Unit–I

Integral Calculus: Methods of integration (Revision) – Integration by parts – properties of definite integrals – Reduction formulae – Evaluation of double and triple integrals – Change of order of integration – Application of multiple integrals for finding areas and volumes – Beta and Gamma functions.

Unit–II

Differential Equations: Linear differential equations of second order with constant coefficients. Simultaneous linear differential equations – Linear differential equations of second order with variable coefficients – Euler's homogeneous differential equations – Legendre's differential equations.

Unit–III

Complete solution in terms of an integral of the corresponding homogeneous equation by inspection – reduction to normal form by removing the first derivative – change of independent variable – method of variation of parameters.

Unit–IV

Vector differentiation – Scalar and vector point functions – Differentiation of vectors – gradient of a scalar function – simple applications – Divergence and curl of vector functions – solenoidal and irrolational fields – simple applications – Laplacian operator – Expansion formulae of first and second order differential operators.

Unit–V

Vector integration – Line integral – surface integral volume integral – Gauss' divergence theorem – Stoke's theorem – Green's theorem in plane (proofs of the theorems not needed) – Simple applications.

Text Books

Venkataraman, M.K. "*Engineering Mathematics – Series",* National Publishing company, Chennai.

Reference Books

1. Kreyszig, E. "*Advanced Engineering Mathematics", (8th Edition)*, John Wiley & Sons (Asia) Pvt Edition, Singapore, 2001.
2. Kandasamy, P., Thilagavathy, K. and Gunavathy, K. "*Engineering Mathematics", Series (4th Revised Edition)*, S.Chand & Co., New Delhi, 2000.

ISET 24: COMPUTER ORGANIZATION AND ARCHITECTURE

Unit I:

Basic Structures: Sequential Circuits- Design procedures- State Table and State Diagram-Von Neumann architecture- Stored Program Concepts- Functional Units

Addressing Methods and Programs: Programming View of a processor-Data types-Representation of data-Arithmetic operations-Basic operational concepts- Bus structures-Instruction cycle- Excitation Cycle

Unit II:

Processing Unit: Instruction formats-Computer instruction-Instruction length- Address instruction-Arithmetic instruction-Logical instruction

Addressing mode: General concepts-Single component -addressing modes-Multi-component addressing modes-Position independent code

Unit III:

Input Output Organization: Basic principles of interrupt driven I/O and DMA- I/O operations- I/O programming-Memory mapped I/O - Basic Interrupt system-Direct Memory Access-DMA channel programming-Memory mapped screens

Unit IV:

Arithmetic: Magnitude comparator- Complements- Straight subtraction- Subtraction with components- Addition and subtraction algorithms- Hardware implementation- Multiplication and division algorithms- Hardware implementation- Divide overflow

Unit V:

Memory System: Auxiliary memory-Magnetic Drum- Magnetic Disks- Magnetic Tapes- Micro-computers

Memory: RAM/ROM chips- Memory address map-Memory connection to microprocessor-Memory hierarchy-Associative memory-Virtual memory-Cache memory-Memory management hardware

Text Books:

1. Computer System Architecture – M. Morris Mano
2. Computer Organization & Architecture – William Stallings, 4th Ed.

ISET 25: PROGRAMMING IN 'C'

Unit–I

Program Development: Top down Approach – Moduklarity – Stepwise Refinement – Pseudo code Selection – iteration – control structures – Loops– Structured Programming– Procedures and Recursion – Exchanging the values – Factoring Methods – Array Techniques – Basics of Sorting –Text Processing.

Unit–II

Overview of C data types – Operators and Expressions – History of ANSI Standard – Anatomy of C Program–Coding Style–Sample C Programs – Executing Simple Programs – Character set – Key words and Identifiers – Constants, Variables and data types – symbolic constants – Operators – Expressions – Evaluation of Expressions – Precedence of Operators – Type conversions in Exressions – Associativity and Precedence– Some Computational Problems.

Unit–III

I/O operations, Control flow and arrays: Reading and writing a character – Formatted input and output–Conditional Branching – Switch statement – Looping – Nested Loops–The break and continue statements–The goto statement – Infinite Loops–Declaring Arrays–Storing arrays in memory – Initializing arrays –Strings–Two Dimensional Arrays–Multidimensional arrays.

Unit–IV

Functions, Pointers, Storage classes, structures and unions–Need for user defined functions–The form of c functions–Return values and their types–calling a function – category of functions – Recursion–functions –functions with arrays–The scope and life time of variables in functions–understanding pointers–pointer arithmetic and expressions – Pointer and arrays–array of pointers–pointers to pointers – passing pointers as arguments to functions–different storage classes–extern, static, auto, register–structure – definition–structures within structures – structures and functions–unions–dynamic storage allocation – Linked locations.

Unit–V

File management and preprocessors: streams, buffering, error handling, opening and closing a file, reading and writing data, selecting the I/O method– random access–macro substitution – conditional substitution–conditional compilation – include facility, line control.

Text Books:

1. R.G.Dromey " How to Solve it by Computer ", PHI , 1998
2. E.Balagurusamy " Programming in ANSI C " , Tata McGraw Hill, 2004.
3. Byron G. Gottrifiried, "Programming with C", Schaums Outline Series, McGraw Hill book Company, 1996.

Reference Books:

1. Deitel and Deitel " C How to Program ", Addison Wesley , 2001
2. Brian W.Kernighan & Dennis Ritchie "C Programming Language", PHI, 1990
3. Byron.S.Gottfried "Schaum's Outline of Programming with C ", 2nd Edition,1996

SECOND YEAR: THIRD SEMESTER

இரண்டாம் ஆண்டு - மூன்றாம் பருவம்

Part-I – Language – தமிழ்

தாள்:-3- ITAC-31 - உரைநடையும் நாடகமும்

மதிப்பெண்கள்: 75
கிரடிட்:3

நோக்கம்: இலக்கியங்களின் சிறப்புகளையும் கருத்துகளையும் உரைநடை வழியாகப் புலப்படுத்தல் - உரைநடைத்திறனை எடுத்துரைத்தல்

அலகு-1

இலக்கிய விளக்கம் - ஆசிரியர் (வ.சுப. மாணிககம்)
இலக்கிய விளக்கம் - இலக்கணக் குறள்கள் - வரிசைப்பாட்டு – வாழ்வாங்கு – தூய இலக்கியம் - நடைமுறை அறங்கள் - இலக்கியக்கலை

அலகு-2

குறளணிகள் - இலக்கிய வெள்ளம் - தன்நெஞ்சம் - இலக்கியத்தளம் - குறள் விளக்கம் - நம்பிக்கை நூல் - நீதி விளக்கம்

அலகு-3

ம.ப.பெரியசாமித்தூரன் - (ஆசிரியர் - சிற்பி பாலசுப்பிரமணியம்)
வாழ்வும் பணியும் - அன்பில் திளைத்த கவிதை – சிறுகதைப் படைப்புகள் நாடகங்களும் கீர்த்தனைகளும் - கட்டுரைச் செல்வம்

அலகு-4

சிறுவர் இலக்கியம் அறிவியல் நூல்களும் பிறவும் - கலைக்களஞ்சியப் பணி – பாரதி தமிழ் - தூரன் என்றொரு மனிதர்.

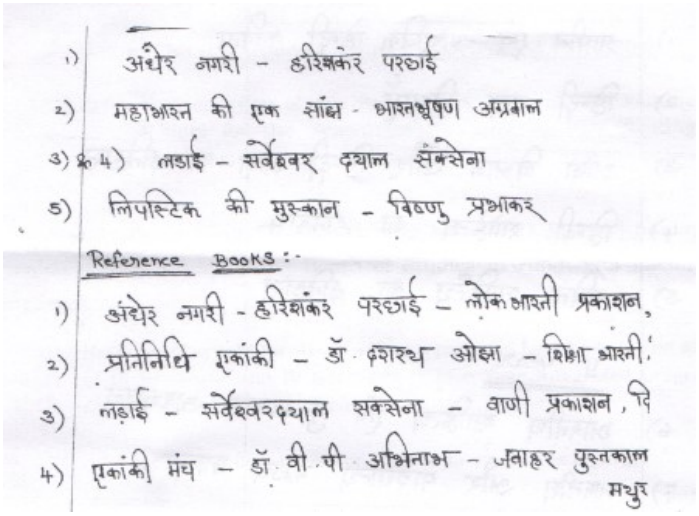
அலகு-5

நாடகம் - தோகை வண்ணம் (ஆசிரியர் - டாக்டர் ச. சவகர்லால்)

பாடநூல்கள்

1. வ.சுப.மாணிக்கம் - இலக்கிய விளக்கம்
   மணிவாசகர் நூலகம், முதற்பதிப்பு-1971
2. சிற்பி பாலசுப்பிரமணியன் &
   மா. ப.பெரியசாமித்தூரன் - சாகித்ய அகாதெமி, முதற்பதிப்பு-2000
3. டாக்டர் ச. சவகர்லால் - தோகை வண்ணம்,
   பழனியம்மாள் வெளியீடு, சென்னை,
   முதற்பதிப்பு-2008
   ஐங்கரன் அடுக்ககம், சையத்காதர் அவென்யூ-
   விருகம்பாக்கம், சென்னை-92.

ITAC 31 : HINDI – III (Option)



1) अंधेर नगरी - हरिशंकर परसाई
2) महाभारत की एक साँझ - भारतभूषण अग्रवाल
3) & 4) लड़ाई - सर्वेश्वर दयाल सक्सेना
5) लिपस्टिक की मुस्कान - विष्णु प्रभाकर

Reference Books :

1) अंधेर नगरी - हरिशंकर परसाई - लोकभारती प्रकाशन,
2) प्रतिनिधि एकांकी - डॉ दशरथ ओझा - विद्या भारती,
3) लड़ाई - सर्वेश्वरदयाल सक्सेना - वाणी प्रकाशन, दि
4) एकांकी मंच - डॉ वी पी अभिनाभ - जवाहर पुस्तकाल मथुर

ENGLISH – III

IENC 32 : ENGLISH THROUGH LITERATURE III: DRAMA

Objective:

To enhance the conversational competence of the learner by introducing to him to dramas in English

Unit I

Stanley Houghton	"The Dear Departed"
Kenneth Sawyer Goodman	"The Game of Chess"

Unit II

A. A. Milne	"The Princess and the Woodcutter"
Anton Chekhov	"A Marriage Proposal"

Unit III

Arnold Bennett	"The Stepmother"
Arthur Miller	"Grandpa and the Statue"

Unit IV

William Shakespeare	***King Lear***(Act I, Scene i)
William Shakespeare	***Julius Caesar*** (Act III, Scene ii)

Unit V

Frances Goodrich & Albert Hackett	***The Diary of Anne Frank***(Act I)
Betty Keller	"Tea Party"

Text Book:

Florence. S., Aruna Devi. G., Rajamohan. R., Bhuvaneswari. S., Soundararajan. M. ***English Through Literature: Drama***

ISET 33: DISCRETE MATHEMATICS

Unit–I : Fundamentals

Sets and Subsets – Operations on Sets – Sequences – Division in the integers – Matrices – Mathematical Structures – Logic: Propositions and Logical Operations – Conditional Statements – Methods of Proof – Mathematical Induction Counting: Permutations – Combinations – The Pigeonhole Principle – Elements of Probability – Recurrence Relations.

Unit–II : Relations and Digraphs

Product Sets and Partitions – Relations and Digraphs – Paths in Relations and Digraphs – Properties of Relations – Equivalence Relations – Computer Representation of Relations and Digraphs – Manipulation of Relations – Transitive Closure and Warshall's Algorithm.

Unit–III : Functions

Functions – Functions for Computer Science – Permutation Functions – Growth of Functions Topics in Graph Theory: Graphs – Euler Paths and Circuits – Hamiltonian Paths and Circuits – Coloring Graphs .

Unit–IV : Order Relations and Structures

Partially Ordered Sets – External Elements of Partially Ordered Sets – Lattices – Finite Boolean Algebras – Functions on Boolean Algebras – Boolean Functions as Boolean Polynomials Trees: Trees – Labeled Trees – Tree Searching – Undirected Trees – Minimal Spanning Trees.

Unit–V : Semigroups and Groups

Binary Operations Revisited – semigroups – Products and Quotients of Semigroups – Groups – Products and Quotients of Groups ,Groups and coding : Coding of Binary Information and Error Detection – Decoding and Error Correction.

Text Book

3. Bernard Kolman, Robert C. Busby and Sharon Ross, "*Discrete Mathematical Structures*", Prentice Hall of India Pvt. Ltd., 1997.

References

1. Trembley, J.P. and R.P. Manohar, "*Discrete Mathematical Structures with Applications to Computer Science*", Tata McGraw Hill, 1975.
2. Preparata, F.P., R.T. Yeh, "*Introduction to Discrete Structures*", Addison–Wesley, 1973.
3. Korthage, R.R., "*Discrete Computational Structures*", Academic Press, 1974.

ISET 34: OOPS USING C++

UNIT-I

Introduction to OOP: Overview of C++ - classes - structures - union - friend function - friend class - inline function - constructors - static members - scope resolution operator - passing objects to functions - function returning objects

UNIT-II

Arrays - pointers - this pointer - references - dynamic memory allocation - functions overloading - default arguments - overloading constructors - pointers to functions

UNIT-III

Operator overloading - member operator function - friend operator function - type conversion - inheritance - types of inheritance - virtual base class - polymorphism - virtual function.

UNIT-IV

Class templates and generic classes - function templates and generic functions - overloading a function templates - power of templates - exception handling - derived class exception - exception handling functions

UNIT-V

Streams - formatted I/O with its class functions and manipulators - creating own manipulators - file I/O - conversion functions - standard template library.

Text Book

Balagurusamy E, "Object Oriented Programming with C++", 3/E, TMG, 2006.

Reference

1. Hubbard,"Programming with C++", 2/e, Schaum Outline Series, TMH, 2006.
2. Bjarne Stroustrup, "The C++ Programming Language", Addison Wesley Publications, Second Edition, 1991.
3. Sarang Proonachandra,"Object Oriented Programming with C++", PHI, 2006.
4. Jagadev A K, Rath A M, and Dehuri S,"Object Oriented Programming Using C++", PHI, 2007.

ISET 35 : DATA STRUCTURES

Unit–I

Arrays: Representation of arrays. Stacks and Queues: Fundamentals – Evaluation of expression Infix to Postfix Conversion – Multiple Stacks and Queues – Analysis of the algorithms

Unit–II

Linked List: Singly Linked List – Linked Stacks and Queues – Polynomial Addition – More on Linked List – Sparse Matrices - Doubly Linked List and Dynamic – Storage Management – Garbage Collection and Compaction

Unit–III

Binary Trees : Trees- Binary Tree- Binary search Trees- Implementation of Binary Trees- Searching a Binary search Tree- Tree Traversal – Insertion – Deletion – Balancing a Tree– Self – Adjusting Trees – Heaps – Polish notation and Expression Trees

Unit–IV

Graphs: Terminology and Algorithms. Hashing - Hashing Functions- collision Resolution Techniques. Sorting and Searching algorithms: Bubble sort- Selection Sort- Insertion Sort- Quick sort- Merge Sort- Heap sort- Radix Sort- Binary search and Sequential search.

Unit–IV

Case study: Recursion – Towers of Hanoi – Simulation of an Airport – Pattern Matching in strings – Game Trees.

Text Books:

1. Tremblay Sorenson, "An Introductions to Data Structures with Applications", 2nd

edition, Tata McGraw Hill Pub, Company Ltd.
2. Aho Alfred V., Hopperoft John E., UIlman Jeffrey D., "Data Structures and Algorithms", Addison Wesley

Reference:

1. Yedidyah Langsam, Moshe J.Augenstein, Aaron M. Tenenbaum, "Data Structures Using C", Prentice,Hall,1996.

SECOND YEAR : FOURTH SEMESTER

இரண்டாம் ஆண்டு – நான்காம் பருவம்

Part-I – Language – தமிழ் -

தாள்: 4 - ITAC-41- தமிழிலக்கிய வரலாறு

மதிப்பெண்கள்: 75
கிரடிட்: 3

நோக்கம்: தமிழ்இலக்கிய வளர்ச்சி வரலாற்றினை விவரித்து தமிழ் இலக்கியங்கள் குறித்து அறிமுகம் செய்தல்.

அலகு-1 சங்க காலம் , சங்க மருவியகாலம்

தொல்காப்பியம்- சங்ககாலம்- முற்சங்கங்கள் - பாட்டும் தொகையும்- தொகுப்புமுறை- சிறப்புகள்- சங்கப் புலவர்கள்- தொல்காப்பியம்- பதினெண்கீழ்க்கணக்கு நூல்கள், முற்காப்பியங்கள்.

அலகு-2 பல்லவர், சோழர்காலம்

சைவ இலக்கியங்கள்- பன்னிருதிருமுறைகள்- வைணவ இலக்கியங்கள்- நாலாயிர திவ்விய பிரபந்தம் - ஐஞ்சிறுகாப்பியங்கள்- கம்பராமாயணம்- பெரியபுராணம்- பிற இலக்கியங்கள்

அலகு-3 நாயக்கர் காலம்

சிற்றிலக்கியங்கள்- அந்தாதி- தூது-மாலை- கோவை- பரணி- கலம்பகம்- உலா-பிள்ளைத்தமிழ்- கோவை- பள்ளு- குறவஞ்சி- அருணகிரிநாதர்- குமரகுருபரர்- காளமேகப்புலவர் -சிவப்பிரகாசர் - தனிப்பாடல்கள்.

அலகு-4 ஐரோப்பியர் காலம்

உரைநடை வளர்ச்சி- தாயுமானவர் பாடல்கள்- மீனாட்சி சுந்தரம்பிள்ளை- இராமலிங்க அடிகள்- வேதநாயகம் பிள்ளை- கிறித்தவர்களின் தமிழ்ப்பணி- இஸ்லாமியர்களின் தமிழ்த் தொண்டு- நாடகத் தமிழ்- மனோன்மணியம் சுந்தரம்பிள்ளை- பம்மல் சம்பந்தமுதலியார்- சூரியநாராயண சாஸ்திரியார்- பிறர்.

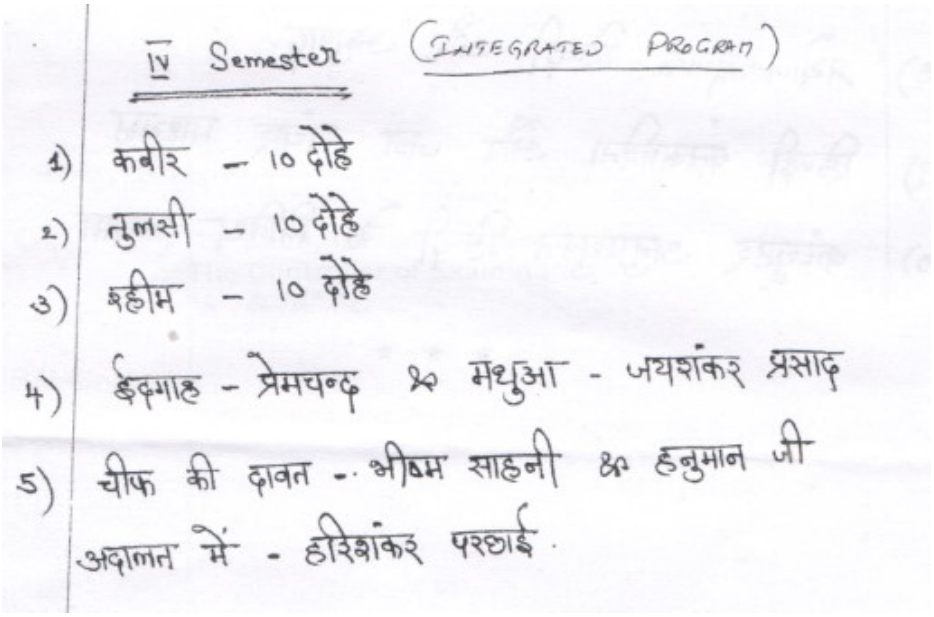
அலகு-5 இக்காலம்

மரபுக்கவிதை – பாரதியார்- பாரதிதாசன்- கவிமணி – நாமக்கல் கவிஞர் வாணிதாசன், முடியரசன்- கண்ணதாசன். உரைநடை- பரிதிமாற்கலைஞர்- உ.வே.சா.- மறைமலை அடிகள்- எஸ். வையாபுரிப்பிள்ளை- ரா.பி. சேதுப்பிள்ளை- திரு.வி.க. – மு.வ .- வ.சுப. மாணிக்கம்- சிறுகதை –புதுமைப் பித்தன்- கு.ப.ரா.- லா.சா.ரா.- கு.அழகிரிசாமி-தி.ஜா- சுந்தரராமசாமி- விந்தன்- மு.வ - நாவல்- மாயூரம் வேதநாயகம்பிள்ளை- மாதவையா – கல்கி- அகிலன் - தி. ஜானகிராமன் - நா. பார்த்தசாரதி- ராஜம்கிருஷ்ணன், புதுக்கவிதை – எழுத்து - ந. பிச்சமூர்த்தி, வல்லிக்கண்ணன், பசுவையா, சி. மணி, ஞானக்கூத்தன் , வானம்பாடி இயக்கம்- நா.காமராசன், சிற்பி,மேத்தா,மீரா - அறிவியல் தமிழ்- இணையத்தமிழ்

பார்வை நூல்கள் :

1. மு.வரதராசன், -தமிழ் இலக்கிய வரலாறு, சாகித்திய அகாதெமி வெளியீடு 1998.
2. பூவண்ணன், -தமிழ் இலக்கிய வரலாறு, கழக வெளியீடு சென்னை.
3. தமிழண்ணல், -புதிய நோக்கில் தமிழ் இலக்கிய வரலாறு, மீனாட்சி புத்தக நிலையம், 1998.
4. சி. பாலசுப்பிரமணியன், -தமிழ் இலக்கிய வரலாறு, பாரிநிலையம், சென்னை. 1987
5. எம்.ஆர் அடைக்கலசாமி, -தமிழ் இலக்கிய வரலாறு, கழக வெளியீடு, சென்னை 1994.
6. மது .ச. விமலானந்தம் - தமிழ் இலக்கிய வரலாற்றுக் களஞ்சியம், 1987.

ITAC 41 : HINDI – IV (Option)



ENGLISH – IV

IENC 42 : ENGLISH THROUGH LITERATURE IV: SHORT STORY

Objective:

To develop the communicative competence of learners in the English Language through training them in the skills of listening, speaking, reading and writing

Unit I

1. O' Henry "After Twenty Years"
2. Ernest Hemingway "A Day's Wait "

Unit II

1. Flora Annie Steel "Valiant Vicky"
2. Oscar Wilde "The Selfish Giant"

Unit III

1. R. K. Narayan	"An Astrologer's Day"
2.ShashiDeshpande	"I Want"

Unit IV

1. Leo Tolstoy	"Where Love is God is"
2. Somerset Maugham	"The Ant and the Grasshopper"

Unit V

1. Chinua Achebe	"Marriage is a Private Affair"
2. Bessie Head	"Heaven is not Closed"

Text Book:

Selvaraj. A., Dinakaran. P., Madhavan. M., Ganeshram. K., Shanthi. SP. ***English Through Literature: Short Story***

ISET 43: RESOURCE MANAGEMENT TECHNIQUES

Unit–I

Linear programming (LP) – principle components of decision problem – operations research (OR) modelling – phases of OR study – LP formulation and graphical solution – resource allocation problem – the simplex method – sensitivity analysis – revised simplex method.

Unit–II

Duality and networks – definition of dual problem – primal – dual relationships – dual simplex method – post optimality analysis – transportation and assignment models – transhipment models – network minimization – shortest route problems – maximal flow problem.

Unit–III

Integer programming – cutting plane algorithm, branch and bound method – mutistage (dynamic) – programming solution of LP by dynamic programming.

Unit–IV

Classical optimization theory: unconstrained external problem – newton raphson method – equality constraints – jacobian method – lagrangian method – kuhn tucker conditions – simple problems.

Unit–V

Project scheduling. network diagram representation – critical path method – time charts and resources levelling – PERT.

Text Book

1. Taha, A.H., "*Operations Research an Introduction"*, Macmillan Publishing Company, Newyork, 1997.

Reference

1. Billey E. Gillet, "*Introduction to Operations Research A Computer Oriented Algorithmic Approach"*, Tata McGraw Hill, New Delhi, 1979.

ISET 44 : OPERATING SYSTEM

Unit-I:

Introduction – Operating System Operations – Protection and Security – Distributed Systems – Special Purpose Systems – Computing environments – Operating System Services – User operating system Interface – System calls – Types of system calls – System programs – Operating System design and Implementation – Operating System Structure – Virtual Machines – Operating System Generation – System Boot.

Unit-II:

Process Management – Process Concepts – Process Scheduling – Operation on Processes – Interprocess Communication – Examples of IPC Systems – Communication in Client/Server Systems – Threads – Multithreading Models – Threading Issues – CPU Scheduling – Scheduling Criteria – Scheduling Algorithms – Multiple-Processor Scheduling – Thread Scheduling – Process Synchronization – The Critical Section Problem – Peterson's Solution – Synchronization Hardware – Semaphores – Classic Problems of Synchronization – Deadlocks – System Model – Deadlock Characterization – Methods for handling Deadlocks – Deadlock Prevention – Deadlock Avoidance – Deadlock Detection – Recovery from Deadlock.

Unit-III:

Memory Management – Background – Swapping – Contiguous Memory Allocation – Paging – Structure of the Page Table – Segmentation – Virtual Memory Background - Demand Paging – Copy-on-Write – Page Replacement – Allocation of Frames – Thrashing – Memory- Mapped Files – Allocating Kernal Memory – Other Considerations – Operating System Examples.

Unit-IV:

Storage Management – File Concept – Access Methods – Directory Structure – File System Mounting – File Sharing – Protection – File System Structure – File System Implementation – Directory Implementation – Allocation Methods – Free Space Management – Efficiency and Performance – Overview of Mass Storage Structure – Disk Structure – Disk Attachment – Disk Scheduling – Disk Management – Swap Space Management- RAID Structure – Stable Storage Implementation – Tertiary Storage Structure – I/O Hardware – Application of I/O Interface – Kernal I/O Subsystem.

Unit-V:

Comparative study - DOS, UNIX/LINUX, Windows 9x, Windows NT.

Text Book:

1. Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, "Operating Systems Concepts", John Wiley & Sons, Inc., Seventh Edition.

Reference Books:

1. D.M. Dhamdhere, "Operating Systems,A Concept Based Approach", Tata McGraw Hill, 2nd edition, 2006.
2. William Stallings, "Operating systems – Internals and Design principles", Prentice Hall, Third edition 1998.
3. Andrew S. Tenenbaum, "Modern operating systems", PHI, 2nd Edition 2001.
4. Achut S. Godbole and Kahata Atul, "Operating Systems and Systems programming", Tata McGraw Hill 2003.
5. Charles Crowley, "Operating systems – A Design oriented approach", Tata McGraw Hill, 1999.
6. H. M. Deitel, "Operating Systems", Pearson Education, Second Edition,2001

ISET 45: VISUAL PROGRAMMING

Unit–I : Historical Development of Programming

Procedural Programming – Structured Programming – Object Oriented Programming – Windows Programming – Event Oriented Programming – User Interfaces – GUI – Conceptual comparison of different types of Programming.

Unit–II : Windows Programming

Overview of Windows Programming – Data types – Structure of a windows program – Creating windows – Windows support functions – Windows messages – Message Processing Functions – Device contexts – resources – Menus – Dialogs – Document Interfaces – Dynamic Linking libraries.

Unit–III : VISUAL BASIC Programming

Introduction – Forms – Variables– Types – statements – properties and methods – events – modules – Procedures and functions – Tool box controls – menus – grid controls – Dialog boxes – Data base Manager – Data control – Data Access objects.

Unit–IV : VISUAL C++ Programming

Objects – Classes – MFC Library application framework – App wizard – class wizard – resources – Event handling – menus – dialog boxes – Importing VBX Controls – MFC File handling – Document view architecture – serialization – splitter windows.

Unit–V : Advance Concepts

Communicating with other applications – OLE concepts – MDI applications – calling procedures in DLL – debugging – Data base management with ODBC – Data base Application.

Text Books

1. Charles Petzold, "*Windows Programming"*, Microsoft Press, 1992.
2. Garry Cornell, "*Visual Basic 6 from the Ground Up"*, TMH, 1999.
3. Steven Holzner, "*Visual C++ Programming"*, *Second Edition*, PHI Publishers, 1997.

References

1. David Kruglinski, J. "*Inside Visual C++"*, Microsoft Press, 1993.
2. Mueller, "*VC++ 5 from the Ground up*", TMH, 1997.

ISET 46: MIRCROPROCESSOR AND APPLICATIONS

Unit – I: 8-Bit Microprocessor

Introduction-Evolution of Microprocessor 8085 Architecture and Memory interfacing I/O devices- Instruction set-Addressing Modes-Assembly language programming- Counters and time delays- Interrupts- Timing diagrams- Microprocessor applications.

Unit – II: Microcontroller

Intel 8031/8051 Architecture- Special Function Registers (SFR)- I/O pins- ports and circuits- Instruction set-Addressing Modes-Assembly language programming- Timer and counter programming- Serial Communication- Connection to RS 232- Interrupts Programming- External Memory Interfacing- Introduction to 16 bit Microcontroller.

Unit – III: 80x86 Processors

8086 Architecture- Pin Configuration- 8086 Minimum and Maximum mode configurations- Addressing modes- Basic Instructions- 8086 Interrupts- Assembly levels programming- Introduction to 80186- 80286- 80386- 80486 and Pentium processors.

Unit – IV: Peripherals and Interfacing

Serial and parallel I/O (8251 and 8255) – Programmable DMA Controller (8257)- Programmable interrupt controller (8259)- Keyboard display ADC/DAC interfacing- Inter integrated circuits interfacing (I2C standard).

Unit – V: Microprocessor Based Systems Design-Digital Interfacing

Interfacing to alpha numeric displays- Interfacing to liquid crystal display (LCD 16x2 line) – High power Devices and Optical motor shaft encoders- Stepper motor interfacing – nalog interfacing and Industrial control –Microcomputer based small scale – Industrial process control system – Robotics and Embedded control – DSP and Digital Filters.

Text Books:

1. Ramesh S. Gaonkar, "Microprocessor Architecture Programming and Applications with 8085", Fourth Edition, Penram International Publishing 2000.
2. Muhammad Ali Mazidi, Janice Gillespie Mazidi, "The 8051 Microcontroller", Prentice Hall 2000.
3. Douglas V. Hall, "Microprocessor and interfacing, Programming and Hardware", Tata McGraw Hill, Second Edition, 1999.

Reference Books:

1. Kenneth J. Ayala., "The 8051 Microcontroller Architecture Programming and Applications", Penram International Publishing (India). 1996.
2. Kenneth J. Ayala., "The 8086 Microprocessor, Programming and Interfacing the PC", Penram International Publishing. 1995.
3. Barry. B. Brey. "The Intel Microprocessor 8086/8088. 80186, 80286, 80386 and 80486 Architecture Programming and Interfacing". Prentice Hall of India Pvt. Ltd. 1995.
4. Ray A.K. Bhurchandi. K.M, " Advanced Microprocessor and Peripherals", Tata McGraw, Hill, 2002.

THIRD YEAR: FIFTH SEMESTER

ISET 51: DATA BASE MANAGEMENT SYSTEM

Unit–I : Introduction

Purpose of Database Systems – Overall System Structure – Entity Relationship Model: Entity & Entity Sets – Relationships – Mapping Constraints – Primary Keys – Secondary Keys- Foreign Keys- E–R Diagram.

Unit–II

Relational Model: Structure – Formal Query Languages – Relational Algebra – Relational Calculus – Commercial Query Languages.

Unit–III

Network Data Model: Data Structure Diagrams – DBTG Codasyl Model Retrieval, Update & Set Processing.

Unit–IV

Relational Database Design: Pitfalls – Normalization Using Functional Dependencies – Decomposition – Boyce–Codd Normal Form – Third Normal Form – Normalization Using Multivalued Dependencies – Fourth Normal Form – Normalization Using Join Dependencies – Domain Key Normal Form.

Unit–V

Query Interpretation – Equivalence of Expression – Query Processing Cost – Query Optimizer.

Basic Concepts of Database Recovery – Concurrency Control Database Security and Integrity – Distributed Database.

Text Books

1. Abraham Silberschatz, Henry F. Korth, S. Sudharshan, "Database System Concepts", Sixth Edition, Tata McGraw Hill, 2002.

References

1. Jeffery D. Ullman, "*Principles of Database System"*, Galgotia Publishers, 1998.
2. Ramakrishnan, "*Database Management System"*, McGraw Hill, 1998.
3. Ramez Elmasri, Shamkant B. Navathe, "Fundamentals of Database Systems", FourthEdition ,Addision Wesley, 2002.
4. Raghu Ramakrishnan, "Database Management Systems", Third Edition, McGraw Hill, 2002.

ISET 52: SOFTWARE ENGINEERING

Unit-I : Introduction

A Generic View of Process – Process Models-The Waterfall Model-Incremental Model-Evolutionary Model-Specialized Model-The Unified Process–Agile Process – Agile Models – Software Cost Estimation – Planning – Risk Analysis – Software Project Scheduling.

Unit-II : Requirement Analysis

System Engineering Hierarchy – System Modeling – Requirements Engineering: Tasks-Initiating The Process-Eliciting Requirements-Developing Use Cases-Negotiating Requirements-Validating Requirements – Building the Analysis Models: Concepts

Unit-III : Software Design

Design Concepts – Design Models – Pattern Based Design – Architectural Design – Component Level Design – Component – Class Based And Conventional Components Design – User Interface – Analysis And Design

Unit-IV : Software Testing

Software Testing – Strategies: Conventional - Object Oriented – Validation Testing –Criteria – Alpha – Beta Testing-System Testing – Recovery – Security – Stress – Performance-Testing Tactics – Testing Fundamentals-Black Box – While Box – Basis Path-Control Structure

Unit-V : Scm And Quality Assurance

Software Configuration And Management-Features- SCM Process- Software Quality Concepts – Quality Assurance – Software Review–Technical Reviews – Formal Approach To Software Quality Assurance – Reliability – Quality Standards – Software Quality Assurance Plan

Text Book:

1. Roger Pressman.S., "Software Engineering: A Practitioner's Approach", 6th Edition, Mcgraw Hill, 2005.

Reference Books:

1. P. Fleeger, "Software Engineering", Prentice Hall, 1999.
2. Carlo Ghezzi, Mehdi Jazayari, Dino Mandrioli, "Fundamentals Of Software Engineering", Prentice Hall Of India 1991.
3. I. Sommerville, "Software Engineering" , 5th Edition: Addison Wesley, 1996.

ISET 53: PROGRAMMING IN JAVA

UNIT I: INTRODUCTION

Java Features – comparison of Java with C and C++ - Java and Internet – Java Environment – Java Program structure – Java Tokens – Implementing a Java Program – Java Virtual Machine – Constants – Variables – Data Types – Scope of Variables – Type casting – Operators and expressions – Decision Making, Branching and Looping.

UNIT II: CLASSES AND ARRAYS

Defining a class – Constructors – Methods – overloading – static Members – Nesting of Methods – Overriding methods – Final Classes – Abstract Class – Visibility control – Arrays – creating an array – Two Dimensional arrays – Strings – String Arrays – String Methods – String Buffer Class – Vectors – Wrapper Classes.

UNIT III: INHERITANCE, INTERFACES AND PACKAGES

Defining a subclass – Subclass constructor – Multilevel inheritance – Hierarchical Inheritance – Defining Interfaces – Extending Interfaces – Implementing Interfaces – Java APF Packages – creating a package – Accessing and Using a package – Adding a class to a package – Hiding Classes.

UNIT IV: MULTITHREADING, EXCEPTION HANDLING, FILES AND CREATING THREADS

Extending the Thread class – Thread Life cycle – Thread Exception – Thread priority – Synchronization – Runnable Interface – Exceptions – Throwing own Exceptions – Concepts of

streams – stream classes – Byte Stream Classes – Character stream Classes – Using Streams – Using file Class –Other Stream Classes.

UNIT V: APPLET AND SWING

Difference between Application and Applets – Applet Life cycle – creating an Executable Applet – Designing a Web Page – Adding Applet to HTML File – Passing Parameters to Applets.

Creating a swing Applet and Application- Programming using Panes- Pluggable Look and feel- Labels- Text fields- Buttons- Toggle Buttons- Checkboxes- Radio Buttons- View Ports- Scroll Panes- Scroll Bars- List- Combo Box- Progress bars- Menus and Toolbars- Layered Panes- Tabbed Panes- Split Panes- Layouts- Windows- Dialog Boxes- Inner frame.

TEXT BOOK

1. E. Balagurusamy, "Programming with Java – A primer", Second Edition, Tata McGraw Hill Publishing Company, Delhi, 2002.

REFERENCE

1. Herbert Schildt, "The complete Reference – Java 2", Fifth Edition, Tata McGraw Hill Publishing Company, Delhi, 2002.

ISET 54 : COMPUTER NETWORKS

Unit–I : Introduction

Uses and advantages of Networks – Structure, Topology & Design.

Layered Protocols and OSI Model: Need for Layered Protocol – Design of Layers – Communication between layers – Standards organisations – ISO/OSI Layers.

Unit–II: Communications between and among Computers and Terminals

Control & Accountability – Networks – Classification – Simplex, stop & Wait, Sliding window protocols – Protocol performance, specification and verification – Polling selection system – Multiplexing carrier sense system.

Binary synchronous control (BSC) – High level data link control (HDLC) – Synchronous data link control (SDLC).

Unit–III : Local area Networks

Characteristics of LAN – LAN standards (IEEE 802, ISDN), LAN Topologies and protocol switching – Routing, congestion.

Unit–IV : Personal Computer Networks

PC Communication Characteristics – Error handling – PC as server – Linking PC with mainframes – File Transfer – PC and LAN.

Unit–V : Upper Level Protocols

Network security – Encryption with Private, public keys – Data Encryption standard –ISO security recommendations – Telematics – Electronic mail – protocols for file management.

Text Book

1. Ulyess Black, "*Computer Networks"*, PHI. 1987..

References

1. Andrew S. Tanenbaum- " Computer networks " PHI- 4th edition, 2002.
2. Ulyess Black, "*Data Communications & Distributed Networks"*, PHI, 1987.
3. Ahuja, "*Design and Analysis of Computer Communication Networks"*, McGraw Hill, 1985.
4. Forouzan, "*Intr:to Data Communication and Networking"*, McGraw Hill, 1998.

THIRD YEAR : SIXTH SEMESTER

ISET 61 : COMPUTER GRAPHICS

Unit–I : Introduction And Hardware

Representative User Of Computer Graphics – Vector Display And Raster Display Architectures – Display Processor – Interactive Input Devices – Output Primitives – Software Portability And Graphics Standards – Conceptual Frame Work For Interactive Graphics.

Unit–II : 2D Graphics

Basic Raster Graphic Algorithms For 2D Primitives – Scan Converting Lines – Circles – Ellipes – Filling Rectangle – Character Generation – 2D Transformations – 2D Clipping – Windowing Transformation.

Unit–III : 3D Graphics

3D Representation Methods – 3D Transformations – Viewing And Projections – Parallel And Perspective Projections – Hidden Line Elimination – Hidden Surface Elimination.

Unit–IV : Graphics Modelling

Curves, Surface And Solid Modeling – Color Model – Ray Tracing Methods – Graphic File Formats.

Unit–V : User Interface Design

Interactive Handling Models – Input And Output Handling In Window Systems.

Text Book

1. Floey, J.D., Van Dam, A, Feiner, S.K. and Hughes, J.F, Computer Graphics, Pearson Education, New Delhi, 2001.
2. Hearn D and Baker M.P, "Computer Graphics – C Version", 2nd Edition, Pearson Education, 2004.

References

1. William M. Newman and Robert Sproull, "*Principles of Interactive Computer Graphics*", *II Edition*, McGraw Hill, 1989.
2. Steven Harrington, "*Computer Graphics – A Programming Approach*", McGraw Hill, 1987.

ISET 62 : SOFTWARE ARCHITECTURE

Unit–I:

Introduction – Software Architecture – Engineering Discipline for Software – Status of Software Architecture. Architectural Styles – Pipes and Filters – Data Abstraction and Object Oriented Organisation – Event Based Implicit Invocation – Layered Systems – Repositories – Interpreters – Process Control – Other Architectures – Hetero Generous Architecture - Case Studies.

UNIT-II:

Shared Information Systems – Database Integration – Integration in Software Development Environments – Integration in the Design of Build – Architectural Structures for Shared Information Systems – Conclusions.

UNIT III:

Architectural Design Guidance – Guidance for User-Interface Architectures – The Quantified Design Phase.

UNIT IV:

Formal Model and Specification – The Value of Architectural Formalism – Formalizing the Architecture of a Specific System – Formalizing an Architectural Style – Formalizing and

Architectural Design Space – Theory of Software Architecture – Notation Linguistic Issues – Requirement for Architecture – Description Languages – First Class Connectors – Adding Implicit Invocation to Traditional Programming Languages.

UNIT V :

Tools for Architectural Design – Unicon – Exploiting Style in Architectural Design Environments – Beyond Definition / Use.

TEXT BOOK

1. Mary Shaw and David Garlan , "Software Architecture : Perspectives on an Emerging Discipline", Prentice – Hall of India, New Delhi, 2000.

REFERENCE

1. Bass, Lan., Clements, Paul and Kazman, Rick., "Software Architecture in Practice, Addison Wesley, 1998.

ISET 63 : WEB TECHNOLOGY

Unit – I: Web Environment

Internetworking concepts – Devices – Repeaters – Bridges – Routers – Gatways – Internet topology Internal Architecture of an ISP – IP Address – Basics of TCP – Features of TECP – UDP – DNS – Email – FTP – HTTP – TELNET - Web Server and its deployment- N-Tier Arch.- Services of Web Server – Mail server- News server- Proxy server- Multimedia server-

Unit – II: HTML and XML

Formatting- tags- links- list- tables- frames- forms- comments in HTML.

XML: Introduction- displaying an XML Document- Data interchange with an XML Document- Document type definition- Parsers using XML- Client-side usage- Server- side Usage.

Unit – III: Java Script

Introduction- Documents- forms- Statements- Functions- Objects in Java scripts- events and event handling- arrays- FORMS- Buttons- Checkboxes- Text fields and text areas.

Unit – IV: JSP

JSP: JSP overview- JSP language basics- JSP translation and compilation directives- Standard java objects from JSP- JSP configuration and deployment- actions and tags of JSP; Java servlets – Arch- servlet interface- applications of servlets.

Unit – V: VB Script

VBScript in the body of the HTML – Variables - Assignments and expression Procedures and functions-Decisional (conditional/alternative) statements List of VBScript intrinsic functions

Text Books:

1. Phil Hanna, "Instant Java Servlets", Tata McGraw Hill 2000
2. William B.Brogden Bill Brogden- Chris Minnick,"Java Developer's Guide to E-Commerce with XML and JSP", Sybex book, 2001
3. Stephen Walther and others, "Active Server Pages Unleashed", Wrox press Ltd ,1998.

Reference Books:

1. John Wiley , "COM+ & XML: ASP.Net on the Edge" 2001
2. Burdman- "Collaborative Web Development"- Addison Wesley,.1999

3. Sharma & Sharma- "Developing E-Commerce Sites"- Addison Wesley,. 2000
4. Ivan Bayross- "Web Technologies Part II"- BPB Publications. McGraw Hill 2004
5. Shishir Gundavarma- "CGI Programming on the World Wide Web"- O'Reilly & Associate,. 1996
6. DON Box- "Essential COM"- Addison Wesley,1998
7. Greg Buczek- "ASP Developer's Guide", Tata McGraw-Hill, 2000

ISET 64: OPEN SOURCE SOFTWARE

Unit I:

Open Source Operating Systems: LINUX: Introduction- General overview- Kernel mode and user mode-Process-Advanced Concepts-Scheduling-Personalities- Cloning- Signals-Development with LINUX.

Unit II:

Open Source Database: MySQL: Introduction- Setting up account-Starting, terminating and writing your own SQL programs- Record selection technology- Working with strings-Date and Time- Sorting Query Results- Generating Summary- Working with meta data- Using sequences- MySQL and Web.

Unit III:

Open Source Programming Languages: PHP: Introduction- Programming in Web Environment- Variables- Constants- Data types- Operators- Statements- Functions-Arrays- OOP- String manipulation and regular expression- File handling and data storage-PHP and SQL database- PHP and LDAP- PHP connectivity- Sending and Receiving E-mails-debugging and Error Handling- Security – Templates.

Unit IV:

Python: Syntax and Style- Python objects-Numbers-Sequences-Strings-Lists and Tuples - Dictionaries- Conditionals and loops – Files – Input and Output – Error and Exceptions – Functions – Modules – Classes and OOP – Execution Environment

Unit V:

Open Source Tools And Technologies: WEB SERVER: Apache Web server – Working with Web server – Configuring and using Apache Web services – Open Source Software tools and processors – Eclipse IDE platform – Compilers – Model Driven Architecture tools.

Case Study: Government Policy toward Open Source (E-Governance) – Wikipedia as an Open source project.

Text Books:

1. Remy Card, Eric Dumas and Frank Mevel, "The Linux Kernel Book", Wiley Publications, New York, 2003.
2. Peter Wainwright, "Professional Apache", Wrox Press, USA, 2002.

Reference Books:

1. Stephen J Mellor and Marc Balces, "Executable UMS: A foundation for MDA", Addison Wesley, USA, 2002.
2. Steve Suchring, "MySQL Bible", John Wiley, New York, 2002.
3. Rasmus Lerdorf and Levin Tatroe, "Programming PHP", O' Reilly Publications, USA 2002.
4. Wesley J Chun, "Core Python Programming", Prentice Hall of India, New Delhi, 2001.

FOURTH YEAR: SEVENTH SEMESTER

ISET 71 : SOFTWARE DESIGN

UNIT I DESIGN FUNDAMENTALS

The nature of design process – Objectives – Design qualities, Assessing the design process, Design view points for software.

UNIT II DESIGN METHODOLOGIES

Design practices, Design strategies – Top down and bottom up – Coupling and cohesion – Popular design methodologies – Function oriented and object oriented design, Design documentation.

UNIT III DESIGN MODELS

Structural analysis and design technique, SSADM and real time design. Data design, mappings requirements into a software Architecture.

UNIT IV DETAILED DESIGN

User interface Design – Task analysis and modeling – Interface design activities, implementation tools, comparison of design notations, structural programming.

UNIT V OBJECT ORIENTED DESIGN

Object oriented concepts, object oriented analysis – OOA process, object – relationship model, system and object design process – Design patterns.

TEXT BOOKS

1. Pressman R.S., "Software Engineering", 4th Edition, Tata McGraw Hill Pub. Co., 1996.
2. David Budgen, "Software Design", Addison – Wesley, 1994.

REFERENCES

1. Steve McConnell, "Code Complete", Microsoft Press, 1996.
2. A.G.Suteliffe, "Human Computer Interface Design", 2nd Edition, MacMillan, 1995.

ISET 72: DESIGN AND ANALYSIS OF ALGORITHMS

Unit - I

Introduction – Performance Analysis. Divide and conquer Method: Binary Search, Finding Maximum and Minimum, Merge Sort and Quick Sort.

Unit - II

Greedy Methods: Knapsack Problem, Minimum Cost Spanning Trees, Optimal Storage on Tapes and Single Source Shortest Path Problem.

Unit - III

Dynamic Programming: Multistage Graphs, 0/1 knapsack and Traveling Salesman Problem. Basic Traversal and Search Techniques: Techniques for Binary Tree, Techniques for Graphs: Depth First Search and Breadth First Search - Connected Components and Spanning Tree - Biconnected Components and DFS.

Unit - IV

Backtracking: 8 Queens Problems, Sum of Subsets, Graph Colouring, Hamiltonian Cycle and Knapsack Problem.

Unit - V

Branch and Bound: Least Cost Search. Bounding: FIFO Branch and Bound and LC Branch and Bound. 0/1 Knapsack Problem, Travelling Salesman Problem.

Text Books and References

1. E.Horowitz, S.Sahni and Sanguthevar Rajasekaran, Fundamentals of Computer Algorithms , Second edition, Universities Press.
2. S. K. Basu, Design Methods and Analysis of Algorithms , PHI, 2005.
3. Goodman and S. T. Hedetniem, Introduction to the Design and Analysis of Algorithms , MGH, 1977
4. A.V. Aho, J.D. Ullman and J.E.Hospcraft, The Design and Analysis of Computer Algorithms , Pearson Education.

ISET 73: SOFT SKILL DEVELOPMENT

Unit - I - Soft skills and developing positive Attitude - Soft skills: introduction – what are soft skills? - selling your soft skills - attribute regarded as soft skills – soft skills – social- soft skills- thinking – soft skills –Negotiating –exhibiting your soft skills- indentifying your soft skills- improving your soft skills - soft skills training –train yourself-top 60 soft skills - Developing positive attitude: introduction – meaning - features of attitudes- attitude and behavior formation of attitudes– change of attitudes – what can you do to change attitude?- ways of changing attitude in a person – attitude in a workplace – the power of positive attitude- developing positive attitude-example of positive attitude- example of negative attitude-over coming negative attitude- negative attitude and its result.

Unit - II - Art of speaking and writing - Art of speaking: Introduction-what make communication important? - Defining communication-special features of communication – communication process- channel of communication-importance of communication - tips for effective communication - tips for powerful presentation-art of public speaking - importance of public speaking - Art of writing: Introduction – importance of writing –creative writing - writing tips- drawbacks of writing communication.

Unit - III - Body language - Introduction – body talk – voluntary and involuntary body language-forms of body language-parts of body language - origin of body language - uses of body language - body language in building interpersonal relations – body language in building industrial relations-reason to study body language-improving your body language – types of body language-Gender differences-female interest and body language - shaking hands with women - interpreting body language-developing confidence with correct body language.

Unit - IV - Group discussion - Introduction – meaning of GD – why group discussion? - characters tested in a GD – tips on GD – types of GD - skills required in a GD - consequences of GD - behavior of a GD - essential elements of GD - different characters in GD - traits tested in a GD - GD etiquette - areas to be concentrated while preparing for a GD - imitating a GD - techniques to initiate a GD - Non-verbal communication in GD – movement and gestures to be avoided in a GD-topics for GD - **Interview skills -** Introduction – why an interview?.- types of interview - interview panel-types of questions asked-reason for selecting a candidate –reason for rejecting a candidate – on the day of interview– on the interview table – attending job fair-common mistakes that you would't want to do-questions the candidate should not ask during the interview –post- interview etiquette-how does one follow up?- telephonic interview –dress

code at interview – typical questions asked – interview mistakes –quick tips- how to present well in interview –tips to make a good impression in an interview – job interview-basic tips-how to search for job effectively – interview quotations.

Unit - V - Time management - Introduction- the 80:20 rule- take a good look at the people around you- examine your work-sense of time management – time is money – features of time-three secretes of time management - time management matrix- analysis of time matrix-effective scheduling – grouping of activities – five steps to successful time management –difficulties in time management- evils of not planning - time management is a myth – overcoming procrastination – ways of find free time- time management tips for students – interesting facts about time- ideal way of spending a day- time wasters – time savers – realizing the value of time-time circle planner.

Text Book:

1. K. Alex "Soft Skills: Know yourself and know the world" S.Chand & company Pvt. Ltd, Third revised Edition, 2014.

FOURTH YEAR : EIGHTH SEMESTER

ISET81 : PRINCIPLES OF MARKETING AND MANAGEMENT

Unit–I : Forms of Business Organizations

Sole proprietorship, Company – Public and private sector enterprises – Principles of management – Evolution of management – Function of a manager.

Unit–II : Functions of Management

Planning – Nature and purpose – Types of plans – Objectives, policies, procedures, rules, strategies, programmes, projects.

Unit–III : Staffing

Selection – Recruitment process – Decision making process – Types of decisions – Directing – Leadership – Motivation – Communication – Controlling – process, techniques– Budgetary and Non–budgetary.

Unit–IV : Financial Management

Short term and long term sources of funds – Financing decision – Investment decision – Introduction to financial statements – Production management – Planning and scheduling purchasing, inventory control.

Unit–V : Marketing Management

Introduction to marketing mix–product, pricing, promotion and place – Personnel management – Performance appraisal, conflict – Identification and resolution – Training and development – Introduction to Total Quality Managment, quality circles.

Text Book

1. Koontz, "*Global Prespective in Management"*, McGraw Hill, 1995.

References

1. Nauhria, R.N and Rajnish Prakash, "*Management and Systems*", New Delhi Wheeler Publishing, 1995.
2. Saxena, "*Marketing Management"*, Tata McGraw Hill, 1998.
3. Tripathi, "*Principles of Management"*, Tata McGraw Hill, 1992.

ISET 82 : ADVANCED JAVA (J2EE)

Unit –I:

Networking Programming: Networking Basics - Client-Server Architecture- Socket Overview-Networking Classes and Interfaces-Network Protocols-Developing Networking Applications in Java.

JDBC: Introduction to JDBC-JDBC Drivers & Architecture- Joining, Manipulating Databases with JDBC, Prepared Statements, Transaction Processing

Unit-II:

Servlet: Web Application Basics-Introduction to servlet-Servlet life cycle-Developing and Deploying Servlets-Exploring Deployment Descriptor (web.xml)-Handling Request and Response-Initializing a Servlet-Accessing Database-Servlet Chaining-Session Tracking & Management-Dealing with cookies-Accessing Web Context-Passing INIT and CONTEXT Parameter-Sharing information using scope object-User Authentication-Filtering Request and Response

Unit-III:

Java Server Pages (JSP)

Basic JSP Architecture-Life Cycle of JSP -JSP Tags and Expressions-Role of JSP in MVC-2-JSP with Database-JSP Implicit Objects-Tag Libraries-Using Custom Tag-JSP Capabilities-Exception Handling-Session Management-Directives-JSP with Java Bean-Database handling in JSP.

Unit-IV:

RMI: RMI overview-RMI architecture-Example demonstrating RMI- Defining the Remote Interface, Implementing the Remote Interface, Compiling and Executing the Server and the Client

Unit –V:

EJB: Enterprise Bean overview-Types of enterprise beans-Advantages of enterprise beans-The Life Cycles of Enterprise Beans-Working with Session Beans-Statefull vs. Stateless-Session Beans-Working with Entity Beans-Message Driven Beans-JNDI (Java Naming and Directory Interface)-JNDI overview & JNDI API

Text and Reference Books:

1. “Advanced Java 2 Platform HOW TO PROGRAM” by H. M.Deitel, P. J. Deitel, S. E. Santry – Prentice Hall

2. “Beginning Java™ EE 6 Platform with Glass Fish 3 From Novice to Professional” by Antonio Goncalves

ISET 83 : SOFTWARE TESTING

UNIT I

Assessing Software Testing Capabilities and Staff competencies – Staff – Roles-Defects – Business Perspective – Quality of Test Process and Testers – Summary. Building a Software Testing Environment – Building a Software Testing Strategy – Strategic Risks – Economics – Problems – Economics of System Development Life Cycle Testing – Organizational Issue – Policy – Structured Approach – Strategy – Methodology – Status –Summary.

UNIT II

Establishing a Software Testing Methodology – Defects – Reduce the Cost – Verification and Validation – Functional and Structural – Workbench Concept – Considerations in Developing Testing Methodologies – Tactics Checklist – Summary. Determining Software Testing Techniques – Tool Selection Process – Selecting Techniques /Tools – Structured System Testing Techniques.

UNIT III

Functional System Testing Techniques – Unit Testing Techniques – Functional Testing and Analysis – Functional Testing – Test Factor / Test Technique Matrix – Summary Selecting and Installing Software Testing Tools – Testing Tools – Selecting and Using the Tools – Managers – Summary.

UNIT IV

The Eleven–Step Testing Process Overview – Cost of Computer Testing – Life Cycle Testing concept – Verification and Validation – Introducing the Eleven-Step Process – Workbench requirement Skills – Summary. Assess Project Management Development Estimate and Status – Overview – Objective – Concerns – Workbench – Develop Test Plan - Overview – Objective – Concerns – Workbench – Requirement Phase Testing -Overview – Objective – Concerns – Workbench – Design Phase Testing - Overview – Objective – Concerns – Workbench – Program Phase Testing – Overview – Objective – Concerns – Workbench – Execute Test and Record Results - Overview –Objective – Concerns – Workbench – Acceptance Test - Overview – Objective – Concerns –Workbench – Report Test Results - Overview – Objective – Concerns – Workbench – Testing Software Installation - Overview – Objective – Concerns – Workbench – Test Software Changes - Overview – Objective – Concerns – Workbench – Evaluate Test Effectiveness - Overview – Objective – Concerns – Workbench.

UNIT V

Testing Specialized Systems and Application – Client / Server Systems - Overview – Objective – Concerns – Workbench – Rapid Application Development - Overview – Objective – Concerns – Workbench – Adequacy of System Documentation - Overview – Objective – Concerns – Workbench – Web Based Systems - Overview – Objective – Concerns – Workbench – Off-the Shelf Software - Overview – Objective – Concerns – Workbench – Multi platform Environment - Overview – Objective – Concerns – Workbench – Security - Overview – Objective – Concerns – Workbench – Data Warehouse - Overview – Objective – Concerns – Workbench.

TEXTBOOK

1. William E.Perry, “Effective Methods for Software Testing”, John Wiley and Sons, Inc.,2000.

REFERENCE:

1. P.C. Jorgensen, “Software Testing A craft Man’s Approach”, CRC Press, 1999.

FIFTH YEAR : NINTH SEMESTER

ISET 91 : OBJECT ORIENTED ANALYSIS AND DESIGN

Unit – I:

Complexity: Introduction-Object Basics-OOA-OOD-OO Modelling-Object Oriented Systems development life cycle-The Inherent Complexity of Software-The Structure of Complex Systems-On Designing Complex Systems.

Unit – II:

Classes and Objects: The Nature of an Object-Relationships among Objects-The Nature of a Class-Relationships among Classes-The Interplay of classes and objects-On building quality classes and objects.

Unit – III:

Classification: The Importance of Proper Classification-Identifying Classes and Objects- Key Abstractions and Mechanisms.

The Notation: Elements of the Notation-Class Diagrams-State Transition Diagrams- Object Diagrams-Interaction Diagrams-Module Diagrams-Process Diagrams-Activity Diagram-Component Diagram-Deployment Diagram-Use Case Diagram-Appling the Notation.

Unit – IV:

The Process: First Principle-The Micro Development Process-The Macro Development Process.

Pragmatics: Management and Planning-Staffing-Release Management-Reuse-Quality Assurance and Metrics-Documentation-Tools-Special Topics-The Benefits and Risks of Object Oriented Development.

Unit – V:

Analysis- Design- Evolution and Maintenance of:

1)Data Acquisition:Weather Monitoring Station.

2)Frameworks:Foundation Class library and

3)Client/Server Computing:Inventory Tracking.

Text Book:

1. Grady Booch,"Object Oriented Analysis and Design with Applications", The Benjamin Cummings Publishing Company Inc.,Second Edition,1994.

Reference Books:

1. Taylor.D.,"Object Oriented Information Systems",John Wiley and Sons,1992.
2. Pinson.L. and Wiener R.,"Application of Object Oriented Programming", Addison Wesley Publishing Company,1990.
3. Ali Bahrami, "Object Oriented Systems Development",Irwin Mcgraw Hill, International Edition,1999.

ISET 92 : SOFTWARE PROJECT MANAGEMENT

Unit–I : Introduction

Defining a software development process – identify the software model, Activities, Relationship among Activities – document Information on each Activity, Tailoring, improving the process. Discipline – Need for – Implementing discipline – Attributes of successful leader.

Communicating in Harmony – personality Traits, Management Tools.

Unit–II : Project Schedule Planning

Top–Down and Bottom–up planning – Initial and final project schedule plans – Types of Activity Relationships – Estimating the duration of an Activity – critical path – Identifying milestones – Activity responsibility matrix – project check list.

Unit–III : Project Tracking

Overview of project progress – project outlook – occurrence of tracking – tracking meetings – Tracking Meeting ground rules – Recovery plans – the role of Escalations.

Unit–IV : Product Requirement and Specifications

Product Requirements – understanding the customer's problem to solve – product objectives – providing direction for the solution – product specifications – Defining the Final product – Development testing – Unit test – function test – function test plan – Anticipating qualities weak link.

Unit–V : Marketing Issues

Vendor Relationships – The vendor contract process – Defining the vendors work – performance Incentives – A trackable plan – Measure performance Routinely – Quality system – proximity to Main Location – Acceptance of Deliverables is shipped product – Non preferential treatment – selecting, replacing a vendor – legal considerations – subcontractors – post project Review – product certification Reviews.

Text Book

1. Neal Whitten: "*Managing Software Development Projects Formula for Success"*, John Wiley and Sons, Inc., 1995.

Reference

1. Watts Humphrey, "*Managing the Software Process"*, Addison Wesley, 1989.
2. Walker Royce- "Software Project Management – A Unified Framework"- Pearson Education- 2004.
3. Ramesh Gopalaswamy- "Maaging Global Projects"- Tata McGrawHill-2001.
4. Bob Hughes- Mikecotterell- "Software Project Management"- 3rd Edition- Tata McGraw Hill-2004.
5. Philip B. Crosby- "Quality is Free: The Art of Making Quality Certain"- Mass Market- 1992.

ISET 93: SOFTWARE METRICS

UNIT I MEASUREMENT THEORY

Fundamentals of measurement – Measurements in Software Engineering – Scope of Software metrics – Measurement theory – Goal based framework – Software measurement validation.

UNIT II DATA COLLECTION AND ANALYSIS

Empirical investigation – Planning experiments – Software metrics data collection – Analysis methods – Statistical methods.

UNIT III PRODUCT METRICS

Measurement of internal product attributes – Size and structure – External product attributes – Measurement of quality.

UNIT IV QUALITY METRICS

Software quality metrics – Product quality – Process quality – Metrics for software maintenance – Case studies of Metrics Program – Motorola – HP and IBM.

UNIT V MANAGEMENT METRICS

Quality management models – Rayleigh Model – Problem Tracking report (PTR) model – Reliability growth model – Model evaluation – Orthogonal defect classification.

TEXT BOOKS

1. Normal. E – Fentor Shari Lawrence Pfllegar, "Software Metrics", International Thomson Computer Press, 1997.
2. Fenter Norman, E., "Software Metrics ; A Rigorous approach", Chapmen & Hall, London, 1991.

REFERENCES

1. Stephen H.Kin, “Metric and Models in Software Quality Engineering”, Addison Wesley 1995.

2. William. A. Florac and Aretitor D Carletow, “ Measuring Software Process”, Addison Wesley, 1995.

ELECTIVES – I (ISEE74)

DESIGN PATTERN

UNIT I : INTRODUCTION

History and origin of patterns – Pattern envy and ethics – Prototyping – Testing.

UNIT II : DESIGN PATTERNS

Kinds of pattern – Quality and elements – Patterns and rules – Creativity and patterns.

UNIT III : FRAMEWORKS

Algorithms and frameworks for patterns.

UNIT IV : CATALOGS

Patterns catalogs and writing patterns.

UNIT V : ADVANCED PATTERNS

Anti-patterns – Case studies in UML and CORBA.

TEXT BOOKS

1. Eric Gamma, Richard Helm, Ralph Johnson, John Vlissides, Grady Booch, Design Patterns, Addison Wesley, 1995.
2. Craig Larman, Applying UML and Patterns Prentice Hall, 1998.

REFERENCES

1. Thomas Mowbray and Raphel Malveaux, CORBA and Design Patterns, John Wiley, 1997.
2. William J Brown et al, Anti-Patterns: Refactoring Software, Architectures and Projects in Crisis, John Wiley, 1998.

WINDOWS ARCHITECTURE AND PROGRAMMING

Unit–I

Introduction: Conceptual comparison of Traditional programming paradigms, overview of windows programming, Understanding windows architecture–Inside windows, windows operating modes, Data types–Resources–windows messages–Device contexts–Document Interfaces–Context help.

Unit–II

Windows Messages: Message processing functions Message flow – Message Hook functions – Transmitted message – Button notification codes – Compo box messages – Dialog box window message – Edit control message – Edit control notification message – List box message – List box notification message.

Unit–III

Menus, Scroll bars and Device contexts: Main menus in the Resource file, menus – Building menus in the Resource file, Adding a menu to the program's window – changing menus, Bitmaps as menu items – The checkmark bitmap – Menu message – Menu function summary.

Scroll bars – Scroll bar Concepts, Scroll bar functions and message.

Device objects into a device context – Private device contexts – Saving a device context – Text and Device context functions.

Unit–IV

Memory management, Bit maps, Icons and clipboard

Local and Global memory, Segments and offsets, Allocation of memory in the Global Heap, Windows memory configuration, Compiler memory models, Memory functions.

DDB Bitmap format, Using DDB bitmaps, Memory device contexts, Stretching and painting Bitmap Images, Bitmap Image file format, Bitmap Compression format, writing a bitmap file.

Using Icons, Creating Icons at Run time, Icon functions, Using clipboard – clipboard formats, Multiple clipboard formats, clipboard functions.

Unit–V : Advanced topics

Dialog boxes – Types, Dynamic dialog boxes, Dialog boxes functions, DLLS – Using the functions in a DLL, DLL functions of an MDI application, MDI functions, How DDE data is exchanged, Cold DDE link, Hot DDE link, Warm DDE link, DDE message.

Text Book

1. The Waite Group's, "*Window API Bible"* by James L. Corner.

References

1. Robert Lafore, "*Window Programming Made Easy"*.
2. Ben Ezzell, "*Window 3.1 Graphics Programming"*, PC Magazine.
3. Windows 3.1 Configuration Secrets.

USER INTERFACE DESIGN

UNIT I

Introduction – A taxonomy of software design – Goal Directed design – User's Goal – The essence of user interface design. The three models – manifest model – visual interface design – visual processing – visual patterns – restricting the vocabulary – canonical vocabulary and domain knowledge.

Form – Idioms and affordances – history of rectangles on the screen – windows with a small w –lord of the files – storage and retrieval systems – choosing platforms.

UNIT II

Behavior of Presentation – orchestration and flow – Techniques for inducing and maintaining flow – characteristic of good user interfaces – postures and types – states of windows – different types of tasks – idiocy – The weapon of Interface Design – task coherence.

UNIT III

The Interaction – pointing and clicking – mouse operations – Selection – object verb – concrete and discrete data – insertion and replacement – mutual exclusion – additive and group selection–visual indications. Direct manipulation manipulating Gizmos – repositioning – resizing and reshaping – arrowing – direct – manipulation visual feedback – drag and drop.

UNIT IV

Cast effects – menus meaning – menus and dialog boxes – dialog box etiquette – toolbars –Gizmos – Types of Gizmos – Entry and display Gizmos – New Gizmos.

UNIT V

Protecting user – eliminating dialog and error boxes – managing exceptions – alerts – audible

feedback – undo – troubles – redo – special undo functions. Command vectors – installation – configuration – personalization.

TEXT BOOKS

1. Alan Cooper, "The Essentials of User Interface Design", IDG Books, 1995.
2. Ben Schneider Man, "Designing the User Interface", Addition Wesely, 2000.

REFERENCES

1. Jacob Nielson, "Usability Engineering", Academic Press, 1993.
2. Alan Dix et al, Human, "Computer Interaction", Prentice Hall, 1993.

NEURAL NETWORK & FUZZY LOGIC

Unit–I

Introduction – Principles and Promises – Perception – Representation – Linear Seperability – Learning – Training algorithm – Backpropagation Training Algorithm – Applications – Counter propagation networks – Network structure – Applications.

Unit–II

Statistical Methods: Boltzmann's Training – Cauchy Training. Hopfield nets – Associative memory – Applications – Bidirectional Associative Memory(BAM) – Continuous BAM – Adaptive – Competitive

Unit–III

Adaptive Resonance Theory – Overview – Architecture – Classification – Implementation . Optical Neural Network – Holographic correlators – Cognition and Neocognition – Structure – Training.

Unit–IV

Fuzzy Sets : Classical sets to Fuzzy sets – Fuzzy sets versus CRISP sets – operations on Fuzzy sets – Fuzzy arithmetic and Fuzzy relations – Applications.

Unit–V

Fuzzy logic – Control – Applications – Fuzzy Systems – Pattern Recognition – Fuzzy databases and Information Retrieval Systems.

Text Book

1. Beale, R. and Jackson T. "*Neural Computing an Introduction"*, Adam Hilger, 1990.

References

1. Igor Aleksander and Helen Morton, *"An Introduction to Neural Computing"*, Chapman and Hall, 1990.
2. Philip D. Wasserman, "*Neural Computing Theory and Practice"*, Anza Research, Van Nostrand Reinhold, New York, 1989.
3. George J. Klir and Bo Yuan, "*Fuzzy Sets and Fuzzy Logic Theory and Applications"*, PHI, (Chapters – 1,2,3,4,5,8,12,13 & 14), 1995.

ELECTIVES – II (ISEE84)

SOFT COMPUTING

UNIT I: INTRODUCTION

Soft computing paradigms – Neural network – Fuzzy type – Derivation free optimization methods of genetic algorithms – Soft computing characteristics.

UNIT II: FUZZY LOGIC

Sets – Properties – Arithmetics - Members function – Fuzzy relations – Relation equations – Fuzzy measures – Types of uncertainty – Members of uncertainties – Measures of fuzziness –

Probabilities Possibility – Measures of fuzzy events.

UNIT III: NEURAL COMPUTING

Neuron modeling – Learning in Simple Neuron – Perception earning curve – Proof – Limitations of perception.

UNIT IV: NEURAL NETWORKS

Multi-level perception – Algorithms – Visualizing network behaviour – B:PN – Self organizing network – Kohenen algorithms – Hopfield network – Adaptive resonance theory – Pattern classification.

UNIT V: GENTIC ALGORITHMS 9

Introduction – Biological terminology – Search space and fitness landscapes – Elements of genetic algorithms – Genetic algorithms in problem solving.

TEXT BOOKS

1. Kauffmann. A., "Theory of Fuzzy Subsets", Academic Press, 1989.
2. R.Beale C.T.Jacson, "Neural Computing- An introdution", Adam Hilger, 1990.
3. Melanie Mitchell, "An Introduction to Genetic Algorithms", Prentice Hall of India, 1996.

REFERENCES

1. J.S.Jang, C.T.Sun, E. Mizutani, "Neuro – Fuzzy and Soft Computing", Matlah Curriculam Series, Prentice International, 1997.
2. Simon Havkin, "Neural Networks – A Comprehensive Foundation", Prentice Hall of Inda, 1994.

ISEE 06: CLOUD COMPUTING

Unit -I

Introduction: Basics, applications, intranet and cloud, examples: Amazon, Google, Microsoft, IBM– advantages and disadvantages of cloud computing, Google appengine, Microsoft Azure, Amazon(EC2, S3,SQS),open stack, cloud computing services

Unit -II

Hardware and architecture: clients-security-network-services. Accessing the cloud: platforms-web applications-web APIs-web browsers. Cloud storage: overview-providers. Standards: application-client-infrastructure-service.

Unit -III

Software as Service: overview-driving forces-company offerings-industries. Software plus services: Overview-mobile device integration-providers-Microsoft Online.

Unit -IV

Developing Applications: Google-Microsoft-Intuit QuickBase-Cast Iron Cloud-Bungee Connect-Development(Appengine,Azure, openstack etc.)-trouble shooting and application management.

Unit -V

Local clouds and thin clients: Virtualization-server solutions-thin clients. Cloud Migration: cloud services for individuals-enterprise cloud- methods for migration-analyzing cloud services.

Text Book:

1. Anthony T.Velte, Toby Velte ,"Cloud Computing a practical approach" , Mcgraw Hill, 2010.

Reference Books:

1. M.S.V.Janakiram ,"Demystifying theCloud – An introduction to Cloud Computing", version 1.1, 2010.
2. Mark C. Chu-Carroll , "Code in the Cloud- Programming Google App Engine", The Pragmatic Bookshelf Raleigh, North Carolina Dallas, Texas, 2011.

ISEE 07: DATA MINING AND WAREHOUSING

Unit–I : Data Mining–Introduction

Data mining – Introduction–Information and production factor – Data mining vs. Query tools–Data mining in marketing – Self learning computer systems – Concept learning – Data mining and the Data Warehouse.

Unit–II : Knowledge Discovery Process

Knowledge discovery process–Data selection – Cleaning – Enrichment – Coding – Preliminary analysis of the data set using traditional query tools – Visualization techniques – OLAP tools – Decision trees – Association rules – Neural Networks – Genetic algorithms – KDD(Knowledge Discover in Databases) environment.

Unit–III : Dataware House–Architecture

Data Warehouse Architecture – System process – Process Architecture – Design – Database Schema– Partitioning Strategy – Aggregations – Data Marting – Meta Data – System and Data Warehouse Process Managers.

Unit–IV : Hardware and Operational Design

Hardware and operational design of Data Warehouses – Hardware Architecture – Physical Layout – Security – Backup and Recovery – Service Level Agreement – Operating the Data Warehouse.

Unit–V : Planning, Tuning and Testing

Capacity planning – Tuning the Data Warehouse – Testing the Data Warehouses – Data Warehouse Features.

References

1. Pieter Adriaans and Dolfzantinge, "*Data Mining*", Addison Wesley, 1996.
2. Sam Anahory and Dennis Murray, "*Data Warehousing in the Real World*", Addison Wesley, 1996.
3. Sean Kelly, "*Data Warehousing in Action*", John Wiley, 1997.

ISEE 08: PERSONAL SOFTWARE PROCESS AND TEAM SOFTWARE PROCESS

UNIT I: INTRODUCTION

Software Engineering – Time management – Tracking Time – Period and Product Planning – Product Planning – Product size – Managing you time – Managing Commitments – Managing schedules.

UNIT II: PLANNING

The project plan – The software development process – Defects – Finding defects – The code review checklist – Design defects – Product quality – Process quality.

UNIT III: TSP STRTEGY

Team software process overview – The logic of the team software process – Launching a team project – The development strategy – The development plan – Defining the requirements.

UNIT IV: PRODUCT IMPLEMENTATION

Designing with teams – Product implementation – Integration and system testing – The postmortem.

UNIT V: TEAM MANAGEMENT

The team leader role – Development manager role – The planning manager role – The quality – Process manager role – The support manager role.

TEXT BOOKS

1. Watt S Humphrey, "Introduction of Personal Software Process", Addison Wesley, 2000.
2. Watt S Humphrey, "Introduction to team software process", Addison Wesley, 2000.

ELECTIVES – III (ISEE94)

ISEE 09: C# AND DOT NET

Unit I

The .NET framework: Introduction- Common Language Runtime-Common type system-Common language specification- The base class library-the NET class Library intermediate language-Just-in-time compilation- garbage collection-application installation & assemblies-web services- unified classes.

Unit II

C# Basics: Introduction- Data types- Identifiers- Variable & constants- C# statements- Object Oriented Concepts- Object and classes- Arrays and Strings- System collections- Delegates and Events- Indexes Attributes- Versioning.

Unit III

C# Using Libraries: Namespace-System-Input Output-Multi-Threading- Networking and Sockets- Data Handling-Windows forms-C# in web application- Error Handling.

Unit IV

Advanced Features Using C#: Web Services-Windows services- messaging- Reflection-COM and C#- Localization.

Unit V

Distributed application in C#- XML and C#- Unsafe Mode- Graphical Device Interface with C#-Case Study (Messenger Application).

Text Books:

1. Shibi Panikkar and Kumar Sanjeev, "Magic of C# with NET Frame Work", Firewall Media,. 2005.
2. Hebert Schildt, "C# 2.0: The Complete Reference", TataMc-Graw Hill, 2006.

Reference Books:

1. Jeffrey Richter, "Applied Microsoft Net Framework Programming", Microsoft Press, 2002.
2. Fergal Grimes, "Microsoft Net for Programmers",.Manning Publication, 2002
3. Tony Baer, Jan D. Narkiewicz, Kent Tegels, Chandu Thota, Neil Whitlow, "Understanding the Net Framework",Wrox Press, 2002
4. Balagurusamy, "Programming with C#"- TataMc-Graw Hill.,2002

ISEE 10: SOFTWARE RELIABILITY

UNIT I INTRODUCTION TO SOFTWARE RELIABILITY

Software Reliability Definitions - software disasters - Errors - faults - failures - different views of software reliability – software requirements specification - Causes of unreliability in software-Dependable systems: reliable, safe, secure, maintainable, and available - Software maintenance.

UNIT II SOFTWARE RELIABILITY IMPROVEMENT

The phases of a Software Project - Monitoring the development process – The software life cycle models - software engineering - Structured Analysis and structured Design - Fault tolerance - Inspection - Software cost and schedule.

UNIT III SOFTWARE QUALITY MANAGEMENT

Software quality modeling - Diverse approaches and sources of information - Fault avoidance, removal and tolerance - Process maturity levels (CMM) - Software quality assurance (SQA) - Monitoring the quality of software - Total quality management (TQA) - Measuring Software Reliability - The statistical approach - Software reliability metrics.

UNIT IV SOFTWARE RELIABILITY TECHNIQUES AND TOOLS

Data Trends - Complete prediction Systems - overview of some software reliability models -The recalibration of the models - Analysis of model accuracy - Reliability growth models and trend analysis - Software Costs Models - Super models.

UNIT V SOFTWARE RELIABILITY ENGINEERING PRACTICE 9

Testing and maintaining more reliable software –logical testing – functional testing – algorithm testing – regression testing - fault tree analysis – failure mode effects and critical analysis – reusability - case studies.

TEXT BOOKS

1. J.D. Musa, A. Iannino and K.Okumoto, Software Reliability, Measurement, Prediction, Application, McGraw Hill, 1990.
2. J.D. Musa, Software Reliability Engineering, McGraw Hill, 1998.

REFERENCES

1. Michael R. Lyer, Handbook of Software Reliability Engineering, McGraw Hill, 1995.
2. Xie, M., Software Reliability Modelling, World Scientific, London, 1991.

ISEE 11: DIGITAL IMAGE PROCESSING TECHNIQUES

Unit–I :

Introduction: Digital Image Representation – Fundamental Steps In Image Processing – Elements Of Digital Image Processing Systems.

Digital Image Fundamentals: Elements Of Visual Perception – Sampling And Quantisation – Basic Relationships Between Pixels – Image Geometry – Basic Transformation – Perspective Transformation.

Unit–II : Image Transformation & Enhancement

Image Transforms – Fourier Transforms – Discrete Fourier Transform – Properties Of 2–D Fourier Transforms – Walsh Transforms – Handamard Transform – Discrete Cosine Transforms.

Image Enhancement – Spatial Domain – Frequency Domain Method – Enhancement By Point Processing – Histogram Modification Techniques – Image Smoothening – Full Color And Pseudo Color Image Processing.

Unit–III

Image Restoration–Degration Model – Diagonalization of Circulant and Block Circulant Matrices – Algebraic Approach to Resoration.

Image Compression – Redundancy, Fidelity Criteria – Compression Models – Elements Of Information Theory – Error Free And Lossy Compression Techniques – Fractal Compression Standards.

Unit–IV

Image Segmentation – Detection Of Discontinuities – Edge Linking And Boundary Detection – Thresholding – Region Oriented Segmentations.

Unit–V

Image Representation – Image Representation And Description – Boundary Descriptors – Regional Descriptors And Morphology.

Text Book

1. R.C.Gonzalez R.E.Woods, "Digital Image Processing", Second Edition, Pearson Education 2002

References

1. Anil Jain, K. "*Fundamentals of Image Processing*", Prentice Hall of India, 2001.
2. Sid Ahmed, "*Image Processing*", McGraw Hill, New York, 1995.

ISEE 12: ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS

UNIT I

Introduction to Artificial Intelligence (Al): Computerized reasoning - Artificial Intelligence - Characteristics of an Al problem - Problems representation in Al - State space representation- Problem reduction.

UNIT II

Search process: Al and search process - Brute force search techniques. Hill climbing - Best inst - Beam search - Constraint satisfaction.

UNIT III

Al and game playing - Major components of game playing program - plausible move generator - Static evaluation - Function generator - Minimax strategy - Alpha-beta techniques - Problems on computer game playing program.

UNIT IV

Knowledge Representation: Logic, Prepositional logic - Tautology - Contradiction and contingencies - Normal form - Predicate logic - Form - Rules of inference - Resolution - Unification algorithm.

UNIT V

Introduction to Expert System: Definition - Characteristics, Architecture and descriptions of various modules. Knowledge engineering - Expert system life cycle - Difficulties in knowledge acquisition - Knowledge acquisition - strategies - Expert systems - Major application areas. Qualitative study of expert system like DENDRAL, MYCIN and RI

REFERENCE BOOKS:

1. Dr. K. Sarukesi and Dr. V. Janakiraman, —Foundation of Artificial Intelligence & Expert System‖, Macmillan Ltd., 1993.
2. Elaine Rich and Kevin Knight, —Artificial Intelligence, TMH, 1991. 3. Donald A Waterman, Building Expert System‖, 1986.