

B. Sc. COMPUTER SCIENCE
SYLLABUS - 2014

SCHOOLS OF EXCELLENCE
with
CHOICE BASED CREDIT SYSTEM (CBCS)



SCHOOL OF COMPUTING SCIENCES
St. JOSEPH'S COLLEGE (Autonomous)

Accredited at 'A' Grade (3rd Cycle) by NAAC
College with Potential for Excellence by UGC
TIRUCHIRAPPALLI - 620 002, INDIA

SCHOOLS OF EXCELLENCE WITH CHOICE BASED CREDIT SYSTEM (CBCS)

POST GRADUATE COURSES

St. Joseph's College (Autonomous), a pioneer in higher education in India, strives to work towards the academic excellence. In this regard, it has initiated the implementation of five "Schools of Excellence" from this academic year 2014 – 15, to standup to the challenges of the 21st century.

Each School integrates related disciplines under one roof. The school system allows the enhanced academic mobility and enriched employability of the students. At the same time this system preserves the identity, autonomy and uniqueness of every department and reinforces their efforts to be student centric in curriculum designing and skill imparting. These five schools will work concertedly to achieve and accomplish the following objectives.

- Optimal utilization of resources both human and material for the academic flexibility leading to excellence.
- Students experience or enjoy their choice of courses and credits for their horizontal mobility.
- The existing curricular structure as specified by TANSCH and other higher educational institutions facilitate the Credit-Transfer Across the Disciplines (CTAD) - a uniqueness of the choice based credit system.
- Human excellence in specialized areas
- Thrust in internship and / or projects as a lead towards research and
- The **multi-discipline** nature of the newly evolved structure (School System) caters to the needs of stake-holders, especially the employers.

What is Credit system?

Weightage to a course is given in relation to the hours assigned for the course. Generally one hour per week has one credit. For viability and conformity to the guidelines credits are awarded irrespective of the teaching hours. The following Table shows the correlation between credits and hours. However, there could be some flexibility because of practical, field visits, tutorials and nature of project work.

For UG courses, a student must earn a minimum of 150 credits as mentioned in the table below. The total number of minimum courses offered by a department are given in the course pattern.

SUMMARY OF HOURS AND CREDITS UG COURSES - COMPUTER SCIENCE

Part	Semester	Specification	No. of Courses	Hours	Credits	Total Credits
I	I-IV	Languages (Tamil/Hindi/French/Sanskrit)	4	16	12	12
II	I-IV	General English	4	20	12	12
III	I-VI	Core Theory Practicals Internship & Project Work Comprehensive Exam	17	90	69	98
		Core Electives	3	12	11	
		Allied	4	24	18	
		Additional Core Courses for Extra Credits	-	-	-	
IV	V-VI	Skilled Based Electives Between Schools (BS) Within School (WS)	1 1	2 2	2 2	4
		Inter Departmental Courses (IDC) - Soft Skills	1	2	2	2
	I-IV	NMC Communicative English Computer Literacy	1 1	0 2	5 2	7
		Environmental Studies	1	2	2	2
		Value Education	4	8	8	8
V	I-V	SHEPHERD & Gender Studies	1	-	5	5
	I-V	AICUF, Fine Arts, Nature Club, NCC & NSS				
TOTAL				180		150

Course Pattern

The Under Graduate degree course consists of Five vital components. They are as follows:

Part-I : Languages (Tamil / Hindi / French / Sanskrit)

Part-II : General English

Part-III : Core Course

(Theory, Practical, Core Electives, Allied, Project, Internship and Comprehensive Examinations)

Part-IV : SBE, NMC, Value Education, Soft Skills & EVS

Part-V : SHEPHERD, AICUF, Finearts, Nature Club, NCC, NSS, etc.

Non-Major Courses (NMC)

There are three NMC's – Communicative English, Computer Literacy and Environmental Studies offered in the I, II & III Semesters respectively.

Value Education Courses:

There are four courses offered in the first four semesters for the First & Second UG students.

Non Major Elective / Skill Based Elective:

These courses are offered in two perspectives as electives "With-in School" (WS) and "Between School" (BS).

Subject Code Fixation

The following code system (11 characters) is adopted for Under Graduate courses:

14	UXX	X	X	XX	XX
↓	↓	↓	↓	↓	↓
Year of Revision	UG Code of the Dept	Semester of the Part	Specification	Subject Category	Running in that part
14	UCS	1	3	2	1

For Example :

I B.Sc. Computer Science, first semester Problem Solving using C

The code of the paper is 14UCS130201.

Thus, the subject code is fixed for other subjects.

Subject Category

- 00 - Languages (Tamil / Hindi / French / Sanskrit)
- 01 - General English
- 02 - Core (Theory, Practicals, Comprehensive Exams, Internship & Project viva-voce)
- 03 - Core Electives
- 04 - Allied
- 05 - Additional core Courses for Extra Credits (If any)
- 06 - Skill Based Electives (BS) & (WS)
- 07 - Soft Skill
- 08 - NMC (Communicate English, Computer Literacy/SAP)
- 09 - EVS
- 10 - Value Education
- 11 - SHEPHERD & Gender Studies
- 12 - AICUF / Nature Club / Fine Arts / NCC / NSS / etc.

EXAMINATION

Continuous Internal Assessment (CIA):

UG - Distribution of CIA Marks	
Passing Minimum: 40 Marks	
Library Referencing	5
3 Components	35
Mid-Semester Test	30
End-Semester Test	30
CIA	100

MID-SEM & END – SEM TEST

Centralised – Conducted by the office of COE

1. Mid-Sem Test & End-Sem Test: (2 Hours each); will have Objective + Descriptive elements; with the existing question pattern PART-A; PART-B; and PART-C
2. CIA Component III for UG & PG will be of 15 marks and compulsorily objective multiple choice question type.
3. The CIA Component III must be conducted by the department / faculty concerned at a suitable computer centres.
4. The 10 marks of PART-A of Mid-Sem and End-Sem Tests will comprise only: OBJECTIVE MULTIPLE CHOICE QUESTIONS; TRUE / FALSE; and FILL-IN BLANKS.
5. The number of hours for the 5 marks allotted for Library Referencing/ work would be 30 hours per semester. The marks scored out of 5 will be given to all the courses (Courses) of the Semester.
6. English Composition once a fortnight will form one of the components for UG general English

SEMESTER EXAMINATION

Testing with Objective and Descriptive questions

Part-A: 30 Marks

Objective MCQs only

Answers are to be marked on OMR score-sheet. The OMR score-sheets will be supplied along with the Main Answer Book. 40 minutes after the start of the examination the OMR score-sheets will be collected

Part-B + C = 70 Marks

Descriptive

Part-B: 5 x 5 = 25 marks; inbuilt choice;

Part-C: 3 x 15 = 45 marks; 3 out of 5 questions, open choice.

The Accounts Paper of Commerce will have

Part-A: Objective = 25

Part-B: 25 x 3 = 75 marks.

Duration of Examination must be rational; proportional to teaching hours
90 minute-examination / 50 Marks for courses of 2/3 hours/week (all Part IV UG Courses) 3-hours examination for courses of 4-6 hours/week.

EVALUATION

Percentage Marks, Grades & Grade Points

UG (Passing minimum 40 Marks)

Qualitative Assessment	Grade Points	Grade	Mark Range (%)
Exemplary	10	S	90 & above
Outstanding	9	A+	85-89.99
Excellent	8	A	80-84.99
Very Good	7	B	70-79.99
Good	6	C	60-69.99
Satisfactory	5	D	50-59.99
RA	4	E	40-49.99
	0	RA	<40

CGPA - Calculation

Grade Point Average for a semester is calculated as indicated here under:

$$\frac{\text{Sum total of weighted Grade Points}}{\text{Sum of Credits}}$$

Weighted Grade Points is **Grade point x Course Credits**. The final CGPA will only include: Core, Core Electives & IDCs.

A Pass in SHEPHERD will continue to be mandatory although the marks will not count for the calculation of the CGPA.

Continuous Internal Assessment (CIA):

Class	Mark Range (%)
Distinction	75 & above, first attempt
First	60 & above
Second	50 to 59.99
Third	40 to 49.99

Declaration of Result:

Mr./Ms. _____ has successfully completed the Under Graduate in _____ programme. The candidate's Cumulative Grade Point Average (CGPA) in Part – III is _____ and the class secured is _____ by completing the minimum of 150 credits.

The candidate has acquired _____ (if any) more credits from SHEPHERD / AICUF/ FINE ARTS / SPORTS & GAMES / NCC / NSS / NATURE CLUB, ETC. The candidate has also acquired _____ (if any) extra credits offered by the parent department courses.

B.Sc. COMPUTER SCIENCE
Course Pattern - 2014 Set

Part	Code	Course	Hrs	Crs	
I	Language	14UGT110001	Language – I (Tamil/Hindi/French/Sanskrit)	4	3
II	English	14UGE120101	General English - I	5	3
III	Core	14UCS130201	Problem Solving using C	5	4
		14UCS130202	Digital Computer Fundamentals	5	4
		14UCS130203	Software Lab – I (Problem Solving using C)	3	2
Allied	14UCS130401	Allied I : Mathematics – I	6	5	
IV	NMC	14UCE140801	Communicative English	-	5
	V. Edn	14UFC141001	Value Education - I: Essentials of Ethics, Yoga and Stress Management	2	2
Total for Semester I				30	28
I	Language	14UGT210002	Language – II (Tamil/Hindi/French/Sanskrit)	4	3
II	English	14UGE220102	General English – II	5	3
III	Core	14UCS230204	Programming in COBOL	4	3
		14UCS230205	Discrete Mathematics	4	3
		14UCS230206	Software Lab – II (COBOL)	3	2
Allied	14UCS230402	Allied I : Mathematics – II	6	5	
IV	NMC	14UCE240802	Skill based paper : Computer Literacy	2	2
	V. Edn	14UFC241002	Techniques of Social Analysis	2	2
Total for Semester II				30	23
I	Language	14UGT310003	Language - III (Tamil / Hindi / French / Sanskrit)	4	3
II	English	14UGE320103	General English – III	5	3
III	Core	14UCS330207	Programming in C++	4	3
		14UCS330208	Systems Analysis and Design	4	3
		14UCS330209	Software Lab – III (C++)	3	2
	Allied	14UCS330403 A	Allied II - Applied Physics – I	4	4
		@	Applied Physics Practical – I / (or)	2	--
		14UCS330403 B	Allied II - Principles of Electronics	(4)	(4)
@	Electronics Practical - I	(2)	--		
IV	V. Edn	14UCE340901	Environmental Studies	2	2
		14UFC341003 A	Professional Ethics I: Social Ethics OR	2	2
		14UFC341003 B	Professional Ethics I: Religious Doctrine		
Total for Semester III				30	22

IV	I	Language	14UGT410004	Language-IV :(Tamil/Hindi/French/Sanskrit)	4	3	
	II	English	14UGE420104	General English - IV	5	3	
	Core	14UCS430210	Data Structures and Algorithms	5	4		
		14UCS430211	Microcomputer Architecture	5	4		
		14UCS430212	Software Lab – IV Data Structures using C and C++	3	2		
	Allied	14UCS430404 A	Allied II - Applied Physics – II OR	4	4		
		14UCS430404 B	Allied II - Communication Electronics				
		14UCS430405 A	Applied Physics Practical – II OR	2	2		
	14UCS430405 B	Electronics Practical – II					
	IV	V. Edn	14UFC441004 A	Professional Ethics-II: Social Ethics OR	2	2	
14UFC441004 B			Professional Ethics-II: Religious Doctrine				
Total for Semester IV				30	24		
V	III	Core	14UCS530213	Programming in Java	4	3	
			14UCS530214	Database Systems	4	3	
			14UCS530215	Software Lab – V (Java)	3	2	
		14UCS530216	Software Lab – VI (RDBMS)	3	2		
		@	Hardware Lab (Electronics)	3	--		
		Core Elec.	14UCS530301 A	XML OR	4	4	
	14UCS530301 B		Software Engineering				
	14UCS530302		Core Elective - WS- Multimedia	4	4		
	IV	SBE	14UCS540601	(BS): Desktop Publishing Tools	2	2	
	IV		14USS540701	Soft Skills	2	2	
Library			1	--			
Total for Semester V				30	22		
VI			14UCS630217	Computer Networks	4	3	
			14UCS630218	Operating Systems	4	3	
			14UCS630219	Operations Research	4	3	
			14UCS630220	Software Lab – VII (ASP.Net)	3	2	
			14UCS630221	Hardware Lab (Electronics)	3	5	
			14UCS630222	Project	3	2	
			14UCS630223	Comprehensive Examination	3	2	
			Core Ele	14UCS630303 A	Computer Graphics OR	4	4
				14UCS630303 B	Web Graphics		
			IV	SBE	14UCS640602	(WS): E-Commerce	2
Total for Semester VI				30	26		
I-V	V		14UCW651101	SHEPHERD and Gender Studies	5		
Total for all Semesters				180	150		

Extra credit courses

Extra credit courses with 4 credits are offered to the fast learners in B.Sc. Computer Science in the V and VI semesters. Those students who satisfy a minimum criteria (say 70% and above in first four semesters) are eligible to take extra credits courses to be offered as self-paced courses. Students are to write only the semester exam and the same should be notified in the mark statement only if they pass. The following are the extra credit courses:

Sem	Part	Code	Subject Title	Hrs	Credit
V	IV	14UCS540501	Software Engineering	--	4
		14UCS540502	C# .Net	--	4
		14UCS540503	Project Development Tools	--	4
VI	IV	14UCS640504	Web Technology	--	4
		14UCS640505	Web Graphics	--	4

gUtk; 1
14UGT110001

kz p Neuk; 4
Gssrfs; 3

ngHJ j j kpo;-I

Nehf;fqfs;

1. r%f khwwr; rpej i dfi s c ssl f;fpa j wfhy , yf;fpaqfi s mwKfk; nraj y;
2. GJ fftpi j > r;Wfi j > c i uei l Mfpa , yff;paqfs;pd; eak; ghuhl Lj y;
3. rej iggpi oapdwp vOj khz thfi sg; gapWwtj j y;

gad;fs;

1. khz thfs; r%f khwwr; rpej i dfi s mwpe;J nfhst;h;
2. rej iggpi ofi s e;ffp vOJk; j p;wd; ngWth;
3. Gj j yf;fpaqfi sg; gi l fFk; j pwi dAk; j p;wd;h;T nraAk; j pwi dAk; ngWth;

myF-1: kf;hft; ghuj p;ahh; ft;pi j fs;

ghuj j; hrd; ft;pi j fs;
c i uei l - Kj y; %dW fl Li ufs; (10 kz p Neuk)

myF-2: gl LfNfhl i l ahh; ghl y;fs;

ghtyNuW ngUQrj j p;dh; ghl y;fs;
, yffz k; -ty;KfK; , l qfs; (12 kz p Neuk)

myF-3: GJ fftpi j tbtqfs;

, yff;pa; tuyhW - %dwhk; ghfk;
r;Wfi j - Kj y; MW r;Wfi j fs; (10 kz p Neuk)

myF-4: GJ fftpi j fs;

ngz z p;af; ft;pi j fs;
, yff;pa; tuyhW - ehd;fhk; ghfk;
, yffz k; - ty; kpfh , l qfs;(14 kz p Neuk)

myF-5: nkhopngahgGfftpi j fs;

r;Wfi j - 7 Kj y; 12 Kba c s s r;Wfi j fs;
c i uei l - 4Kj y; 6 Kba c s s fl Li ufs; (14 kz p Neuk)

ghl E)y;

1. ngHJ j j kpo; nraAs; j p;ul - j k;pa;Tj ; Ji w ntsp;al-2014-2017
2. r%ft;ay; Nehf;fy; j kpo; , yff;pa; tuyhW > j k;pa;Tj ; Ji w ntsp;al > J}a tsdhh; fy;Y}hp j p;Urr;uhggss; p2> 2014
3. c i uei l f; Nfhi t - j k;pa;Tj ; Ji w ntsp;al > 2014
4. r;Wfi j j nj hFgG

Sem. I
14UGE120101

Hours/Week: 5
Credits: 3

GENERAL ENGLISH-I

Objectives

To help students

- * Use words and phrases related to self, home, friends and relatives in meaningful contexts.
- * Use language to perform basic functions like describing, clarifying, suggesting, and giving directions.

Unit-1

01. Personal Details
02. Positive Qualities
03. Listening to Positive Qualities
04. Relating and Grading Qualities
05. My Ambition
06. Abilities and Skills
07. Self-Improvement Word Grid
08. What am I doing?
09. What was I doing?
10. Unscramble the Past Actions
11. What did I do yesterday?

Unit-2

12. Body Parts
13. Actions and Body Parts
14. Value of Life
15. Describing Self
16. Home Word Grid
17. Unscramble Building Types
18. Plural Form of Naming Words
19. Irregular Plural Forms
20. Plural Naming Words Practice
21. Whose Words?

Unit-3

22. Plural Forms of Action Words
23. Present Positive Actions
24. Present Negative Actions
25. Un/Countable Naming Words
26. Recognition of Vowel Sounds
27. Indefinite Articles

28. Un/Countable Practice
29. Listen and Match the Visual
30. Letter Spell - Check
31. Drafting Letter

Unit 4

32. Friendship Word Grid
33. Friends' Details
34. Guess the Favourites
35. Guess Your Friend
36. Friends as Guests
37. Introducing Friends
38. What are We Doing?
39. What is (s)he / are they Doing?
40. Yes / No Question
41. What was s/he doing?
42. Names and Actions
43. True Friendship
44. Know your Friends
45. Giving Advice/Suggestions
46. Discussion on Friendship
47. My Best Friend

Unit 5

48. Kinship Words
49. The Odd One Out
50. My Family Tree
51. Little Boy's Request
52. Occasions for Message
53. Words denoting Place
54. Words denoting Movement
55. Phrases for Giving Directions
56. Find the Destination
57. Giving Directions Practice
58. SMS Language
59. Converting SMS
60. Writing Short Messages
61. Sending SMS
62. The family debate
63. Family Today

Textbook

1. Joy, J.L. & Peter, F.M. (2014). *Let's Communicate*, New Delhi, Trinity Press.

Sem. I
14UCS130201

Hours/Week: 5
Credits: 4

PROBLEM SOLVING USING 'C'

Objectives

To learn the problem solving techniques along with features of 'C' language and to develop programming skills.

Unit - I

Algorithms - Flow charts - Developing algorithms and flowcharts for solving simple problems using sequential, selection and iterative programming structures. (15)

Unit - II

Data Types - Variables - Operators - Control structures - Looping structures - Arrays - Strings - Simple structure. (15)

Unit - III

Functions - Built-in-functions - User defined functions - Scope of Variables - Passing Arrays to function - Functions and Structure - Union. (15)

Unit - IV

Pointers - Pointer to Array - Pointer Array - Pointer Arithmetic - Pointer of Pointer - Functions and Pointers - Call by value and call by reference - Structures and Pointers - Dynamic Allocation - Function pointer. (15)

Unit - V

Files: Text file - Sequential File - Random Access file - Command Line Arguments (15)

BOOK(S) FOR STUDY

1. S. Jaiswal, "Information Technology Today", Galgoita Publications, First Edition, 1999. (Unit I)
2. E. Balagurusamy, "Programming in ANSI C", Tata McGraw Hill, New Delhi, Third Edition, 2004 (Unit II, III, IV, V).

BOOK(S) FOR REFERENCE

1. Byron S. Gottfried, "Programming with C", Schaum's Outline Series, Tata McGraw Hill Edition, New Delhi, 1991.
2. Brian W. Kernighan, Dennis M. Ritchie, "The C Programming Language", Prentice Hall of India Pvt. Ltd., New Delhi, 1989.
3. E. Karthikeyan, "A Textbook on C Fundamentals, Data Structures and Problem Solving", Prentice-Hall of India Private Limited, New Delhi-110001, 2008.

Sem. I
14UCS130202

Hours/Week: 5
Credits: 4

DIGITAL COMPUTER FUNDAMENTALS

Objectives

* To give fundamental principles of digital electronics, semiconductor memories, A/D and D/A converters.

Unit - I

Number Systems: Number systems - Decimal, Binary, Octal, Hexadecimal - conversion from one to another. Characters and codes: ASCII code, Excess-3 code, gray code - binary addition, subtraction, multiplication and division - unsigned binary numbers - signed magnitude numbers - complements in number systems (15)

Unit - II

Logic Gates: AND, OR, NOT, NOR & NAND gates, EX-OR gates. Boolean Algebra and Boolean laws and theorems: De Morgan's theorems - Duality theorem - simplification of sum of product and product of sum expressions - Karnaugh map and simplifications. (15)

Unit - III

Simple arithmetic circuits: Half and Full adders - Binary adder/subtractor - BCD adder

Data processing circuits: Multiplexers - Demultiplexers - Encoders and Decoders. (15)

Unit - IV

Sequential Logic Design: Flip-flops - RS, JK, D & T Flip flops - Master / Slave Flip flop - Shift Registers - Counters - Asynchronous and Synchronous Counters. Digital to Analog Converters - Analog to Digital converters. (15)

Unit - V

Memory Elements: RAM - static RAM - Dynamic RAM - ROM - Magnetic Disk memories - Magnetic tape - Cache Memory. (15)

BOOK (S) FOR STUDY

1. Donald P. Leach and Albert Paul Malvino, "Digital Principles and Application", Fifth Edition, Tata McGraw-Hill Publishing Company Ltd., New Delhi, 2003.
2. Thomas C. Bartee, "Computer Architecture and Logic Design", McGraw Hill International Edition, New Delhi, 1991.

BOOK (S) FOR REFERENCE

1. Virendra Kumar, "Digital Technology Principles and Practice", New Age International, New Delhi, 2006.

Sem. I
14UCS130203

Hours/Week: 3
Credits: 2

Software Lab-I

PROBLEM SOLVING USING 'C'

1. Simple problems using Operators
2. Problems using Branching structures (If, switch, goto)
3. Problems using looping structures (for, while, do-while)
4. Problems on operations on single dimensional array
5. Problems using Matrix operations
6. Problems using String manipulations (Using Array)
7. Problems on Working with functions
8. Problems on Working with Pointers
9. Problems on Working with Structures
10. Problems using Text file
11. Problems using Sequential file
12. Problems using Random access file

Sem. I
14UCS130401

Hours/Week: 6
Credits: 5

Allied: MATHEMATICS-I

Objectives

- * To train the students in mastering the techniques of various branches of Mathematics.
- * To motivate the students to apply the technique in their respective major subjects.

Unit I: Matrices and Determinants

Solutions of system of linear equations - Using Cramer's rule - Rank of a matrix using linear independence and dependence - Eigen values and Eigen

vectors of a matrix - Cayley Hamilton's Theorem (Without proof). (Chapter I, Section 1.20-1.23, Chapter III, Section 3.1- 3.5 and Chapter V, Section 5.1-5.4, 6.3)

Unit II: Differential Equations

Second order differential equations - all the types of equations including variables coefficients. (Chapter V, Sections 47- 62). Partial Differential Equation: Formation- General, singular, particular integrals- standard forms- Lagrange's for $Pp + Qq = R$. (Chapter VI Section 1-6)

Unit III: Series

Concept of limit of a function - simple problems- convergence, divergence and oscillation of a series- geometric series - test of convergence and divergence, comparisons ratio and root test (without proof). (Chapter VI, Section 1-14)

Unit IV: Laplace Transforms

Definition- properties- the inverse transforms- solving differential equations using Laplace transforms (Chapter IV Section 1-5)

Unit V: Fourier Series

Fourier series - Even and odd functions - properties of odd and even functions - Half range Fourier series (Omitting general interval). (Chapter IV, Sections 1-5.2)

BOOKS FOR STUDY

1. Venkataraman, M.K., "Engineering Mathematics" (Vol II) Third Edition, The National Publishing Co., Madras, 1988. (Full for Unit I & II)
2. Venkataraman, M.K., "Higher Mathematics for Engineering and Science", Third Edition, The National Publishing Co., Madras, 1986. (For Unit III)
3. Narayanan and Manickavachagam Pillai, "Ancillary Maths" Book II, S. Viswanathan Pvt. Ltd., Madras (For unit IV & V).

gUtk; 2
14UGT210002

kz p Neuk; 4
GSSPfs; 3

ngHJ j j kpo; II

Nehffq;fs; :

1. rka eyyr f f c z hi t tshj j y;
2. j kpo; fhggjaq;fs; moFk; mwTz hTk; C I Lk; gFj pfi sg; gbj Jg; GhpeJ nfhSS j y;
3. c i uei l f; fl Li u vOJ k; j pwc; ngWj y;

gad;fs; :

1. j kpi oj ; j pUj j khfg; gbffTk; NgrTk; gpi oapdwv vOj Tk; Nj hrrp ngWj y;
2. , yffjaq;fs; gbj j twi w Ki wahf thofi fap; fi l ggobj j y;

myF: 1 (12 kz p Neuk)

rpyggj pfhuk; - kJ i uf; fhz j k; (fhL fhz ; fhi j)
, yffja tuyhW - i rtk; tsuj j j kpo; Kj y; Guhz q;fs; Kba.

myF : 2 (12 kz p Neuk)

kz pNkfi y - ghj j uk; ngww fhi j
nghpGuhz k; - nkagngHUsehadhh; Guhz k;

myF : 3 (12 kz p Neuk)

fkguhkhaz k; - fhL rpggl yk;
c i uei l - 7 Kj y; 9 Kba c ss fl Li ufs;
, yffz k; - vOj j yffz k;

myF : 4 (12 kz p Neuk)

Fz qFb k] j hd; rhfG ghi y;fs;
rjwpyffjaq;fs; - fyq;fj J gguz p
c i uei l - 10 Kj y; 11 ti uap;hd fl Li ufs;

myF : 5 (12 kz p Neuk)

, ul rz ja ahj j p;fk; kuz ggl yk;
, yffja tuyhW - j kpo; , yffz E}y;fs; Kj y; rjwpyffjaq;fs;
Kba.
, yffz k; - nrhyyp;ffz k;

ghl E}y;

1. nraAs; j pul L - j kpha;Tj Ji w ntsjal 2014-2017.
2. r%ft;ay; Nehff; j kpo; , yffja tuyhW j kpha;Tj Ji w ntsjal J}atsdhh; fy;Y}hp j pUrrp;hgssp 2014.
3. c i uei l fNfhi t j kpha;Tj Ji w ntsjal 2010.

SEM-II
14UGE220102

Hours/week: 5
Credits: 3

GENERAL ENGLISH-II

Objectives

To help students

- * Use words and phrases related to education, entertainment, career, and society in meaningful contexts.
- * Use language to perform basic functions like comparing, debating, and storytelling.

Unit 1

01. Education Word Grid.
02. Reading Problems and Solutions.
03. Syllabification.
04. Forms for Expressing Quality.
05. Expressing Comparison.
06. Monosyllabic Comparison.
07. Di/polysyllabic Comparison.
08. The best monosyllabic Comparison
09. The best di/polysyllabic Comparison.
10. Practising Quality Words.

Unit 2

11. *Wh* Words
12. Yes/No Recollection
13. Unscramble *Wh* Questions
14. *Wh* Practice
15. Education and the Poor
16. Controlled Role play
17. Debate on Education
18. Education in the Future
19. Entertainment Word Grid
20. Classify Entertainment Wordlist
21. Guess the Missing Letter
22. Proverb-Visual Description
23. Supply *Wh* Words
24. Rearrange Questions
25. Information Gap Questions

Unit 3

26. Asking Questions
27. More about Actions
28. More about Actions and Uses

29. Crime Puzzle
30. Possessive Quiz
31. Humorous News Report
32. Debate on Media and Politics
33. Best Entertainment Source

Unit 4

34. Career Word Grid
35. Job-Related Wordlist
36. Who's Who?
37. People at Work
38. Humour at Workplace
39. Profession in Context
40. Functions and Expressions
41. Transition Fill-in
42. Transition Sord Selection
43. Professional Qualities
44. Job Procedures
45. Preparing a Resume
46. Interview Questions
47. Job Cover Letter Format
49. E-mailing an Application
50. Mock Interview

Unit 5

51. Society Word Grid
52. Classify Society Wordlist
53. Rearrange the Story
54. Storytelling
55. Story Cluster
56. Words Denoting Time
57. Expressing Time
58. What Can You Buy?
59. Noise Pollution
60. Positive News Headlines
61. Negative News Headlines
62. Matching Conditions
63. What Should You Do?
64. If I were the Prime Minister
65. My Dream Country

Textbook

1. Joy, J.L. & Peter, F.M. (2014). *Let's Communicate*, New Delhi: Trinity Prss.

Sem. II
14UCS230204

Hours/Week: 4
Credits: 3

PROGRAMMING IN COBOL

Objectives

- * To expose different features of COBOL language and to impart the program development skills using COBOL language.

UNIT-I (12)

Introduction to COBOL: History of COBOL - Coding Format for COBOL Programs - Structure of a COBOL Program - Character Set - COBOL Words - Data Names and Identifiers - Literals - Figurative Constants - Continuation of Lines - Identification and Environment division: Identification Division - Environment Division.

UNIT - II (12)

Data Division: Introduction - Level Structure - Data Description Entries. Working-Storage Section: Editing - Classes and Categories of Data Procedure Division and Basic Verbs: Structure of the Procedure Division - Data Movement Verb: Move - Arithmetic Verbs - Sequence Control Verbs - Input and Output Verbs - Conditional Verbs - Categories of COBOL Statements.

UNIT - III (12)

Data Division: Usage Clause - Synchronized Clause - Justified Clause - Redefines Clause - Renames Clause - Qualification of Data Names - Sign Clause. Data Movement Verbs and Arithmetic Verbs: Elementary and Group Moves - Corresponding Option - Rounded Option - On Size Error Option - Compute Verb. Conditional and Sequence Control Verbs: Condition - IF Statement - GOTO with Depending Phrase - Perform Statement - Exit Statement.

UNIT - IV (12)

Table Handling: Occurs clause and Subscripting - Assigning values to Table Elements - one and two dimensional Tables - Perform verb and Table Handling. Sequential Files: File Characteristics - File-Control Entries for Sequential Files - File Description - Fixed Length Records - Statement for Sequential Files - Example of Sequential File Processing.

UNIT - V (12)

Sorting and merging of files: Simple sort verb - Simple Merge verb - Input and Output Procedure in Sort Statement - Merge verb with Output Procedures. Direct Access Files: Relative Files - Indexed Sequential Files.

BOOK FOR STUDY

1. MK Roy, DG Dastidar, "COBOL Programming", TATA Mc-Graw Hill, NewDelhi, 1990.

BOOK FOR REFERENCE

1. Leonard J. Kazmir & Andreas S.Philipakis, "Structured COBOL" Mc-Graw Hill, 1986.

Sem. II
14UCS230205

Hours/Week: 4
Credits: 3

DISCRETE MATHEMATICS

Objectives

- * To know the applications of graph theory, computer representations of graph, fundamental ideas of mathematical logic, concepts of set theory and boolean algebra.

UNIT-I (12)

Graph: Introduction - paths and circuits - isomorphism - sub graphs-connectedness - euler graph - operations - Hamiltonian paths and circuits - Traveling Salesman Problem.

UNIT-II (12)

Trees: properties of trees - distance and centers - rooted and binary tree - spanning tree- matrix representations of graph: Incidence matrix - adjacency matrix - graph theoretic algorithms - shortest path between two vertices - shortest path between all pairs.

UNIT-III (12)

Mathematical Logic: statements and notations - connectives - well formed formulas - tautologies - equivalence of formulas - duality law.

UNIT-IV (12)

Mathematical Logic: Normal forms: Disjunctive-Conjunctive-Principal disjunctive-Principal Conjunctive normal forms. Sets:Basic concepts of set theory - operations on sets - venn Diagrams -Basic set identities - ordered pairs and tuples -cartesian products.

UNIT-V (12)

Relation and orderings: Relations-properties- relation matrix and graph - partition and covering- equivalence, compatibility relations- composition of

binary relations. Function: Definition- composition of functions- Inverse functions-Binary and n-ary operations-Boolean algebra.

BOOKS FOR STUDY

Unit I,II

1. Narsing Deo, "Graph Theory with Applications to Engineering and Computer Science", Prentice Hall, 2013, Chapters: 1,2, 3.1-3.7,7.1,7.9,9.1,9.2,11.5 Unit III,IV,V
2. J.P.Tremblay, R. Manohar, "Discrete Mathematical Structure with Applications to Computer Science", McGraw-Hill International Edition,2008.

Unit III: Chapters: 1-1, 1-2.1 - 1-2.4, 1-2.6 - 1-2.10.

Unit IV: Chapters: 1.3, 2-1.1 - 2-1.6, 2-1.8, 2-1.9.

Unit V: Chapters:2-3.1 - 2-3.7,2-4.1 - 2-4.4, 4-2.1

(only definition and applications, proof for theorems not preferred)

BOOKS FOR REFERENCE

1. Seymour Lipschutz and Mars Lipson, "Discrete Mathematics", Second Edition, Schaum's outline series, Tata McGraw-Hill publishing company Limited, New Delhi, 1999.
2. Bernard Kolman & Robert C. Busby, "Discrete Mathematical Structure for Computer Science", Second Edition, Prentice Hall of India, New Delhi, 1987.

Sem. II
14UCS230206

Hours/Week: 3
Credits: 2

Software Lab-II COBOL

1. Simple problems with arithmetic operators.
 2. Simple problems using Branching structures.
 3. Simple problems using PERFORM verb.
 4. Table handling (One and Two Dimensional).
 5. Payroll / Inventory Processing using Sequential files.
 6. Telephone bill / Electricity bill preparation using Sequential files.
 7. Mark sheet Processing using Indexed Sequential files.
 8. Sorting and Merging of files.
-

Sem. II
14UCS230402

Hours/Week: 6
Credits: 5

Allied: MATHEMATICS-II

Objectives

- * To train the students in mastering the techniques of various branches of Mathematics
- * To motivate the students to apply the techniques in their respective major subjects.

Unit I

Solving algebraic and transcendental equations- Bisection - False Position and Newton-Raphson method. Solving simultaneous equations - Gauss elimination- finding inverse of a matrix using Gauss elimination methods - Iteration methods - Gauss-Jacobi and Gauss-Seidal Methods (problems only). (Chapter III, Section 2, 4, 5, Chapter IV, Section 1, 2, 3 & 6)

Unit II

Interpolation- Newton Gregory forward and backward interpolation formulae- Lagrange's Interpolation formula. Numerical Interpolation - Trapezoidal rule and Simpson's 1/3rd rule (problems only) (Chapter VI, Section 1, 2, 3 & 4, Chapter VIII, Section 4 and Chapter IX Section 7, 8, 10)

Unit III

Solving differential equations (First order differential equation only). Solutions by Taylor's series - Euler's Method- Runge-Kutta 2nd and 4th order method - Milne's predictor corrector method (problems only). (Chapter XI, Section 6, 7, 10, 11, 12, 13, 14, 15)

Unit IV

Probability - Conditional probability - Baye's theorem - Applications of Binomial Poisson, Normal distributions. (Problems only) (Chapter 18, Pages 692-722 & Chapter 19, Pages 723-764).

Unit V

Correlation coefficient- Rank correlation - curve fitting by least square methods - Fitting a straight line, Parabola, power curve and exponential curves. (No derivation, Numerical problems only) (Book 2: Chapter 12, Pages 385-391, Book 1: Chapter 1, sec 1.6, 1.7, 1.8, 1.9 (Pages 24-42))

BOOK FOR STUDY

1. Venkataraman, M.K., "Numerical Methods in science and Engineering", 2nd Edition, the National Publishing Co., Madras 1987 (For Units I & II, III).
2. R.S.N. Pillai and Bagavathi, "Statistics", S. Chand and Co. Ltd., New Delhi 1995. Chapters: 9, 11, 12, 15, 17, and 19 (Relevant portions only) (For Units IV & V).

Sem. II
14UCS240802

Hours/Week: 2
Credits: 2

Skill Based Electives:
COMPUTER LITERACY

Objectives

- * To impart the fundamental concepts of Computer System and to introduce the significances of latest trends and technologies in Information Technology.

Unit-I (6)

Introduction to Computers : Computer an Introduction - History of Computers - Evolution of Computers - Organisation of a Computer System - Input Devices & Usages - Output Devices and Usages - Storage Devices and Usages - Classification of Computers - Data Representation.

Unit-II (6)

Application of Computers: Introduction - Business Applications - Communication - Education - Banking - Home - Engineering - Law Enforcement - Medical Diagnosis - Government - Defence - Entertainment - Sports. Software: Programming Languages - Classification of Software - Application Software - Operating System - Database Management System.

Unit-III (6)

HTML : Introduction - Headings - Paragraphs - Comments - HTML Formatting Tags - Font Tag - Hyperlinks - Images - Lists - Tables.

Unit - IV (6)

WML : Overview - Functionality - VRML: Objectives of VRML - Features of VRML - Advantages and Disadvantages of VRML - Multimedia: Introduction - Elements of Multimedia - Multimedia Software - Networking and Internet:

Networking Fundamentals - Types of Network - Benefits of Network - Networking Hardware and Software - Internet - Major features of Internet.

Unit - V (6)

Smart Devices : Introduction - Types of Smart Phones - Operating Systems for Smart Phones - E - commerce : Introduction - Types of E-Commerce - Benefits - M Commerce - Applications of M-Commerce - SOCIAL NETWORKING & CYBER LAW: Introduction - Characteristics of Social Networking Website - Social Networking Services - Cyber Law - Open Source - What is open source? - Open Source Software's.

BOOK FOR STUDY

1. Department of Foundation Course, "COMPUTER LITERACY", St. Joseph's College, 2013.

BOOKS FOR REFERENCE

1. ITL Education Solution Ltd, Introduction to Information Technology, Dorling, Kindersley (India) Pvt. Ltd, New Delhi.
2. Efraim Turban et al, Introduction to Information Technology, Wiley India Pvt. Ltd., New Delhi. 2006
3. Leon, Introduction to computers, Vikas Publishing House Pvt. Ltd., New Delhi. 2006.
4. Alexix Leon and Mathew Leon, Introduction to computers with Ms Office 2000, TMH, New Delhi. 2005.

gUtk; 3
14UGT310003

kz p Neuk; 4
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ngHJ j j kpo;III

Nehffqfs; :

1. nrknkxhoj ; j kpo; nraAs;fshd gj jndz Nky; fz fF> gj jndz ; fb; fz fFg; ghl y;fi sg; gbj ;Jg; nghUs; GhpeJ nfhS k; j pwd; ngWj y;
2. gz i l , yffjaqfsy; mi keJss r%ff; fUj ;J ffi s cz hj ;J y;
3. kuGf; ftpi j tbtqfi s mwpar; nraj y;
4. ftpi j fsy; mz pfs; mi keJss ghqi fg; Ghj y;
5. Gj pdk; top j wfhyr; rKj har; rpfyfi sAk; mj wfhd j hTfi sAk; Muhaej wj y;

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1. nrknkxhoj; j kpo; nkhojpd; rpwgi g mwj y;
2. gz i l , yffjaqfs; cz hj ;J k; mwffUj ;J ffi s mwpeJ khz th; xOff newpaj; thoeJ r%fji j NkkgLj ;J th;
3. khz th; Gj pdj i j f; fwg d; %yk; rKj har; rpfyfi s cz heJ mtwwpwFj ; j hT fhz gh;

myF : 1 (16 kz p Neuk)
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myF : 2 (10 kz p Neuk)
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myF : 3 (10 kz p Neuk)
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myF : 4 (12 kz p Neuk)
gj pwWggj ;J > GwehD}W> mz pajy;fz k;

myF : 5 (12 kz p Neuk)
j pUfFws; - mwk;
ehybahh; - nghUI ghy;
, yffja tuyhW - rqf , yffjaqfs;pd; j dj j di kfs; Kj y; , ul i l f;
fhggjaqfs; Kba.

ghl E}yfs; :

1. nraAs; j pul l> j kpo;Tj ;J i w ntsjaL (2014-2017)
2. r%ftay; Nehffiy; j kpo; yffja tuyhW> j kpo;Tj ;J i w ntsjaL>2014
3. Gj pdk; (xtnthU fytpahz lK; xtnthU Gj pdk).
nehej NrhW (2014-2015)

SEM-III
14UGE320103

Hours/week: 5
Credits: 3

GENERAL ENGLISH-III

Objectives:

- * To enable the students to comprehend the local and global issues through the lessons.
- * To enable the students to do the tasks centering on Skill Development and Grammar.
- * To empower the students with interactive skills.

Tasks Designed for Each Unit	Skills Focused to be Developed for Each Unit	Hours Allotted
1. Pre-reading Task	Listening and Reading Skills through teacher-led reading practice	2 Hours
2. Objectives	Listening and Reading Skills	
3. Text	Listening and Reading Skills through teacher-led reading practice	
4. Glossary (Using Words and Phrases in Sentences)	Referring and Language Using Skills	2 Hours
5. Reading Comprehension	Reading, Speaking, and Writing Skills	1 Hour
6. Critical Analysis	Critical Thinking and Speaking Skills	2 Hours
7. Creative Task	Creative Thinking and Speaking Skills	2 Hours
8. General Writing Skills	Writing Skill	1 Hour
9. Activities on Grammar	Grammar Using and Writing Skills	2 Hours

UNIT I

* Suggestions to Develop Your Reading Habit 12 Hrs
Grammar: Simple Present Tense

UNIT II

* The Secret of Success: An Anecdote 12 Hrs
Grammar: Present Continuous Tense

UNIT III

* Hygiene 12 Hrs
Grammar: Simple Past Tense

UNIT IV

* Dr. A.P.J. Abdul Kalam: A Short Biography 12 Hrs
Grammar: Past Continuous Tense

UNIT V:

* "Golden Rule": A Poem 12 Hrs
Grammar: Simple Future Tense & Future Continuous Tense

Textbook:

1. Jayraj, S. Joseph Arul *et al.* (2014). *Trend-Setter: An Interactive General English Textbook for Under Graduate Students*, New Delhi, Trinity.

Sem. III
14UCS330207

Hours/Week: 4
Credits: 3

PROGRAMMING IN C++

Objectives

- * To give the concepts of object oriented programming and to impart the programming skills in C++.

Unit-I: (12)

Object Oriented Programming - Advantages of OOP - Characteristics of OO languages - C++ programming basics - Functions: Simple Functions - Call by value - Call by reference - Returning values of different type - Function overloading - inline functions - Default arguments - Recursive functions.

Unit-II: (12)

Class - Objects - Constructors - Destructors - Objects as function arguments - Returning objects from functions - Structures and Classes - Static data - Static function - Array of objects.

Unit-III: (12)

Access specifiers - Friend function - Friend class - Operator overloading - Type casting - Pointers - Template.

Unit-IV: (12)

Inheritance - Derived class constructors - Class hierarchies - Types of inheritance - Virtual base class - Function overriding - Virtual functions - Pure virtual functions - Abstract class.

Unit-V: (12)

Files and Streams: I/O manipulators - Streams - String I/O - Character I/O - Object I/O - I/O with multiple objects - File pointers - Disk I/O with member functions.

BOOK FOR STUDY

1. Robert Lafore, "Object-Oriented Programming in Microsoft C++", Galgotia Publications, New Delhi, 2000.

BOOKS FOR REFERENCE

1. E. Balagurusamy, "Object-Oriented Programming with C++", Second Edition, 2002.
2. Bjarne Stroustrup, "The C++ Programming Language", Addison-Wesley, New York, 1999.

Sem. III
14UCS330208

Hours/Week: 4
Credits: 3

SYSTEMS ANALYSIS AND DESIGN

Objectives

- * To give basic concepts and facilitate the learners in the concepts of System, System Analysis, Design and Implementation

UNIT I (12)

System Concepts and the Information Systems Environment: Introduction - The System Concept - Characteristics of a system - Elements of a system - Types of systems. System Development Life Cycle: The System Development Life Cycle - Consideration for Candidate systems. Role of the Systems Analyst: Historical Perspective - The Multifaceted Role of the Analyst - The Place of the Analyst in the MIS Organization - Rising Positions in System Development.

UNIT II (12)

System Planning and the Initial Investigation: Bases for Planning in Systems Analysis - Initial Investigation. Information Gathering: Information Gathering Tools.

UNIT III (12)

Tools of Structured Analysis: Decision Tree Analysis. Feasibility Study: System Performance Definition - Feasibility Study. Cost/ Benefit Analysis: Cost / Benefit Analysis.

UNIT IV (12)

Process and Stages of Systems Design: Process of Design - Design Methodologies - Major Development Activities - Audit Considerations. Input / Output and Forms Design: Input Design - Forms Design - File Organization and Database Design: File Organization - Data Base Design.

UNIT V (12)

System Testing and Quality Assurance: The Test Plan - Quality Assurance - Role of the Data Processing Auditor. Implementation and Software Maintenance: Conversion - Post-Implementation Review.

BOOK FOR STUDY

1. Elias M Awad, "Systems Analysis and Design", Galgotia Publications, New Delhi, 2001.

BOOKS FOR REFERENCE

1. Hawryczkiewicz I.T “Introduction to System Analysis and Design”, PHI New Delhi, 1994.
2. S.A. Kelkar, “Structures Systems Analysis and Design: A Concise Study”, PHI Learning Private Limited, New Delhi, 2009.
3. B. Lee, “Introduction to System Analysis and Design”, John Wiley & Sons, 1983.

Sem. III
14UCS330209

Hours/Week: 3
Credits: 2

Software Lab-III C++

1. Functions using:
 - i) Call by value
 - ii) Call by reference
 - iii) Recursive call
 - iv) Returning different data types.
2. In-line function, Overloaded function and Default arguments.
3. Operator overloading (Unary and Binary).
4. Class and All types of Constructors.
5. Static function and Array of objects with static data.
6. Friend function and Friend class.
7.
 - i) Simple and Multilevel inheritance
 - ii) Implementing derived class constructors.
8.
 - i) Function overriding
 - ii) Creating objects using Pointers.
9. Virtual functions, pure virtual functions and Abstract class.
10. Dynamic polymorphism.
11. Function Template and Class Template.
12. I/O Streams with text file and data file.

Sem. III
14UCS330403A

Hours/Week: 4
Credits: 4

Allied-II: APPLIED PHYSICS-I

Objectives:

- To acquire knowledge of current electricity and Potentiometer.
- To understand the basic principle of electromagnetism and magnetic materials and circuits
- To study the basic principles of Laser and optical fibers and their applications .
- To learn about alternating current generation and distribution and a principle of a Transformer.

UNIT - I: Electricity and Capacitor

Electric current and its units - Definition of important parameters- Ohm's law and its verification- -Effect of temperature on resistance- Electric power and electric energy and their units- Principle of capacitor- capacity of parallel plate capacitor- Energy of charged capacitor - Potentiometer- Principle- calibration of ammeter and voltmeter.

UNIT - II: Electromagnetism

Magnetic lines of force - Magnetic field and magnetic induction- Magnetic flux - Magnetic field around a current carrying conductor- Direction of magnetic field -Biot -Savart's Law - Magnetic field inside the solenoid- Fleming's Left Hand rule- Galvanometer - shunt - Conversion of a galvanometer into an ammeter and voltmeter.

UNIT - III: Magnetic Properties of Materials And Magnetic Circuit

Force between magnetic poles - Permeability - Susceptibility, Magnetic field intensity and intensity of magnetization- Para, Dia, Ferro magnetic substances - Magnetic circuits - Magneto Motive force - Reluctance - Permeance - Ohm's law of magnetic circuits-Reluctance in series and parallel-comparison between magnetic and electric circuits - Magnetic bubble memories.

UNIT - IV: Laser and Optical Fibre

Spontaneous and stimulated emission - population inversion - pumping process and active medium - The Ruby Laser-CO2 Laser - He-Ne Laser - Semiconductor Laser - uses of Lasers. Optical fibre - total internal reflection - Numerical aperture and acceptance cone - types of optical fibre- fibre optics communication system- applications

UNIT - V: Alternating Current and Transformer

Alternating currents - Basic Definitions - Effective value , R.M.S. value and Average value of AC- Generating of Alternating current - Distribution of AC

currents- Transformer- Principle - working of transformer- step-up and step down transformers.

BOOKS FOR STUDY:

1. A.S.Vasudeva, Modern Engineering Physics, S.Chand and CompanyLtd., 1988.
2. R.K.Gaur and S.L Gupta - Engineering Physics, Dhanapat Raj.

UNIT	BOOK	SECTIONS
I	1	2.2,2.3,5.4,6.10-6.13,9.10-9.13,9.17,15.7,15.8
II	1	2.2-2.5,3.1,3.2,3.7,3.8
III	1	3.2-3.4,3.15,3.16,1.2-1.4,1.7-1.10.
IV	1	8.2,8.3,8.8-8.15, 8.17, 8.20, 8.22, 8.24, 8.28, 8.34, 8.35
V	2	2.4,2.9,4.25-4.27,5.21,5.27,5.28,6.10

BOOKS FOR REFERENCE:

1. Electricity & Magnetism - Sehgal, Chopra, Sehgal, S. Chand & Sons, New Delhi, 2002.
2. Electricity & Magnetism - R. Murugesan, S. Chand & Company Ltd., New Delhi, 7th Revised Edition, 2008.
3. Applied Physics for Engineers - V. Rajendran, A. Marikani, Second Edition, Tata McGraw-Hill Publishing Company Ltd., New Delhi, 1996.

Sem. III
14UCS330403B

Hours/Week: 4
Credits: 4

Allied-II:
PRINCIPLES OF ELECTRONICS-I

Objectives:

- To acquire the basics knowledge of principles of Electronics

UNIT - I: SEMICONDUCTOR DIODES AND RECTIFIERS

The PN-Junction - Formation of Depletion Layer - Forward Biased PN Junction and Characteristics - Reverse Biased PN Junction and Characteristics - PN Junction Diode - Zener Diode - LED - Photodiodes.

Rectifiers - Half Wave Rectifiers - Full Wave Rectifiers - Full Wave Bridge Rectifiers.

UNIT - II : TRANSISTORS AND AMPLIFIERS

Bipolar Junction Transistor - Transistor Biasing - Configurations : CB, CE, CC - Transistor Static Characteristics : CB, CE and CC.

Classification of Amplifiers - Common Base (CB) Amplifier - Common Emitter (CE) Amplifier.

UNIT - III : OSCILLATORS

Oscillator - Classification - Damped and Undamped - Oscillatory Circuit - Frequency Stability - Essentials of Feedback LC Oscillator - Tuned Base Oscillator - Tuned Collector Oscillator - Hartley Oscillator - Colpits Oscillator - Phase Shift Oscillator - Wien Bridge Oscillator.

UNIT - IV : OPERATIONAL AMPLIFIER

Operational Amplifier - Block Diagram - Symbol - Basic Application : Inverting - Non-inverting summing - subtractor - Integrator - differentiator - Comparator - Schmitt Trigger.

UNIT - V : 555

555 Timer - Pin Configuration - Functional Block Diagram of Timer - Monostable Multivibrator - Applications - Astable Multivibrator - Applications

BOOKS FOR STUDY

1. Thereja, B.L., "Basic Electronics Solid State", S. Chand and Company Ltd., New Delhi, 2010
2. Ramakant, A. Gayakwad, "OP-AMPs and Linear Integrated Circuits" 4th Edition, PHI, New Delhi, 2004.

BOOKS FOR REFERENCE:

1. Bhargava, N.N., Kulshrestha, D.C., Gupta, S.C., "Basic Electronics and Linear Circuits", TMH, New Delhi.
2. Sedha, R.S., "Applied Electronics", S. Chand and Company Ltd, New Delhi, 2008.
3. Mehta, V.K., "Principles of Electronics", S. Chand and Company Ltd, New Delhi, 2008.

Unit	Book	Sections
I	1	13.1-13.2, 13.5-13.9, 14.1, 15.1, 16.3, 16.8-16.11, 17.5-17.8
II	1	18.1, 18.2, 18.6 - 18.10, 19.1 - 19.6, 22.1 - 22.7
III	1	28.1, 28.3 - 28.12, 28.14, 28.21 - 28.23
IV	1	2.2, 2.3, 2.5, 7.5, 7.5.1 - 7.5.3, 7.12, 7.13, 9.2, 9.4
V	2	10.4, 10.4.1, 10.4.2, 10.4.3, 10.4.4

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- Gj ja ehl fqfi sg; gi l fFk; j pwi d khz tufspi l Na c UthfFj y;

gadfs; :

- ehl ftop mofjay; c z u;Tfi s tsuj j y;
- ehl fqfi sr; r%fg; gadghl bwF Vwg c UthfFj y;

myF : 1 (12 kz p Neuk)

kNdhd;kz Bak; gha;pk; mqf;k; - 1> fsk; 1 - 5 ti u.

myF : 2 (12 kz p Neuk)

kNdhd;kz Bak; mqf;k; - 2> fsk; 1 - 3 ti u.
c i uei l ehl fk; (Kj y; , uz L ehl fqfs)

myF : 3 (12 kz p Neuk)

kNdhd;kz Bak; mqf;k; - 3> fsk; 1 - 4 ti u.

myF : 4 (12 kz p Neuk)

kNdhd;kz Bak; mqf;k; - 4> fsk; 1 - 5 ti u.

myF : 5 (12 kz p Neuk)

kNdhd;kz Bak; mqf;k; - 5> fsk; 1 - 3 ti u.
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Ntz Lk;

SEM-IV
14UGE420104

Hours/week: 5
Credits: 3

GENERAL ENGLISH-IV

Objectives:

- * To enable the students to comprehend the local and global issues through the lessons.
- * To enable the students to do the tasks centering on Skill Development and Grammar.
- * To empower the students with interactive skills.

Tasks Designed for Each Unit	Skills Focused to be Developed for Each Unit	Hours Allotted
1. Pre-reading Task	Listening and Reading Skills through teacher-led reading practice	2 Hours
2. Objectives	Listening and Reading Skills	
3. Text	Listening and Reading Skills through teacher-led reading practice	
4. Glossary (Using Words and Phrases in Sentences)	Referring and Language Using Skills	2 Hours
5. Reading Comprehension	Reading, Speaking, and Writing Skills	1 Hour
6. Critical Analysis	Critical Thinking and Speaking Skills	2 Hours
7. Creative Task	Creative Thinking and Speaking Skills	2 Hours
8. General Writing Skills	Writing Skill	1 Hour
9. Activities on Grammar	Grammar Using and Writing Skills	2 Hours

UNIT-I: Women through the Eyes of Media 12 Hrs

Grammar: Present Perfect Tense

UNIT-II: Effects of Tobacco Smoking 12 Hrs

Grammar: Present Perfect Continuous Tense

UNIT-III: The Impact of Liquor Consumption on the Society 12 Hrs

Grammar: Past Perfect Tense

UNIT-IV: An Engineer Kills Self as Crow Sat on his Head: A News Paper Report 12 Hrs

Grammar: Past Perfect Continuous Tense

UNIT-V: Traffic Rules 12 Hrs

Grammar: Future Perfect Tense & Future Perfect Continuous Tense

Text Book:

Jayraj, S. Joseph Arul. et al. (2014). *Trend-Setter: An Interactive General English Textbook for Under Graduate Students*, New Delhi, Trinity.

Sem. IV
14UCS430210

Hours/Week: 5
Credits: 4

DATA STRUCTURES AND ALGORITHMS

Objectives

* To give a fundamental knowledge on data structures and exposure to development of algorithms related to data structures.

Unit I (15)

Arrays: Definition - Terminology - One dimensional array - multi dimensional arrays. Linked lists: Definition - Circular linked lists - Double linked lists - Circular double linked lists.

Unit II (15)

Stacks: Definition - Representation of a Stack - operations on Stacks - Evaluation of Arithmetic expressions. Queues: Definition - Representation of Queues - various queue structures.

Unit III (15)

Trees: Basic terminologies - Definition and concepts - representation of Binary tree - Binary tree traversal.

Unit IV (15)

The Complete Development of an Algorithm; Algorithms - Basic Steps. Algorithm Design Methods: Sub goals - Hill Climbing - Working Backward - Heuristics - Backtrack Programming - Recursion.

Unit V (15)

Computer Science Algorithms: Sorting - Searching - Parallelism. Mathematical Algorithms : Magic Squares.

BOOKS FOR STUDY

Units I, II, III

1. Debasis Samanta, "Classic Data Structures", Second Edition, PHI Learning Pvt. Ltd., New Delhi, 2009.

Unit I : 2.1-2.3, 2.4.1, 2.4.3, 3.1-3.5

Unit II: 4.1-4.4, 4.5.1, 5.1-5.4

Unit III: 7.1-7.3, 7.4.3

Units IV, V

2. S.E. Goodman and S.T. Hedetniemi, "Introduction to the Design and analysis of algorithms", McGraw Hill, International edition, 1988.

BOOKS FOR REFERENCE

1. Ellis Horowitz and Sartaj Sahni, "Fundamentals of Data structure", Galgotia Publications, New Delhi, 1985.
2. Tanenbaum A.M. and Augustein M.J., "Data structures with Pascal", Prentice Hall of India Ltd, New Delhi, 1985.
3. Ellis Horowitz and Sartaj Sahni, "Fundamentals of computer algorithms", Galgotia Publications, New Delhi, 1985.

Sem. IV
14UCS430211

Hours/Week: 5
Credits: 4

MICRO COMPUTER ARCHITECTURE

Objectives

* To impart knowledge on architectures and assembly language Programming concepts of 8-bit & 16-bit Processors.

Unit - I (15)

Microprocessor Architecture: Intel 8085 - Instruction Cycle - Timing diagram - Instruction Format - Addressing modes - Intel 8085 Instructions.

Unit - II (15)

Programming using 8085: Simple examples - 8-bit addition and subtraction - 16-bit addition - 8-bit decimal subtraction - complements of 8-bit and 16-bit number - shifting bits - finding largest of two numbers - finding largest and smallest in an array - sum of series of numbers - 8-bit multiplication and division.

Unit - III (15)

Peripheral Devices and Their Interfacing: Address Space Partitioning - Memory and I/O Interfacing - Interrupts of Intel 8085 - Interfacing Devices and I/O Devices/PPI.

Unit - IV (15)

8086 Architecture and assembly language Programming: Basic 8086 Configuration - minimum mode and maximum mode - CPU Architecture - Internal Operation - Machine language Instructions - instruction Execution timing - Assembler instruction format.

Unit - V (15)
Data transfer instructions - arithmetic instructions - branch instructions - LOOP, NOP, HLT instructions - flag manipulation - shift, rotate and logical instructions Modular Programming for manipulating segment registers. (15)

BOOKS FOR STUDY

1. B. Ram, "Fundamentals of Microprocessors and Microcomputers", Dhanpat Rai Publications Pvt Ltd., 1998.
Unit I : Chapter 3, 4; Unit II: Chapter 6; Unit III : Chapter 7
2. Y.C. Liu and G.A.Gibson, "Microcomputer Systems: The 8086/8088 family Architecture, programming and Design", Prentice Hall of India, New Delhi, 1986.
Unit IV: Ch 2; Unit V : Ch 3.1 - 3.9, 4.1.

BOOKS FOR REFERENCE

1. Ramesh S. Gaonkar, "Microprocessor Architecture, Programming and Applications with the 8085/8080A", Wiley Eastern Ltd, New Delhi, 1989.
2. Barry B Brey, "The Intel Microprocessors 8086/8088, 80186, 80286, 80386, 80486, Pentium and Pentium Pro processors Architecture, Programming and Interfacing", Prentice Hall of India, New Delhi, 2002.

Sem. IV Hours/Week: 3
14UCS430212 Credits: 2

Software Lab-IV

DATA STRUCTURES USING 'C' AND 'c++'

C++ PRACTICALS

1. Create a class Array
2. Create a class Stack
3. Convert Infix to Postfix and evaluate Postfix using Stack class
4. Create classes for Queue and Circular Queue.

C PRACTICALS

5. Operations on Singly linked list
6. Operations on Doubly linked list
7. Binary Tree Creation and Traversals
8. Analyze Bubble Sort with number of passes, comparisons and data moves
9. Sequential and Binary Search
10. Merge two sorted data files.

Sem. IV Hours/Week: 5
14UCS430404A Credits: 4

Allied-III
APPLIED PHYSICS-II

Objectives:

- To understand the different switches and display devices supporting devices of a computer.
- To acquire knowledge of semiconductor diodes and transistors, op-amp and its applications.
- To understand the knowledge of different types of communication.

UNIT - I: Switches and Devices

Microphones - Digital displays - Loud speakers- , Head phones and ear pieces - Cathode Ray Oscilloscope (CRO) - Pick-ups - Heat and Light Sensors - Relays and switches

UNIT-II: Semiconductor Diodes and Transistors

Semiconductors - P-type and N-type semiconductors - Junction diode - Junction Diode characteristic - Semiconducting diode as a rectifier-Other diodes - Transistor characteristics- Transistor as a switch- Transistor as a current amplifier.

UNIT - III: Power Supplies , Safety and Instruments

Electricity at home - Dangers of electricity, safety precautions - Generating Electricity - Sources of EMF - Rectifier Circuits - Smoothing Circuits - Stabilizing Circuits.

UNIT - IV: Analog and Digital Electronics

Amplifiers and Feed back-Tuned LC oscillator - Operational Amplifier - OP-Amp voltage amplifier - OP-Amp summing amplifier -OP-Amp comparator - OP-Amp Integrators - OP-Amp oscillators - Logic Gates - Types of Logic Gates.

UNIT - V: Communication Systems

Audio systems - Sound recording - Complete Hi-fi system - Radio and Television- Radio waves , Radio system - Colour Television - Cable and Satellite TV - Telephone system , Simple Telephone circuits - Telephone exchange

BOOK FOR STUDY

1. Tom Duncan , Electronics - For Today and Tomorrow, BPB Publications 3rd Edition.

UNIT	BOOK	CHAPTER	SECTIONS
I	1	1	17-25
II	1	2	26-35
III	1	3	36-42
IV	1	4	49-53,56
V	1	5	82,83,84-89,90-92.9496

BOOK FOR REFERENCE:

1. A.S. Vasudeva - Modern Engineering Physics, S. Chand and Company Ltd., 1988.
2. A Text Book of Applied Electronics - R.S. Sedhu, S. Chand & Company, New Delhi, 2006.
3. Electronic Devices and Circuits - Salevahavan, Tata McGraw-Hill Publishing Company Ltd., New Delhi, 2008.

Sem. IV
14UCS430404A

Hours/Week: 4
Credits: 4

Allied-III

COMMUNICATION ELECTRONICS

Objectives:

- To acquire knowledge about analog and digital modulation and demodulation technique
- To understand the concepts and techniques involved in mobile communication

UNIT - I : SINGLE SIDEBAND AND COMMUNICATIONS SYSTEMS

Introduction - Definitions - Theory of amplitude modulation and modulation index - sidebands produced in amplitude modulation - Power distribution on an AM Waves - Methods of amplitude modulation - Phase modulation - Introduction - Definition - Express for FM wave - sideband terms produced in frequency modulation - Phase modulation - Frequency Modulation method - Comparative advantages, disadvantages and merits of FM, PM and AM.

UNIT - II: RADIO RECEIVERS

Introduction - classification of radio receivers - Superheterodyne receivers - AM Receivers - Receiver Characteristics - Receiver Noise - SSB Receivers - FM Receiver - Effect of Noise - Amplitude and Frequency modulation.

UNIT - III: DIGITAL AND DATA COMMUNICATION

Introduction - Types of analog pulse modulation - Generation and demodulation of PAM waves - pulse duration (width) modulation (PWM) - Pulse Position Modulation (PPM) - Generation and demodulation of PPM - Pulse Code Modulation (PCM) - Generation and demodulation of PCM - Multiplex Transmission - Frequency Division Multiplexing - Time Division Multiplexing.

UNIT - IV: CELLULAR TELEPHONE COMMUNICATIONS & TRANSMISSION

History of wireless communication - A simplified reference model - Frequencies for radio transmission - multiplexing - frequency division multiplexing - time division multiplexing - code division multiplexing - modulation - amplitude shift keying - frequency shift keying - phase shift keying - advanced frequency shift keying - advanced phase shift keying - multi carrier modulation.

UNIT - V: CELLULAR TELEPHONE COMMUNICATION SYSTEM

GSM - Mobile Services - System Architecture - Radio Interface - Protocols - Localisation and calling - Handover - Security - New Data Services.

BOOKS FOR STUDY

1. N.D. Deshpande, D.A. Deshpande, P.K. Rangole, Communication Electronics, Tata McGraw Hill Publishing Company Limited, Seventh Reprint, New Delhi.
2. Jochen H. Schiller, Mobile Communication, Pearson Education Ltd., Seventh Impression 2008, New Delhi.

UNIT BOOK SECTIONS

- I 13.1 - 3.6, 4.1 - 4.7
 II 17.1, 7.2, 7.5, 7.10, 7.11, 7.13-7.15
 III 112.1 - 12.3, 12.5 - 12.12
 IV 21.2, 1.3, 2.1, 2.5, 2.6
 V 24.1, 4.1.1 - 4.1.8

Sem. IV
14UCS430405A

Hours/Week: 2
Credits: 2

Practical:
APPLIED PHYSICS

Any 16 Experiments

1. Resistance of a Thermistor- Multimeter
 2. EMF of a Thermocouple - Multimeter
 3. Temperature Co-efficient of Thermistor
 4. Potentiometer - Calibration of Ammeter
 5. Potentiometer - Calibration of Voltmeter
 6. Field along the axis of a coil
 7. Junction Diode - V-I characteristics
 8. Zener Diode -V-I Characteristics
 9. Bridge Rectifier - p filter circuit
 10. Regulated Power supply Using Zener Diode
 11. Transistor Characteristics - CE Mode
 12. FET Characteristics -CG Mode
 13. Ballistic Galvanometer - Figure of Merit
 14. Single Stage R-C coupled amplifier - Frequency Response
 15. Operational- Amplifier - adder, subtractor, comparator,
 16. Basic Logic Gates - Using IC's
 17. Logic gates using IC's to solve Boolean expressions.
 18. Logic Gates Using IC's -The study of universal gates& Demorgan's Theorem
 19. Encoders using Diodes
 20. Encoders using OR gates.
 21. Shift register using IC7495.
 22. R-S, J-K , D,T Flip-flops using Logic gates IC's
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Sem. IV
14UCS430405B

Hours/Week: 2
Credits: 2

ELECTRONICS PRACTICAL

1. Study of Diode Characteristics
 2. Study of Zener Diode Charactersitics
 3. Study and construction of Half Wave Rectifier with & without filter
 4. Study of Transistor Characteristics - CB Configuration
 5. Study of Transistor Characteristics - CE Configuration
 6. Study of Transistor Characteristics - CC Configuration
 7. Study of Photo Electronic Devices (LED and Photodiode)
 8. Construction and Study of Hartley Oscillator - Transistor
 9. Construction and Study of Phase Shift Oscillator - Transistor
 10. Construction and Study of Colpitts Oscillator - Transistor
 11. Study of Basic Operations of Operational Amplifier
 12. Study of Operational Operational Amplifier Applications
 13. Study and Construction of Astable & Monostable MVT using 555
 14. Study of PAM, PPM and PWM
 15. Study of Transmission Line Characteristics
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Sem. V
14UCS530213

Hours/Week: 4
Credits: 3

PROGRAMMING IN JAVA

Objectives

* To give basic knowledge of Object Oriented Programming paradigm and to impart the programming skills in JAVA.

Unit - I (12)

Basic Concepts of OOPS

Benefits of OOPS- Java History-Java Features- Java Environment- Java Tokens- Constants- Variables- Data Types - Operators and Expressions- Decision Making and Branching- Decision Making and Looping.

Unit - II (12)

Classes, Objects and Methods:

Classes and Objects- Constructors- Method Overloading- Static Members- Inheritance- Overriding Methods- Final Variables, Final Methods and Final Classes - Finalizer Method- Abstract Methods and Abstract Classes - Visibility Control - Arrays - Strings.

Unit - III (12)

Interfaces:

Defining Interface- Extending Interfaces- Implementing Interfaces- Packages- Multithreaded Programming: Thread Life Cycle - Thread Exceptions - Thread Priority-Synchronization.

Unit - IV (12)

Managing Errors and Exceptions:

Types of Errors- Exceptions- Syntax of Exception Handling Code-Multiple Catch Statements- Using Finally Statements- Managing Input / Output Files in Java: Concept of Streams- Stream Classes- Character Stream Classes- Reading / Writing Characters- Reading / Writing Bytes- Handling Primitive Data Types- Random Access files.

Unit - V (12)

AWT:

Event Handling Methods- Labels- Button Control- CheckBox Control- Radio Button Control- Choice Control- List Control-Flow Layout- Border Layout- Grid Layout- Menus- Mouse Events-Applets: Life cycle of an Applet- Development and Execution of a Simple Applet.

BOOK FOR STUDY

1. E.Balagurusamy, "Programming with JAVA", Tata McGraw Hill, New Delhi, 4th edition. (UNIT I,II,III,IV)
2. C. Muthu, "Programming with JAVA", Vijay Nicole Imprints Private Limited, Chennai, Second Edition, 2011. (UNIT V)

BOOK FOR REFERENCE

1. Herbert Schildt, Complete Reference Java 2, Tata McGraw-Hill Publishing Company Limited, Fifth Edition, 2009.

Sem. V
14UCS530214

Hours/Week: 4
Credits: 3

DATABASE SYSTEMS

Objectives

* To understand the basic concepts and organization of a database and to impart basic knowledge on relational database.

UNIT - I (12)

Introduction:

Flat File - Database System - Database - Actionable for DBA. The Entity - Relationship Model: Introduction - The Entity Relationship Model. Data Models : Introduction - Relational Approach - The Hierarchical Approach - The Network Approach.

UNIT - II (12)

Storage Structure:

Introduction - File Organization and Addressing Schemes. Relational Data Structure: Introduction - Relations - Domains.

UNIT - III (12)

Normalization:

Introduction - Normalization - Definition of Functional Dependence (FD) - Normal Forms: 1NF, 2NF, 3NF and BCNF.

UNIT - IV (12)

Structured Query Language:

Features of SQL - Select SQL Operations - Grouping the Output of the Query - Querying from Multiple Tables - Retrieval Using Set operators - Nested Queries. T-SQL - Triggers and Dynamic Execution: Transact-SQL.

UNIT - V (12)

Procedural Language- SQL: PL/SQL Block Structure - PL/SQL Tables. Cursor Management and Advanced PL/SQL: Opening and Closing a Cursor - Processing Explicit Cursor - Implicit Cursor - Exception Handlers - Sub Programs in PL/SQL - Functions - Precaution While Using PL/SQL Functions - Stored Procedure - Object Oriented Technology.

BOOK FOR STUDY

1. Rajesh Narang, "Database Management Systems", PHI Learning Private Limited, New Delhi, sixth printing, 2010.

BOOK FOR REFERENCE

1. S.K. Singh, "Database Systems-Concept, Design and Applications", Dorling Kindersley (India) Pvt. Ltd., Second Impression, 2008.
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Sem. V
14UCS530215

Hours/Week: 3
Credits: 2

Software Lab-V
JAVA

1. Classes and Objects
 2. Constructor and Copy Constructor
 3. Inheritance
 4. Method Overloading and Method Overriding
 5. Interfaces
 6. Packages
 7. Multithreading
 8. Input / Output streams
 9. AWT Controls
 10. Applet
-

Sem. V
14UCS530216

Hours/Week: 3
Credits: 2

Software Lab-V
RDBMS

SQL

1. Table Creation, data Insertion, Deletion, Updating and Selection.
2. DML: Operators (Arithmetic, Relational, Logical), SQL Functions (Single Row Function, Group Functions).
3. DML: Set operations, Join operations
4. Nested queries
5. Creation of Synonym, Sequence & Index, Creation and manipulation of View.

PL/SQL

6. PL/SQL- block
 7. Cursors
 8. Functions & Procedure
 9. Packages
 10. Triggers
-

Sem. V
14UCS530301A

Hours/Week: 4
Credits: 4

Elective-I
XML

Objectives

* To impart data representation techniques with XML and to study various features of XML.

Unit I (12)

Introduction to XML - XML Document structure - elements and attributes - Well-Formed XML Document.

Unit II (12)

Formatting Languages: CSS - XSL documents - XSL Basics - linking XSL with XML - XSL Tags.

Unit III (12)

Validity - Document Type Declaration - Document Type Definitions (DTDs) - DTD Syntax: Element and Attribute Declarations - Entity Declaration.

Unit IV (12)

Xlink: Simple and extended links - Xpath - Xpointers - XML namespaces.

Unit V (12)

XML Applications: Mathematical markup languages - chemical markup languages - wireless markup languages - Data interchange.

BOOK FOR STUDY

1. Elliotte Rusty Harold, "XML Bible", Publishing, Inc, Indianapolis, Indiana, USA., 2nd Edition, 2001.

BOOKS FOR REFERENCE

1. Erik T. Ray, "Learning XML", O'Reilly Media, First Edition, 2001.
2. Sandra Eddy & John E. Schnyder, "Teach yourself XML", Hungry minds, 1999.

Sem. V
14UCS530301B

Hours/Week: 4
Credits: 4

Elective-II
SOFTWARE ENGINEERING

Objectives

* To introduce the basic concepts of Software Engineering and the various phases in Software Development.

UNIT I (12)

Introduction: The Software Engineering Discipline - Software Development Projects - Emergence of Software Engineering - Software Life Cycle Models: Classical Waterfall Model - Iterative Waterfall Model - Prototyping Model - Spiral Model.

UNIT II (12)

Software Project Management: Responsibilities of a Software Project Manager - Project Planning - Metrics for Project Size Estimation - Project Estimation Techniques - Empirical Estimation Techniques - COCOMO - Risk Management - Requirements Analysis and Specifications: Requirements Gathering and Analysis - SRS.

UNIT III (12)

Software Design: Cohesion and Coupling - Function-Oriented Software Design: Structured Analysis - DFDs - Structured Design - Object Modeling: Overview of Basic Object-Oriented Concepts - UML Diagrams - Activity Diagram - State Chart Diagram - User Interface Design: Characteristics of a Good User Interface - Basic Concepts.

UNIT IV (12)

Coding and Testing: Coding - Software Documentation - Testing - Unit Testing - Black-Box Testing - White-Box Testing - Debugging - Integration Testing - System Testing - Software Reliability and Quality Management: Software Reliability - Software Quality and Management System.

UNIT V (12)

Computer Aided Software Engineering: Case Environment - Characteristics of CASE Tools - Maintenance: Characteristics of a Software Maintenance - Software Reverse Engineering - Estimation of Maintenance Cost - Software Reuse: A Reuse Approach.

BOOK FOR STUDY

1. Rajib Mall, “Fundamentals of Software Engineering”, PHI Learning, Private Limited, New Delhi, Third Edition, 2010.

BOOK FOR REFERENCE

1. K.K. Aggarwal and Yogesh Singh, “Software Engineering”, New Age International Publishers, Revised Second Edition 2005.

Sem. V
14UCS530302

Hours/Week: 4
Credits: 4

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Core Elective (WS)
MULTIMEDIA

Objectives

- * To understand and familiar the concepts of Multimedia by creating multimedia applications using Photoshop and Flash 8.

UNIT-I (12)

Multimedia: Introduction - Convergence of computers, Communications, and Entertainment Products- Brief Look - Technology trends - Appliances - Designer’s view - Industry perspectives- Key Challenges.

UNIT- II (12)

Photoshop: Adjusting Image Brightness and Contrast - Understanding Histograms - Adjusting Brightness and Contrast - Levels - Curves - Balancing Dynamic Range with the Shadow - Working with Color - Calibrating Monitor - Understanding Color Theory - Comparing Color Spaces - Choosing Color Working Space - Understanding Color Channels - Evaluating Color - Adjusting Color.

UNIT- III (12)

Photoshop Contd.. Working with Layers - Adjustment Layers - Working with the Layers Palette - Understanding the Background Layer - Managing Layers - Layer Opacity and Blending Modes - Using Photoshop’s Main Retouching Tools - Working with Brushes - Using the Clone Stamp Tool - Working with Tool Blending Modes - Using the Healing Brush - Busting Dust with the Spot Healing Brush - Using the Patch Tool - Fixing Red Eye - Retouching with Layers - Body Sculpting with the Liquify Command.

UNIT - IV (12)

FLASH: Understanding the flash 8 framework -The Brave New World of Expressiveness - Many Faces of Flash -Exploring web Technologies - Contextualizing Flash in the Internet - Exploring Companion Technologies - Recognizing Project Potential - Planning Flash projects - workflow Basics - Using the project panel.

UNIT - V (12)

Flash Contd.. Interface Fundamentals - Managing Windows and Panels - Tools Panel - Document Window - Timeline Window - Printing - Drawing in Flash - Geometric Shape Tools - Drawing Tools - Pen Tool - Fill and Stroke Controls - Optimizing Drawings - Putting Selection Tools to Work - Designing and Aligning Elements.

BOOKS FOR STUDY

Unit I

1. John F. Koegel Buford, “Multimedia systems”, 4th Edition, Addison Wesley, Delhi, 2001.

Unit II, III

2. Mark Fitzgerald, “Photoshop®CS3 Restoration and Retouching Bible”, Wiley Publishing, Inc, Canada, 2008.

Unit IV, V

3. Robert Reinhardt and Snow Dowd, “Macromedia Flash 8 Bible”, Wiley India, New Delhi, 2006.

BOOK FOR REFERENCE

1. Mark Gatter, “Software Essentials for Graphic Designers: Photoshop, Illustrator, InDesign, QuarkXPress, Dreamweaver, Flash and Acrobat”, Laurence King Publishing, 2006.
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Sem. V
14UCS540501

Credits: 4

Extra Credit Course
SOFTWARE ENGINEERING

Objectives

To introduce the basic concepts of Software Engineering and the various phases in Software Development.

UNIT I

Introduction: The Software Engineering Discipline - Software Development Projects - Emergence of Software Engineering - Software Life Cycle Models: Classical Waterfall Model - Iterative Waterfall Model - Prototyping Model - Spiral Model.

UNIT II

Software Project Management: Responsibilities of a Software Project Manager - Project Planning - Metrics for Project Size Estimation - Project Estimation Techniques - Empirical Estimation Techniques - COCOMO - Risk Management - Requirements Analysis and Specifications: Requirements Gathering and Analysis - SRS.

UNIT III

Software Design: Cohesion and Coupling - Function-Oriented Software Design: Structured Analysis - DFDs - Structured Design - Object Modeling: Overview of Basic Object-Oriented Concepts - UML Diagrams - Activity Diagram - State Chart Diagram - User Interface Design: Characteristics of a Good User Interface - Basic Concepts.

UNIT IV

Coding and Testing: Coding - Software Documentation - Testing - Unit Testing - Black-Box Testing - White-Box Testing - Debugging - Integration Testing - System Testing - Software Reliability and Quality Management: Software Reliability - Software Quality and Management System.

UNIT V

Computer Aided Software Engineering: Case Environment - Characteristics of CASE Tools - Maintenance: Characteristics of a Software Maintenance - Software Reverse Engineering - Estimation of Maintenance Cost - Software Reuse: A Reuse Approach.

BOOK FOR STUDY

1. Rajib Mall, "Fundamentals of Software Engineering", PHI Learning, Private Limited, New Delhi, Third Edition, 2010.

BOOK FOR REFERENCE

1. K.K. Aggarwal and Yogesh Singh, "Software Engineering", New Age International Publishers, Revised Second Edition 2005.

Sem. V
14UCS540502

Credits: 4

Extra Credit Course
C# •NET

Objectives

- * To impart the concepts and programming skills in C#.NET platform.

Unit - I

Introducing C# and .NET Platform - Building Blocks of the .NET Platform - Additional .NET-Aware Programming Languages - .NET Assemblies - Common Type System - Common Language Specification - Common Language Runtime - The Assembly/Namespace/Type Distinction - Exploring an Assembly - The Platform-Independent Nature of .NET - Windows 8 Applications.

Unit - II

Core C# Programming Constructs - Simple C# Program - The System.Console Class - System Data Types and Corresponding C# Keywords - Working with String Data - Data Type Conversions - Implicitly Typed Local Variables - C# Iteration Constructs - Decision Constructs and the Relational/Equality Operators.

Unit - III

Methods and Parameter Modifiers - Understanding C# Arrays - Understanding the enum Type - Understanding the Structure Type - Value Types and Reference Types - Understanding C# Nullable Types.

Unit - IV

Understanding Encapsulation - Introducing the C# Class Type - Understanding Constructors - The Role of the this Keyword - Understanding

the static Keyword - Defining the Pillars of OOP - C# Access Modifiers - C#'s Encapsulation Services.

Unit - V

Inheritance and Polymorphism: The Basic Mechanics of Inheritance - The Details of Inheritance - Structured Exception Handling: The Role of .NET Exception Handling- Throwing a General Exception - Catching Exceptions - Working with Interfaces: Interface Types - Interface Members at the Object Level.

BOOK FOR STUDY

1. Andrew Troelsen, "Pro C# 5.0 and the .NET 4.5 Framework", 6th Edition, Apress, New York, 2012.

BOOKS FOR REFERENCE

1. Jesse Liberty, "Programming C#", Second Edition, O'Reilly Press, 2002.
2. Robinson *et al*, "Professional C#", Fifth Edition, Wrox Press, 2002.
3. Herbert Schildt, "The Complete Reference: C#", Tata McGraw Hill, 2004.

WEB REFERENCE

1. <http://social.msdn.microsoft.com>
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Sem. V
14UCS540503

Credits: 4

Extra Credit Course **PROJECT DEVELOPMENT TOOLS**

Objectives

- * To give a fundamental knowledge of the various Integrated Development Environment and exposure to development of projects.

Unit I

Eclipse: How to get started with Eclipse - How to add projects to and remove projects from the workspace - Testing and debugging with Eclipse - Object-oriented development with Eclipse - More Eclipse skills - Applications - Exercises.

Unit II

NetBeans: How to get started with NetBeans - How to open and close projects and import source code - Object-oriented development with NetBeans - Debugging with NetBeans - More NetBeans skills.-Application -Exercises

Unit III

JDeveloper: Creating Your First Application - Creating Your First Java Class - Using the Source Editor with Your Java Class - Debugging Java Programs - Managing Files.

Unit IV

Zen Studio: Installation and Registration - Working with Zen Studio - Environment - Enterprise Development & Deployment - Team Development.

Unit V

MySQL Workbench: MySQL Workbench Introduction - What is new in MySQL Workbench 6.0 - MySQL Workbench Editions - Installing and Launching MySQL Workbench - MySQL Connections - The Home Window - SQL Development - Data Modeling - Code Generation Overview - MySQL Enterprise Features - Database Migration Wizard - Extending Workbench - Keyboard Shortcuts - MySQL Utilities.

WEB REFERENCE

Unit I

http://www.murach.com/downloads/jse6/jse6_eclipse_tutorial.pdf

Application and Exercises:

http://www.murach.com/servlet/murach.downloads.DownloadServlet?file=jse6_eclipse.zip

Unit II

http://www.murach.com/dloads/jse6/jse6_netbeans_tutorial.pdf
Application and exercises:
http://www.murach.com/servlet/murach.download.DownloadServlet?fuke=jse6_netbeans.zip .

Unit III

http://docs.oracle.com/cd/E18941_01/tutorials/jdtut_11r2_50/jdtut_11r2_50.html

Unit IV

<http://static.zend.com/topics/Zend-Studio-QuickStart-Guide-v550-new.pdf>

Unit V

<http://dev.mysql.com/doc/workbench/en/index.html>

Sem. V
14UCS540601

Hours/Week: 2
Credits: 2

Skill Based Elective (WS)
DESKTOP PUBLISHING TOOLS

Objectives

- * To impart the knowledge about the Desktop Publishing Tools such as, PageMaker and CorelDraw in order to improve the employability skills of the learners.

Unit I**(6)**

Adobe PageMaker: Using the toolbox-Viewing pages- Working with text and graphics - Moving between pages - Correcting mistakes- Creating a publication from scratch - Setting up pages - Using Master pages - Using the zero point - Nonprinting guides - Setting up ruler guides - Numbering pages.

Unit II**(6)**

Adobe PageMaker: Creating text blocks - Formatting text - Duplicating an object- Control palette basics - Grouping and ungrouping objects - Locking objects - Aligning and distributing objects - Rotating an object - Reflecting an object - Skewing an object - Cropping a graphic - Printing in PageMaker.

Unit III**(6)**

CorelDraw: CorelDraw terminology and concepts - application window - workspace tools - working with template - zooming and panning - working with views - lines, outlines and Brush Strokes.

Unit IV**(6)**

CorelDraw: Formatting lines and Outlines - Drawing rectangles and squares - Applying uniform fills - Applying pattern fills.

Unit V**(6)**

CorelDraw: Working with color - working with custom color palettes - understanding color models - using Special Effects - Using Text in Drawing - Adding bitmapped images - Print a drawing.

BOOK FOR STUDY

1. Vishnu Priya Singh and Meenakshi Singh, "DTP Course Book", CompuTech Publication Ltd., New Delhi, 2nd Edition, 2011.

BOOK FOR REFERENCE

1. Shirish Chavan, "Rapidex DTP Course", Unicorn Books Pvt. Ltd., New Delhi-02, Revised and Enlarged Edition - 2005.
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Sem. V
14UCS540701

Hours/Week: 2
Credits: 2

IDC
SOFT SKILLS

Objectives

* This course is aimed at introducing the students to the nuances of developing the basic skills that required of an educated youth; and to train them to present the best of themselves as job seekers.

Module I: Effective Communication & Resume Writing

Basics of communication - definition of communication, Barriers of Communication, Non-verbal Communication; Effective Communication - Johari Window, The Art of Listening, Conversation Techniques, Good manners and Etiquettes.

Module II: Resume Writing & Interview skills

Resume Writing: What is resume? Types of Resume - Chronological, Functional and Mixed Resume, Steps in preparation of Resume. Interview Skills: Common interview questions, Attitude, Body Language, The mock interviews, Phone interviews, Behavioral interviews.

Module III: Group Discussion

Group Discussion Basics, GD Topics for Practice, Points for GD Topics. Personal Effectiveness: Self Discovery; and Goal Setting

Module IV: Numerical Ability

Average, Percentage; Profit and Loss, Simple Interest, Compound Interest; Time and Work, Pipes and Cisterns; Time and Distance, Problems on Trains, Boats and Streams; and Calendar, Rations and Proportions.

Module V: Test of Reasoning

Verbal Reasoning: Series Completion, Analogy; Data Sufficiency, Assertion and Reasoning; and Logical Deduction. Non-Verbal Reasoning: Series; and Classification

References

1. Aggarwal, R.S. 2010. A Modern Approach to Verbal and Non Verbal Reasoning. S.Chand, New Delhi.
2. Covey, Stephen. 2004. 7 Habits of Highly effective people, Free Press. Egan, Gerard. (1994). The Skilled Helper (5th Ed). Pacific Grove, Brooks/ Cole.

3. Khera, Shiv 2003. You Can Win. Macmillan Books , Revised Edition.
4. Murphy, Raymond. 1998. Essential English Grammar. 2nd ed., Cambridge University Press. Sankaran, K., & Kumar, M. Group Discussion and Public Speaking. M.I. Pub, Agra, 5th ed., Adams, Media.
5. Trishna's 2006. How to do well in GDs & Interviews, Trishna Knowledge Systems.
6. Yate, Martin. 2005. Hiring the Best: A Manager's Guide to Effective Interviewing and Recruiting.

Sem. VI
14UCS630217

Hours/Week: 4
Credits: 3

COMPUTER NETWORKS

Objectives

- * To enlighten the concepts of network models, the applications of various layers in the Network model, LAN architecture, Protocols and Client, Server computing.

Unit I (12)

Introduction to Computer Networks and Data Communications: Need for Computer Networks - Evolution of Computer Networks - Data Communication Fundamentals - Data Transmission - Transmission Media - Classification of Computer Networks - Switching and Routing - Routing - Multiplexing and Concentration - Concentrator - Terminal Handling - Components of Computer Network.

UNIT II (12)

OSI Reference Model - The Physical Layer - Data Link Layer - Network Layer - Transport Layer - Session Layer - Presentation Layer - Application Layer. Transmission Control Protocol: Network layer - Transport Layer - Application layer.

UNIT III (12)

IEEE Standards - The Ethernet - Token Bus - Token Ring - The X.25 Protocol - SNA Model Digital Network Architecture.

Unit IV (12)

Local Area Network : LAN Architecture - LAN Advantages and Services - Characteristics of a LAN - LAN Topologies. Wireless LANs - Components of Wireless LANs - Working of Wireless LANs - Transmission Media - Wireless LAN Types - Protocol for Wireless LAN - Uses of Wireless LAN.

Unit V (12)

Client / Server Computing : Clients - Server. Distributed Applications: Web technology - HTTP- Web Client - Web Server - HTML. Distributed Processing: Three Tier Architecture.

BOOK FOR STUDY

1. Rajesh, Eswarakumar, Balasubramanian, "Computer Networks, Fundamentals and Applications", Vikas Publishing House Pvt. Ltd., 2002.

BOOKS FOR REFERENCE

1. Behrouz A Fourouzan, "Data Communications and Networking", McGraw Hill, Fourth Edition, 2006.
2. William Stallings, "Data and Computer Communications", Prentice Hall of India, Seventh Edition, 2004.

Sem. VI
14UCS630218

Hours/Week: 4
Credits: 3

OPERATING SYSTEMS

Objectives

- * To gain the basic knowledge about the operating systems and its various schemes and services.

UNIT I (12)

Operating system Overview - Basic concepts and terminologies - operating system resource manager - process view point - Hierarchical and extended machine view - I/O programming and interrupt programming - I/O programming - Interrupt structure and processing.

UNIT II (12)

Memory Management - Single Contiguous allocation - multiprogramming - partitioned allocation - relocatable partitioned memory management - paged memory management - page removal algorithms - thrashing - segmented memory management - segmented and demand paged memory management.

UNIT III (12)

Processor management - Process State Model - job scheduling - Process scheduling - Multiprocessor systems - Process synchronization - resolving deadlocks.

UNIT IV (12)

Device management - Techniques - Device characteristics - I/O traffic controller - I/O scheduler and device handlers - virtual devices - spooling.

UNIT V (12)

Information Management: File system model - Symbolic, basic file system - Access Control verification - Logical, Physical file system - Allocation strategy, Device Strategy Modules.

BOOK FOR STUDY

1. S.E Madnick and J J Donovan “Operating Systems” McGraw Hill International Book Co, New Delhi, 2013.

BOOKS FOR REFERENCE

1. Harvey M Deitel, “An Introduction to operating system” Addison - Wesley Publishing Co. New York, 1984.
2. James L. Peterson & Abraham Silbertschatz, “An Introduction to operating system” Addison - Wesley Publishing Co. New York, 1987.

Sem. VI
14UCS630219

Hours/Week: 4
Credits: 3

OPERATIONS RESEARCH**Objectives**

- * To give an overall idea about the various Optimization techniques and their usages.

UNIT-I (12)
Linear Programming - General formulation of the LP Model and its Graphical solution. The Simplex Method - Computational Procedure. Artificial Variable Techniques - The M Technique and the Two Phase Technique - Special cases in Simplex Method.

UNIT-II (12)
Duality in Linear Programming - The Dual Problems - Primal Dual Relationships, Primal - Dual Computations - Dual Simplex Method.

UNIT-III (12)
Transportation Problems - Transportation Model - Determining the starting solution of Transportation Model, North - West Corner Rule, Least - Cost Method and Vogel’s Approximation Method. Determining the optimum solution of Transportation Problems - Assignment Problems and its solution by Hungarian method.

UNIT-IV (12)
Project Scheduling by PERT-CPM - Network diagram representations - Critical path calculations - Probability considerations in Project Scheduling - Cost consideration.

UNIT-V (12)

Inventory Management: Inventory Control - ABC analysis - Economic Lot size problems - EOQ with uniform demand and shortages - Limitations of Inventories - Buffer stock - Determination of Buffer stocks.

(Note: Stress may be on the working of numerical problems)

BOOK FOR STUDY

1. Kanti Swarup, P K Guptha & Manmohan, “Operations Research”, Sultan Chand & Sons, New Delhi, 1984.

BOOKS FOR REFERENCE

1. Rathindra P. Sen, “Operations Research Algorithms and Applications”, PHI, New Delhi, 2010.
2. R. Panneer Selvam, “Operations Research”, PHI, New Delhi, 2nd Ed., 2010.
3. Nita H. Shah, Ravi M. Gor & Hardik Soni, “Operations Research”, PHI, New Delhi, 2010.

Sem. VI
14UCS630220

Hours/Week: 3
Credits: 2

**Software Lab-VII
ASP•NET**

1. Simple web page creation using HTML
2. HTML form validation using VB scripts
3. Simulating a Calculator
4. Testing Request and response Objects
5. Testing Application and Session Objects
6. Testing Validation Controls
7. Database Access - ADO.NET
8. Components Creation and Usage
9. Use of DataGrid and DataList Viewer
10. File Accessing
11. Creating Web Services and Access

BOOK FOR REFERENCE

1. Bill Evjen, Scott Hanselman, Devin Radar, Farhan Muhammad, Srinivasa Sivakumar, “Professional ASP.NET 2.0 Special Edition”, Wiley Publishing, 2006.

Sem. V & VI
14UCS630221

Hardware Lab
ELECTRONICS

Hours/Week: 3
Credits: 5

Non-Clocked Experiments

1. Encoders and Decoders
2. Multiplexers and De-Multiplexers
3. ALU

Clocked Experiments

4. Memory Devices
5. Flip-Flops and Counters

Arithmetic Experiments

6. Adders and Subtractors
7. 4-bit Adder and BCD adder

Arithmetic Experiments

8. 8085 Programming - 1
9. 8085 Programming - 2
10. 8086 Programming - 1
11. 8086 Programming - 2
12. Interfacing - Parallel port - 1.
13. Interfacing - Parallel Port - 2.
14. Interfacing - Stepper Motor
15. Hardware Assembling & Diagnostics
16. OS Installation and CMOS Setup
17. Networking - Creaming/Hub/Switch
18. Wi-Fi - Bridging, Routing

Sem. VI
14UCS630222

PROJECT

Hours/Week: 3
Credits: 2

Sem. VI
14UCS630223

COMPREHENSIVE EXAMINATION

Hours/Week: 3
Credits: 2

Unit I

Discrete Mathematics and Applications of Operations Research. (9)

Unit II

Programming concepts in C, C++, JAVA. (9)

Unit III

Concepts of Database Systems.(9)

Unit IV

Computer Networks and Operating system Concepts. (9)

Unit V

Software Engineering: Analysis, Design, Implementation and Testing.(9)

BOOKS FOR REFERENCE

For Unit I

1. Bernard Kolman & Robert C. Busby, "Discrete Mathematical Structure for Computer Science", Second Edition, Prentice Hall of India, New Delhi, 1987
2. Rathindra P. Sen, "Operations Research Algorithms and Applications", PHI, New Delhi, EEE. 2010

For Unit II

3. Brian W. Kernighan, Dennis M. Ritchie, "The C Programming Language", Prentice Hall of India Pvt. Ltd., New Delhi, 1989.
4. Bjarne Stroustrup, "The C++ Programming Language", Addison-Wesley, New York, 1999.
5. Patrick Naughton and Herbert Schildt, "JAVA 2 - The Complete Reference", Fifth Edition, Tata-McGraw-Hill, New Delhi, 2002.

For Unit III

6. S.K. Singh, "Database Systems - Concepts, Design and Applications", Dorling Kindersley (India) Pvt. Ltd., Second Impression, 2008.

For Unit IV

7. William Stallings, "Data and Computer Communications", Pearson Education, India Ltd.

8. S.E Madnick and J J Donovan “Operating Systems” McGraw Hill International Book Co, New Delhi , 1987

For Unit V

9. K.K. Aggarwal & Yogesh Singh, “Software Engineering”, New Age International Publishers, Revised Second Edition, 2005

WEB REFERENCE

1. <http://www.indiabix.com/>
2. <http://www.mcquestions.com/>

Sem. VI
14UCS630303A

Hours/Week: 4
Credits: 4

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Elective-III
COMPUTER GRAPHICS

Objectives

* To impart the basic principles of generating primitives, shapes, package development, interactive graphics, raster graphics, two and three dimensional graphics and their transformations.

Unit I (12)

Introduction: point plotting systems: Coordinate system - line and circle drawing algorithms. Display devices: storage-tube display - refresh line drawing display - two-dimensional transformation: principles - concatenation - matrix representation. Clipping and windowing: line clipping algorithm - polygon clipping algorithm - viewing transformation - windowing transformation.

Unit II (12)

Graphic packages: simple graphics package: ground rules - graphic primitives - windowing and miscellaneous functions - display code generator. Segmented display files: segments - posting and unposting segments - appending segments. Display file compilation: free storage allocation - display file compilation. Geometric models: simple modeling example - geometric modeling - symbols and instances. Picture structure: Defining symbols - display procedures - structured display file.

Unit III (12)

Interactive Graphics: graphical input devices: pointing and positioning devices - mouse - tablets - light pen - three dimensional input devices -

comparators. Graphical input techniques: positioning techniques - pointing and selection - inking and painting - online character recognition. Event handling: polling - interrupts - event queue - functions for handling events - polling tald design light pen interrupts. Input functions: Dragging and fixing - hit detection - online character recognition.

Unit IV (12)

Raster Graphics: Raster graphics fundamentals - frame buffer display - representing raster image - scan conversion - displaying characters - speed of scan conversion - natural images. Solid-area scan conversion: Geometric representation of areas - scan converting polygons - priority - X-Y algorithms - properties of scan conversion algorithms. Interactive Raster Graphics: updating the display - the painting model - moving parts of an image. Raster graphic systems: representation - raster manipulation functions - raster display hardware.

Unit V (12)

Three-dimensional graphics: Realism in three-dimensional graphics - techniques for achieving realism - modeling and realism. Curves and surfaces: parametric functions - Bezier and B-Spline methods. Three-dimensional transformations and perspectives: transformation - modeling - viewing - clipping. Perspective depth: Screen, Homogeneous coordinate systems - perspective transformation. Hidden-surface elimination: Depth-buffer algorithm - area and scan-line coherence algorithms - sorting and coherence: Shading: shading model - special effects - applying shading model.

BOOKS FOR STUDY

1. William M. Newman and Robert F. Sproull, “Principles of Interactive Computer Graphics”, Second edition, TMH Edition, New Delhi, 1997.

BOOKS FOR REFERENCE

1. Malay K. Pakhira, “Computer Graphics, Multimedia and Animation”, Second Edition, PHI edition, 2010.
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Sem. VI
14UCS630303B

Hours/Week: 4
Credits: 4

Elective-III
WEB GRAPHICS

Objectives

* To offer the knowledge of creating and working with digital images and to produce a presentation package using multimedia tools.

Unit I (12)

Introduction to multimedia - PhotoShop: Environment - layers and workpath - Image editing - channels, masks and actions - filters - rollovers and animations.

Unit II (12)

Dreamweaver: environment - developing a website - tables and images - navigating in a website - CSS stylesheet - layers, frames and forms - behavior.

Unit III (12)

Flash: introduction - drawing and colouring tool - animation - tweening - interactive elements.

Unit IV (12)

Illustrator: interface - working with shapes - layers - blend, path and mask.

Unit V (12)

Director: work space - animation and effects - sound and video.

BOOK FOR STUDY

1. BPB Editorial Board, "Multimedia and Web Design Course", BPB Publications, New Delhi, 2005.

BOOK FOR REFERENCE

1. NIIT, "Interactive Communication Through Multimedia - An Overview", Prentice Hall of India, New Delhi, 2004.

Sem. VI
14UCS640602

Hours/Week: 2
Credits: 2

Skill Based Elective (BS)
E-COMMERCE

Objectives

* To give the concepts of E-Commerce & Internet and their applications of Business.

Unit-I (6)

Electronic Commerce - Electronic data interchange - Benefits of EDI - E-commerce over the Internet - Internet commerce - Examples - Commercenet.

Unit-II (6)

Electronic communication - PCs and networking: Networking - Network topology - Communication Media - VSAT.

Unit-III (6)

The Internet: Introduction - Communication protocols - Services and resources.

Unit-IV (6)

Mail - Internet search - Browsers.

Unit-V (6)

Getting connected to internet - Setting up a web site - Web servers - Business to business E-commerce Payments for goods and services - Bottlenecks.(6)

BOOK FOR STUDY

1. Kamlesh K. Bajaj and Debjani Nay, 'E-Commerce - The Cutting Edge of Business' - Tata McGraw Hill Publishing Co. Ltd., New Delhi, 2000.

BOOK FOR REFERENCE

1. P.T. Joseph, SJ, 'E-Commerce - An Indian Perspective', Third edition, PHI Publishing Co. Ltd., New Delhi, 2009.

Sem. VI
14UCS640504

Credits: 4

Extra Credit Course:
WEB TECHNOLOGY

Objectives

To impart the advanced programming skills about dynamic web page design.

Unit I

XHTML: Introduction - Editing XHTML - W3C XHTML Validation Service - Headers - Linking - images - Special characters and more line breaks - Nested unordered lists - XHTML tables - Forms - complex XHTML forms - internal linking - creating and using image maps - meta elements - frameset elements - nested frameset elements.

Unit II

Cascading Style Sheets (CSS): Inline styles - embedded style sheets - conflicting styles - linking external style sheets - W3C CSS validation service - positioning elements - background - element dimensions - Text flow and Box model - User style sheets.

Unit III

ASP: How Active Server Pages Work - Setup - Active Server Page Objects - Simple ASP examples - File System Objects - Session Tracking and Cookies - Accessing a Database from an Active Server Page - Server-Side ActiveX Components.

Unit IV

JSP: JavaServer Pages Overview - A First JavaServer Page Example - Implicit Objects - implicit objects - scripting - Scripting Components - Standard Actions - Directives - Custom Tag Libraries.

Unit V

AJAX: AJAX a new approach - understanding JavaScript for AJAX - Immediate solutions - Asynchronous Data Transfer with XML http request - Implementing AJAX frameworks - PHP and AJAX - Web services in AJAX.

BOOKS FOR STUDY

Unit I,II,III,IV

1. Harvey M. Deitel, Paul J. Deitel and Tem R. Nieto, "Internet and World Wide Web : How to Program", Pearson Education, Second Edition, 2001.

Unit V

2. Kogent Solutions Inc., "AJAX Black Book", Dreamtech press, 2008

BOOK FOR REFERENCE

1. Kogent Solutions Inc., "Web Technologies Black Book", Dreamtech press, 2009.

Sem. VI
14UCS640505

Credits: 4

Extra Credit Course
WEB GRAPHICS

Objectives

- * To offer the knowledge of creating and working with digital images and to produce a presentation package using multimedia tools.

Unit I

Introduction to multimedia - PhotoShop:

Environment - layers and workpath - Image editing - channels , masks and actions - filters - rollovers and animations.

Unit II

Dreamweaver:

Environment - developing a website - tables and images - navigating in a website - CSS stylesheet - layers, frames and forms - behavior.

Unit III

Flash:

Introduction - drawing and colouring tool - animation - tweening - interactive elements.

Unit IV

Illustrator:

Interface - working with shapes - layers - blend, path and mask.

Unit V

Director:

work space - animation and effects - sound and video.

BOOK FOR STUDY

1. BPB Editorial Board, "Multimedia and Web Design Course", BPB Publications, New Delhi, 2005.

BOOK FOR REFERENCE

1. NIIT, "Interactive Communication Through Multimedia - An Overview", Prentice Hall of India, New Delhi, 2004.
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