B.C.A.
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 TANSCHE 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 B. C. A.

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	
		Core Electives	3	12	11	
		Allied	4	24	18	
		Additional Core Courses for Extra Credits	-	-	-	**98**
IV	V-VI	**Skilled Based Electives** Between Schools (BS) Within School (WS)	1 1	2 2	2 2	**4**
	V	**Inter Departmental Courses (IDC)** - Soft Skills	1	2	2	**2**
	I-IV	**NMC** Communicative English Computer Literacy	1 1	0 2	5 2	**7**
	I-IV	**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 : Genera English

Part-III : Core Course (Theory, Practicals, 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	**UBC**	**1**	**3**	**2**	**1**

For Example :

I B.C.A. Computer Applications, first semester C Programming.

The code of the paper is 14UBC130201.

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:

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

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 Grduate 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.

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B.C.A.
Course Pattern - 2014 Set

Sem	Part		Code	Course	Hrs	Crs
I	I	Language	14UGT110001	Language – I (Tamil / Hindi / French / Sanskrit)	4	3
	II	English	14UGE120101	General English –I	5	3
	III	Core	14UBC130201	C Programming	5	3
			14UBC130202	Digital Computer Fundamentals	5	3
			14UBC130203	Software Lab – I (C Programming)	3	2
		Allied	14UBC130401	Allied: 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**	**26**
II	I	Language	14UGT210002	Language - II (Tamil/ Hindi / French / Sanskrit)	4	3
	II	English	14UGE220102	General English – II	5	3
	III	Core	14UBC230204	Object Oriented Programming With C++	4	3
			14UBC230205	Data Structures and Algorithms	4	3
			14UBC230206	Software Lab–II (C++ and Data Structures)	3	2
		Allied	14UBC230402	Allied: Mathematics - II	6	5
	IV	NMC	14UCE240802	Computer Literacy	2	2
		V. Edn	14UFC241002	Techniques of Social Analysis	2	2
				Total for Semester II	**30**	**23**
III	I	Language	14UGT310003	Language - III (Tamil/ Hindi / French / Sanskrit)	4	3
	II	English	14UGE320103	General English – III	5	3
	III	Core	14UBC330207	Relational Database Management System	4	3
			14UBC330208	UML and IT Enabled Services	4	3
			14UBC330209	Software Lab-III (RDBMS)	3	2
		Allied	14UBC330403	Allied: Accounts – I	6	5
	IV	NMC	14UCE340901	Environmental Studies	2	2
		V. Edn	14UFC341003 A	Professional Ethics I: Social Ethics (OR)	2	2
			14UFC341003 B	Professional Ethics I: Religious Doctrine		
				Total for Semester III	**30**	**23**

Sem	Part		Code	Course	Hrs	Crs
IV	I	Language	14UGT410004	Language - IV (Tamil / Hindi / French / Sanskrit)	4	3
	II	English	14UGE420104	General English – IV	5	3
	III	Core	14UBC430210	Java Programming	5	3
			14UBC430211	Operating Systems	5	3
			14UBC430212	Software Lab–IV (Java Programming)	3	2
		Allied	14UBC430404	Allied: Accounts - II	6	5
	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**	**21**
V	III	Core	14UBC530213	Computer Networks	4	3
			14UBC530214	C# .NET	4	3
			14UBC530215	HTML5 and CSS3	4	3
			14UBC530216	Software Lab–V (C# .NET)	3	2
			14UBC530217	Software Lab–VI (HTML5 and CSS3)	3	2
		Core Elec.	14UBC530301 A	Elective I: Mobile Communication OR	4	4
			14UBC530301 B	Elective I: Web Technology		
			14UBC530302	Elective - WS: Software Testing	4	4
	IV	SBE	14UBC540601	(BS): Photoshop CS3	2	2
	IV		14USS540701	Soft Skills	2	2
				Total for Semester V	**30**	**25**
VI			14UBC630218	Software Engineering	5	4
			14UBC630219	PHP With MYSQL	5	4
			14UBC630220	ASP.NET	5	4
			14UBC630221	Software Lab–VII (PHP With MYSQL)	3	2
			14UBC630222	Software Lab–VIII (ASP.NET)	3	2
			14UBC630223	Comprehensive Examination	-	2
			14UBC630224	Internship & Project	3	3
		Core Ele	14UBC630303 A	Elective II: Android Programming OR	4	4
			14UBC630303 B	Elective II: Fundamentals of LINUX		
	IV	SBE	14UBC640602	(WS): FLASH	2	2
				Total for Semester VI	**30**	**27**
I-V	V		14UCW651101	SHEPHERD and Gender Studies		5
				Total for all Semesters	**180**	**150**

* Code numbers according to the subject chosen

@ Practical examination in the following even semester.

nghJj j kpo;-I

Nehf;fq;fs;

1. r%f khwwr; rpeji i dfi s cssl ffpa jw;fhy , yf;fpaq;fi s mwpKfk; nraj j y;

2. GJfftpi j>rpWfij>ci uei l Mfpa , yf;fpaqfspd; eak; ghuhlLjy;

3. rejpggpi oapdw;pvOj khz thfi sg;gapWtpjjy;

gad;fs;

1. khz thfs; r%f khwwrrpeji i dfi s mwpe;Jnfhs;th;

2. rejpggpi ofi s eff;pvOJk; jpwd; ngWth;

3. Gjjpyffpaqfi sg;gi l fFk;jpwi dAk>jpwdha;Tnra Ak;jpwi dAk; ngWth;

myF-1: kfhftpr; ghujpahh; ftpi j fs;
ghuj jpj hrd; ftpi j fs;
ci uei l - Kjy;%dW fl Li ufs;   (10 kz p Neuk)

myF-2: glLfNfhlLi l ahh; ghl yfs;
ghtyNuhW nguQrpj;jpudhh; ghl yfs;
, yffzk;-tyfpFk; , lqfs;   (12 kz p Neuk)

myF-3: GJfftpi j tbtqfs;
, yffpatuyhW - %dwhk; ghfk;
rpWfij-Kjy; MW rpWfi j fs;   (10 kz p Neuk)

myF-4: GJfftpi j fs;
ngz z paf; ftpi j fs;
, yffpa tuyhW - ehdfhk; ghfk;
, yffzk; - typkpfh , lqfs;(14 kz p Neuk)

myF-5: nkho;ngahgGfftpi j fs;
rpWfij-7 Kjy; 12 Kba css rpWfi j fs;
ci uei l - 4Kjy; 6 Kba css fl Li ufs; (14 kz p Neuk)

ghl E}y;

1. nghJj j jkpo; nra As; jpul L- jkpoha;Tj;Ji w ntspaL-2014-2017

2. r%ftpay; Nehf;fpy; jkpo;, yf;fpa tuyhW>jkpoha;Tj;Ji w ntspaL> J}a tsdhh; fy;Y}hp> jpUrpuhggssp2> 2014

3. ci uei lf; Nfhi t - jkpoha;Tj;Ji w ntspaL> 2014

4. rpWfij jnjhFgG

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   **Hours/Week: 5**
14UBC130201   **Credits: 3**

C PROGRAMMING

Objective

* To develop programming skills, understand the concepts of C programming language.

Unit I   **12 Hr**

C FUNDAMENTALS: Computer- Programming Concepts: Algorithms and flowcharts - Introduction to C Language - How to Run C Programs - Identifiers, Keywords, Constants, Variables and datatypes, Access Modifiers, Data Type Conversions- Operators- Conditional Controls - Loop Controls.

Unit II   **12 Hr**

ARRAYS: One Dimensional Array - Two Dimensional Array - Character Arrays and Strings.

FUNCTION: Introduction - Elements of User Defined Function - Definition of Functions - Return Values and their Types - Function Calls - Function Declaration - Category of Function - Nesting of Function - Recursion - Passing Arrays to Function - Passing Strings to Function - The Scope, Visibility and Lifetime of Variables - Library functions.

Unit III   **12 Hr**

STRUCTURES, UNIONS AND POINTERS: Defining Structure - Declaring Structure Variable - Accessing Structure Members - Structure Initialization - Arrays of Structure - Arrays within Structures - Structures within Structures - Structures and Function - Union.

Unit IV   **12 Hr**

POINTERS: Pointers - Declaration of Pointers - Accessing Variables through Pointers - Chain of Pointers - Pointer Expressions- Pointer Increments - Pointers with Arrays, Strings-

Array of Pointers - Pointers with Functions -Pointers with Structures.

Unit V   **12 Hr**

FILE MANAGEMENT IN C: Defining and Opening a File - Closing a File - Input / Output Operations on Files - Error Handling During I/O Operations - Random Access to Files - Command Line Arguments - Dynamic Memory Allocation.

Text Book

1. E. Balagurusamy, "Programming in C", 4th Ed., Tata McGraw Hill, New Delhi, 2007.

Book(S) for reference

1. Byron S. Gottfried, "Programming with C", 2nd Ed., Tata McGraw Hill, New Delhi, 1998.
2. Yashvant Kanetkar, "Working with C", BPB Publication, New Delhi, 2001.

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Sem. I   **Hours/Week: 5**
14UBC130202   **Credits: 3**

DIGITAL COMPUTER FUNDAMENTALS

Objectives

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

Unit I   **12 Hr**

DIGITAL LOGIC & COMBINATIONAL LOGIC CIRCUITS: Binary Number System- The Basic Gates-Boolean Algebra - NOR Gates - NAND Gates - Boolean Laws and Theorem-Sum of Product Method- Karnaugh Simplification-Product of Sum Method-Product of Sum Simplifications.

Unit II   **12 Hr**

DATA PROCESSING & ARITHMETIC: Multiplexers-Demultiplexers-Decoders: 1 of 16 Decoders-BCD to decimal decoders-Seven segment decoders-Encoders. Ex-OR gates. Binary Addition - Subtraction. Unsigned Binary Numbers-2's Complement Representation. The Adder- Subtracter. Binary Multiplication and Division.

Unit III   **12 Hr**

FLIP-FLOPS, REGISTERS & COUNTERS: Flip-Flops: RS Flip-Flop - Gated RS Flip-Flop-Edge Triggered RS Flip-Flop-Edge Triggered D Flip-Flop-Edge Triggered JK flip-flop - JK Master/Slave-Registers-Counters: Asynchronous Counters-Synchronous Counters.

Unit IV   **12 Hr**

D/A AND A/D CONVERSIONS: D/A Converters-D/A Accuracy and Resolution-A/D Converter Simultaneous Conversion-Counter Method Continuous Conversion-A/D Techniques-Dual Slope Conversions-A/D Accuracy and Resolution.

Unit V   **12 Hr**

MICROPROCESSORS, MICROCOMPUTERS AND ASSEMBLY LANGUAGE: Microprocessors-Microprocessor Instruction Set and Computer Languages. MEMORY: Magnetic Memory- Memory Addressing - ROMs, PROMs, and EPROMs - SRAMs- DRAMs.

Text Book(s)

1. Donald P. Leach and Albert Paul Malvino, "Digital Principles and Applications", 5th Ed., Tata McGraw Hill, New Delhi, 2003. UnitS: I, II, III & IV
2. Ramesh Gaonkar, "Microprocessor Architecture, Programming and Applications with the 8085", 5th Ed., Penram International Publishing (India) Private Limited, 2007. Unit: V

BOOK FOR REFERENCE

1. Thomas C. Bartee, "Digital Computer Fundamentals", McGraw Hill, New Delhi,1985.

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Sem. I   **Hours/Week: 3**
14UBC130203   **Credits: 2**

Software Lab-I
C PROGRAMMING

1. Simple Programs
2. Control Structure
3. Arrays
4. Function
5. String Handling
6. Structures
7. Pointers
8. Sequential File Access
9. Random File Access
10. Command Line Arguments

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Sem. I   Hours/Week: 6
14UBC130401   Credits: 5
Allied Maths-I

Objectives

* To enable the student understand the concept of applications in maths.
* To motivate the students to apply the techniques in their respective major
  subjects.

Unit-1

Matrices- Rank of a matrix of order 2 and 3 - Consistency of a system of
linear non-homogenous equations - Characteristic equation of a square
matrix- evaluation of eigen values and eigen vectors - Cayley - Hamilton
Theorem (without proof) and problems.

Unit II

Laplace Transforms: Definition - Properties- sufficient conditions - Laplace
Transform of Periodic functions- Solving differential equations using Laplace
transforms - the inverse transforms.

Unit III

Fourier series: Fourier series - Even and Odd functions - properties of odd
and even functions - Half range Fourier series - Development in sine and
cosine series(Omitting general interval)

Unit IV

Solving algebraic and transcendental equations - Bisection, false position
and Newton- Raphson methods.Solving simultaneous equations - Gauss
elimination - finding inverse of a matrix using Gauss Jordon method- Iterative
methods. Gauss - Jacobi and Gauss -Seidal methods.

Unit V

Interpolation - Newton Gregory forward and backward interpolation formulae
- Lagrange's interpolation formula. Numerical Integration - Trapezoidal rule
and simpson's 1/3 rule. Solving differential equations (First order differential
equations only) - Euler's method - Runge Kutta 2nd order method.

BOOK FOR STUDY

1. Treatment as in "Ancillary Mathematics" by Narayanan and others.
2. Narayanan and Manickavasagam Pillai, "Ancillary Mathematics Volume
   1: Part ii (section B) - Intergral Calculus and Differential equations for
   unit II and III.
3. S.S. Sastry, "Introductory methods to numerical analysis" for Unit IV
   and V.

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gUtk; 2   kz p Neuk; 4
14UGT210002   *Gs,s,pfs; 3*
nghJ j j kpo;-II

Nehf;fq;fs; :
1. rka eyyyjz ff c z hi t tshjj y;
2. jkpof; fhggaqfspy; moFk,> mwpTz hTk; ClLk; gFjpfi sg; gbj Jg;
   Ghpe;J nfhsSj y;
3. c i uei l f; fl Li u vOJk; jpwd; ngWj y;

gadfs; :
1. jkpi oj; jpUjj khfg; gbffTk;> NgrTk,> gpi oapdwp vOJ Tk; Njhrrp
   ngWj y;
2. , yfffaqfspy; gbjj twi w Ki wahf thofi fapy; fi lggpbjj y;

myF: 1   (12 kz p Neuk)
rpyggjpfhuk; - kJi uf; fhz l k; (fhL fhz ; fhi j)
, yfffpa tuyhW - irtk; tsujj jkpo; Kjy; Guhz qfs; Kba.

myF : 2   (12 kz p Neuk)
kz pNkfi y - ghjj puk; ngww fhi j
nghpaGuhz k; - nkagnghUsehadhh; Guhz k;

myF : 3   (12 kz p Neuk)
fkguhkhaz k; - fhl rpgglyk;
c i uei l - 7 Kj y; 9 Kba c ss fl Li ufs;
, yffz k; - vOjj pyyf;fz k;

myF : 4   (12 kz p Neuk)
Fz qFb k] j hcd; rhfpG ghl yfs;
rpwwpyfffaqfs; - fypqfj;Jgguz p
c i uei l - 10 Kj y; 11 ti uapyhd fl Li ufs;

myF : 5   (12 kz p Neuk)
, ul rz pa ahjj jpphfk; kuz gglyk;
, yfffpa tuyhW - jkpo;, , yffz E}ypfs; Kj y; rpwwpyf;fpaaq;fs;
Kba.
, yffz k; - nrhyypyyf;fz k;

ghl E}y;
1. nra;As; jpul L - jkpoha;Tj;Ji w ntspaL> 2014-2017.
2. r%ftpay; Nehffpy; jkpo;, , yfffpa tuyhW> jkpoha;Tj;Ji w ntspaL>
   J}atsdhh; fy;Y}hpajUrrphggssp> 2014.
3. c i uei l fNfhi t> jkpoha;Tj;Ji w ntspaL> 2010.

SEM-II   Hours/week: 5
14UGE220102   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 monosyllablic Comparision
09. The best di/polysyllabic Comparision.
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 Quetions
27. More about Actions
28. More about Actions and Uses

29. Crime Puzzle
30. Possessive Quiz
31. Humourous 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 Whould 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   **Hours/Week: 4**
14UBC230204   **Credits: 3**

OBJECT ORIENTED PROGRAMMING WITH C++

Objective

* To provide the basic concepts in Object-Oriented programming and to understand the concepts of C++ programming.

Unit - I   **10 Hr**

PRINCIPLES OF OBJECT ORIENTED PROGRAMMING: Object Oriented Programming Paradigm - Basic Concepts and Benefits of OOP - Object Oriented Language - Application of OOP - Structure of C++ - Applications of C++ - Tokens, Expressions - Conditional Statements and Looping Structures - Operators on C++ - Manipulators.

Unit - II   **10 Hr**

FUNCTIONS IN C++: Function Prototyping - Call by Reference - Return by Reference - Inline Functions - Default Arguments - Constructor Arguments - Function Overloading - Friend and Virtual Functions - Classes and Objects - Member Functions - Nesting of Member Functions - Private Member Functions - Memory Allocation of Objects - Static Data Members - Static Member Functions - Arrays of Objects - Objects as Function Arguments.

Unit - III   **10 Hr**

CONSTRUCTORS: Parameterized Constructors - Multiple Constructors - Constructor with Default Parameters - Copy and Dynamic Constructors - Destructors - Operator Overloading - Overloading Unary and Binary Operators - Overloading Operators using Friend Function.

Unit - IV   **10 Hr**

INHERITANCE: Defining Derived Classes - Single Inheritance - Making a Private Member Inheritable - Multiple Inheritance - Hybrid Inheritance - Virtual Base Class - Abstract classes - Constructors in Derived Class - Member Classes - Nesting of Classes.

Unit - V   **10 Hr**

STREAMS FORMATTED AND UNFORMATTED I/O: Defined Manipulators - File I/O - Reading and Writing - Various Functions. EXCEPTION HANDLING: try - throw - catch Statements - Re-throwing

Text Book

1. E. Balagurusamy, "Object Oriented Programming with C++", TMG, New Delhi, 4th Ed., 2008.

BOOK(S) FOR REFERENCE

1. Robert Lafore, "Object Oriented Programming in Microsoft C++", Galgotia Publications, New Delhi, 2000.
2. Bjarne Stroustrup, "The C++ Programming Language", Addison-Wesley, 1999.

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Sem. II   **Hours/Week: 4**
14UBC230205   **Credits: 3**

DATA STRUCTURES AND ALGORITHMS

Objective

* To impart fundamental knowledge on data structures and algorithms.

Unit - I   **10 Hr**

INTRODUCTION AND OVERVIEW: Introduction - Basic Terminology - Elementary Data Organization - Data Structures - Data Structure Operations. **Arrays**: Introduction - Linear Arrays - Representation - Traversing, Insertion and Deletion. **SEARCHING**: Linear Search - Binary Search.

Unit - II   **10 Hr**

LINKED LISTS: Introduction - Linked Lists - Representation of Linked List in Memory - Traversing a Linked List - Searching a Linked List - Memory Allocation, Garbage Collection - Insertion into a Linked List - Deletion from a Linked List.

Unit - III   **10 Hr**

STACKS, QUEUES AND RECURSION: Introduction - Stacks - Array Representations of Stacks - Arithmetic Expressions- Polish Notation - Recursion: Factorial Function and Fibonacci Sequence. **QUEUES**: Representation of Queues - Array Representation of Queues.

Unit - IV   **10 Hr**

TREES: Introduction - Binary Trees - Representing Binary Tress in Memory - Traversing Binary Trees- Binary Search Tree- Searching and Inserting in Binary Search Trees - Deleting in Binary Search Trees. **SORTING**: Introduction -Insertion Sort - Selection Sort - Merge Sort - Heap Sort.

Unit - V   **10 Hr**

THE COMPLETE DEVELOPMENT OF AN ALGORITHM: Algorithms - BasicSteps. ALGORITHM DESIGN METHODS: Sub goals - Hill Climbing and Working Backward - Heuristics - Backtrack Programming - Branch and Bound.

Text Books

1. Seymour Lipschutz, "Data Structures", Tata McGraw Hill Publishing Company Limited, New Delhi, 2008. UnitS: I, II, III & IV
2. S.E. Goodman and S.T. Hedetniemi, "Introduction to the Design and Analysis of Algorithms", Tata McGraw Hill, International Edition, 1987. Unit: V

Books for Reference

1. Ellis Horowitz, SartajSahni and Dinesh Mehta, "Fundamentals of Data Structures in C++", University Press (India) Pvt. Ltd., Hyderabad, 2007.
2. Yashavant P. Kanetkar, "Data Structures Through C++", BPB Publications, 2003.

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Sem. II   **Hours/Week: 3**
14UBC230206   **Credits: 2**

Software Lab-II
C++ AND DATA STRUCTURES

1. Simple Programs
   - Inline Functions
   - Default Arguments
   - Recursion
   - Call by Reference and Value
2. Constructors and Destructors
3. Inheritance
4. Overloading and Overriding
5. Virtual Functions, Pure Virtual Functions and Abstract Class
6. Exception Handling
7. I/O Streams
8. Stack Operations
9. Queue Operations
10. Linked List
11. Sorting
12. Searching

Sem - II   **Hrs/ Week: 6**
14UBC230402   **Credits : 5**

ALLIED MATHEMATICS - PAPER II

Objectives

* To enable the student understand the concept of applications in mathematics.
* To motivate the students to apply the techniques in their respective major subjects.

Unit - I

Averages: Mean, Median, Mode - Measures of variation: Range, Standard deviation, co-efficient of skewness - Association of attributes - Yule's co-efficient of correlation.

Unit - II

Correlation co-efficient - Rank correlation -Curve fitting - Linear, parabola, exponential.

Unit - III

Probability: Definition - Axiomatic approach to probability - Finite sample space - conditional probability - Multiplicative law of probability - Probability of an event in terms of conditional probability - Baye's theorem- Independent Events. (Chapter 18 in Book 1 Page: 582-613 and Chapter 1 in Book 2 Pages: 1-33)

Unit - IV

Theoretical Distributions: Binomial distribution - Poisson distribution - Normal distribution - Properties of distributions (only mean, variance and standard deviations) - Practical problems under distributions. (Chapter 19 in Book 1 Page: 618-655)

Unit - V

Test of significance based on Normal distribution - Difference between proportions - Difference between means - Difference between standard deviations (Problems only).

BOOKS FOR STUDY

1. Statistics (Theory and practice) 3rd Edition 1993 by Mr. R.S.N. Pillai & V. Bagavathi)
2. Mathematical statistics (S. Venkataraman & P.R. Vittal) First Edition 1973 (Reprint 1974).
3. Statistics by R.S.N. Pillai and Bagavathi.

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Sem. II   **Hours/Week: 2**
14UBC240802   **Credits: 2**

Skill Based Paper:
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 Hr)**

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 Hr)**

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 Hr)**

HTML : Introduction - Headings - Paragraphs - Comments - HTML Formatting Tags - Font Tag - Hyperlinks - Images - Lists - Tables. (6)

UNIT - IV   **(6 Hr)**

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 Hr)**

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 & CYNER LAW: Introduction - Characteristics of Social Networking Website - Social Networking Services - Cyber Law - Open Source - What is open source? - Open Source Software's.

BOOK(S) FOR STUDY

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

BOOK(S) 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.

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3. Gj;pdk; (xtnthU fy;tpahz;Lk; xtnthU Gj;pdk;).
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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. Objectives	Listening and Reading Skills	
3. Text	Listening and Reading Skills through teacher-led reading practice	2 Hours
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.

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Sem. III   **Hours/Week: 4**
14UBC330207   **Credits: 3**

RELATIONAL DATABASE MANAGEMENT SYSTEM

Objective
* To study the basic concepts of relational database management system, the rudiments of PL/SQL.

Unit I   **10 Hr**
INTRODUCTION: Database System Applications -Purpose of Database System. VIEW OF DATA: Data Abstraction - Instances and Schemas - Data Models - Relational Database - Database Design -The Entity Relationship model.

Unit II   **10 Hr**
STORAGE AND FILE STRUCTURE: Overview of physical storage media - Magnetic Disks - Tertiary Storage - Storage Access. FILE ORGANIZATION: Fixed Length Records - Variable Length Records. ORGANIZATION OF RECORDS IN FILES: Sequential File Organization - Multi-table Clustering File Organization - Data Dictionary Storage.

Unit III   **10 Hr**
RELATIONAL MODEL: Structure of Relational Databases -Fundamental Relational Algebra Operation. TRANSACTIONS: Transaction Concept - Transaction State - Implementation of Atomicity and Durability - Concurrent Execution-Serializability.

Unit IV   **10 Hr**
SQL: Background - Data Definition- Basic Structure of SQL Queries - Set Operations - Aggregate Functions -Nested sub queries - Views - Joined Relations. RELATIONAL DATABASE DESIGN: Atomic Domain and First Normal Forms. DECOMPOSITION USING FUNCTIONAL DEPENDENCIES: Keys and Functional Dependencies - Third Normal Form - Boyce Codd Normal Form.

Unit V   **10 Hr**
INTRODUCTION OF PL/SQL: Advantages of PL/SQL -The Generic PL/SQL Block. PL/SQL: Data types -Variables - Constants - Control Structures - Cursors - Exception Handling -Procedures and Functions -Packages - Triggers.

Text Book(S)
1. Abraham Silberschatz ,Henry F. Korth, S.Sudarshan, "Database System Concepts", 5th Ed., Tata McGraw -Hill, Singapore, 2006. UnitS: I, II, III & IV
2. Ivan Bayross,"The Programming Languages of Oracle", 3rd Edition, BPB Publications, New Delhi, 2008. Unit: V

BOOK(S) FOR REFERENCE
1. C.J Date 'An Introduction to Database System", Pearson Education, New Delhi, 2005
2. P.S.Deshpande "SQL & PL/SQL for Oracle 10g", Dream Tech Press, New Delhi, 2007.

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Sem. III   **Hours/Week: 4**
14UBC330208   **Credits: 3**

UML AND IT ENABLED SERVICES

Objective
* To impart the basic concepts on Unified Modeling Language.

Unit I   **10 Hr**
INTRODUCTION TO UML: Importance of Modeling - Principles of Modeling - Object Oriented Modeling - Conceptual Model of the UML- Architecture - Software Development Life Cycle.

Unit II   **10 Hr**
BASIC STRUCTURAL MODELING: Classes - Relationships - Common Mechanisms - Diagrams - Class Diagrams.

Unit III   **10 Hr**
BEHAVIORAL MODELING: Interactions - Interaction Diagrams - Use cases - Use case Diagrams - Activity Diagrams.

Unit IV   **10 Hr**
IT ENABLED SERVICES: Introduction to IT Enabled Services - Meaning of IT Enabled Services - Users of IT Enabled Services - Technology Involved - Deployment Issues in Establishment of IT Enabled Services - Medical, Legal, E-Banking, E-Business.

Unit V   **10 Hr**

OPEN SOURCE TECHNOLOGIES:Evolution & Development of OST and Contemporary Technologies - Factors Leading to its Growth - Open Source Initiative (OSI) - Free Software Foundation and the GNU Project - Principle and Methodologies - Contexts of OST (India & International) - Applications of Open Source (Open Source Teaching and Open Source Media) - Risk Factors.

Text Books

1. Grady Booch, James Rumbaugh and Ivar Jacobson. "The Unified Modeling Language User Guide", Pearson Education, New Delhi, 2004. UnitS: I, II & III

2. Awad and Elias M, "Electronic Commerce: From Vision to Fulfillment", Prentice Hall of India, New Delhi, 2002. Unit:IV

3. Fadi P. Deek and James A. M. McHugh, "Open Source Technology and Policy", Cambridge University Press, 2007. Unit: V

BOOKS FOR REFERENCE

1. Fowler and Martin, "UML Distilled", 3rd Edition, Pearson Education, New Delhi, 2004.

2. Turner, C, "The Information e-conomy: Business Strategies for Competing in the Digital Age", London. Kogan Page, 2000.

3. Andrew M. St. Laurent, "Understanding Open Source and Free Software Licensing", O'Reilly Media; First Edition, 2004.

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Sem. III   **Hours/Week: 3**
14UBC330209   **Credits: 2**

Software Lab-III
RDBMS

SQL

1. DDL and DML Queries
2. Aggregate Functions and Set Operations
3. Joins
4. Nested Sub Queries and Correlated Sub Queries
5. Views

PL/SQL

6. Cursors
7. Procedures and Functions
8. Packages
9. Triggers

D2K

10. Form Creation
11. Reports

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Sem. III   **Hours/Week: 6**
14UBC330403   **Credits: 5**

Allied:
ACCOUNTS-I

Objectives:

- To enable the students to have a thorough knowledge of the fundamental concept basic principles of accountancy.
- To provide knowledge on the importance of maintaining various book of accounts.

Unit I   **(18 Hours)**

Accounting Principles- Concepts - Subsidiary Books (purchase book, sales book, purchase return book, sale return book) - Cash book - Ledger.

Unit II   **(18 Hours)**

Trial balance - Trading, Profit and Loss Accounts - Balance Sheet of a Sole Trader(closing stock, outstanding expenses, prepaid expenses, income receivable, received in advance, depreciation and provision for bad debts.

Unit III   **(18 Hours)**

Accounts for Non-trading concerns- Preparation of Income and ExpenditureAccount from Receipts and Payment Accounts (simple adjustments).

Unit IV   **(18 Hours)**

Single Entry system- net worth method- conversion method.

Unit V   **(18 Hours)**

Errors -classification- rectification- suspense account- effect on profit- preparation of bank reconciliation statement.

Text Book

1. Reddy TS and Murthy A, (2006), Financial Accounting, MarghamPublications, Chennai.

BOOKS FOR REFERENCES

1. Shukla MC, Grewal TS and Gupta SC, (2006), Advanced Accounts Volume I, S.Chand and Company Ltd, New Delhi.

2. Gupta RL and Gupta VK, (2006), Financial Accounting, Sultan Chand and Sons, New Delhi.

3. Gupta RL and Radhaswamy, (2006), Advanced Accountancy, Volume I, Sultan Chand and Sons, New Delhi.

4. Jain SP, Narang KL,(2004), Advanced Accountancy Volume I, Kalyani Publishers.

5. Maheshwari SN and Maheshwari SK, (2005), Introduction to Accountancy, Vikas Publishing House PVT.Ltd. New Delhi.

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gad;fs; :
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myF : 4   (12 kz p Neuk)
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myF : 5   (12 kz p Neuk)
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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.

JAVA PROGRAMMING

OBJECTIVE

* To understand the fundamental concepts of the object oriented technology and the power of Java language.

Unit I   **12 Hr**
INTRODUCTION TO JAVA: Primaries - Control Statements. CLASSES AND OBJECTS: General form of a class - Creation of Objects -Usage of Constructors - 'this' keyword- Constructor overloading-Copy constructors- Static Data Members - Static Methods- 'finalize()' Method.

Unit II   **12 Hr**
INHERITANCE AND POLYMORPHISM: Inheriting Variables in a Class - Inheriting Methods in a Class - Inheritance and Constructors - Abstract Classes - Final Classes. INTERFACES AND PACKAGES: Interfaces- Structure of an Interface - Implementation of an Interface - Interface Inheritance. Packages - Placing the Classes in a Package - Package Hierarchy - Access Control Modifiers.

Unit III   **12 Hr**
APPLETS: The Life Cycle of an Applet - The Applet Class - Development and Execution of a Simple Applet - Syntax of Applet Tag - Methods in the Graphics Class. ABSTRACT WINDOWING TOOLKIT: Events - Listeners - Event Handling Methods - Inheritance Hierarchy of Control Classes - Windows and Frames - Menus - Dialogs - Mouse Events and their Listeners.

Unit IV   **12 Hr**
EXCEPTION HANDLING: Default Exception Handling - Exception and Error Classes - Catch Block Searching Pattern - 'Throw' Statement - 'Throws' Statement - Custom Exceptions. THREADS: Life Cycle of a Thread - Creating and Running Threads - Methods in the Thread Class - Setting the priority of a thread - Synchronization - Dead Lock - Inter Thread Communication - Applets Involving Threads.

Unit V   **12 Hr**
I/O STREAMS: Input Stream and Output Stream classes - Reader and Writer classes - Data Output Stream and Data Input Stream Classes. NETWORKING: TCP Server Socket Class - TCP Socket Class - UDP Datagram Socket and Datagram Packet Classes. DATABASE CONNECTIVITY: JDBC-ODBC Connection.

Text Book

1. C. MUTHU, "Programming with JAVA", Vijay Nicole Imprints, Chennai, 2004.

Book for reference

1. Herbert Scheldt, "The Complete Reference Java 2.0", Tata McGraw Hill, New Delhi, 2002.

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Sem. IV   **Hours/Week: 5**
14UBC430211   **Credits: 4**

OPERATING SYSTEMS

OBJECTIVE

* To present the fundamental aspects of various managements in an operating system.

Unit I   **12 Hr**

INTRODUCTION: Meaning - Early Systems - Multiprogrammed Batch Systems - Real-Time Systems.

COMPUTER SYSTEM STRUCTURES: Computer-System Operation - Storage Hierarchy - General System Architecture.

OPERATING SYSTEM STRUCTURES: System Components - System Calls - Virtual Machines - System Generation.

Unit II   **12 Hr**

PROCESS MANAGEMENT: Processes - Process Concept - Operation on Processes - Inter-Process Communication.

CPU SCHEDULING: Basic Concepts - Scheduling Algorithms - Real Time Scheduling.

PROCESS SYNCHRONIZATION: Background - Critical-Section Problem - Semaphores.

DEADLOCKS: System Model - Methods for Handling Deadlocks - Deadlock Avoidance - Recovery from Deadlock.

Unit III   **12 Hr**

MEMORY MANAGEMENT: Background - Swapping - Paging - Segmentation with Paging.

VIRTUAL MEMORY: Demand Paging - Page Replacement - Allocation of Frames - Thrashing.

Unit IV   **12 Hr**

FILE - SYSTEM INTERFACE: File Concept - Access Methods - Directory Structures File-System Implementation: File-system Structure - Allocation Methods - Directory Implementation - Efficiency and Performance - Recovery.

MASS STORAGE STRUCTURE: Disk Structure - Disk Scheduling - Swap-Space Management - Stable-Storage Implementation.

Unit V   **12 Hr**

PROTECTION: Goals of Protection - Access Matrix - Capability Based Systems - Language-based Protection.

SECURITY: The Security Problem - Authentication - Security Systems and Facilities - Encryption.

WINDOWS XP: Design Principles, System Components, Environmental Subsystems, File Systems, Networking, Programmer Interface.

Text Book

1. Abraham Silberschatz, Peter Baer Galvin "Operating System Concepts", 6th Ed., John Wiley & Sons Inc., New Delhi 2003.

BOOKS FOR REFERENCE

1. Harvey M. Deitel, "An Introduction to Operating System", Addison Wesley, New York, 1999.
2. Andrew S. Tanenbaum, "Modern Operating Systems", Prentice Hall, New Delhi, 1997.

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Sem. IV   **Hours/Week: 3**
14UBC430212   **Credits: 2**

Software Lab-IV
JAVA PROGRAMMING

1. Classes and Objects
2. Constructors
3. Inheritance
4. Packages and Interfaces
5. Exception Handling
6. Threads
7. Applet and AWT controls
8. Menus
9. Client / Server Communication
10. JDBC Connection

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Allied:
ACCOUNTS-II

Objectives
- To impart basic knowledge of cost and management accounting
- To help the student to know the application of them in different situations.

Unit I   **(18 hours)**
Preparation of cost sheet- tender quotation. (18 hours)

Unit II   **(18 hours)**
Cash flow management- meaning- preparation of cash flow statement.

Unit III   **(18 hours)**
Working capital management- meaning- components- Calculation.

Unit IV   **(18 hours)**
Marginal costing - Marginal cost- Contribution -PV Ratio - BEP - Margin of safety -CVP-decision making (simple).

Unit V   **(18 hours)**
Budgeting control- preparation of cash budget- sales budget- production budget- production cost budget- flexible budget.(18 hours)

Text book:
1. Reddy and murthy, Cost Accounting (latest Ed.,),Margham Publications, Chennai(Unit I).
2. Reddy and murthy, Management Accounting (latest Ed.,), Margham Publications, Chennai.(Unit II, III, IV & V)

BOOKS FOR REFERENCES
1. S.N. Maheswari, (2007), Cost Accounting, S.Chand& Co, New Delhi.
2. Jain & Narang, (2006), Cost Accounting Principles and Practice, Kalyani Publishers, New Delhi.

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COMPUTER NETWORKS

Objective
* To offer the basic concepts of Data Communication, different layers and Network Security.

Unit I   **10 Hr**
DATA COMMUNICATIONS: Networks - Protocols and Standards.
NETWORK MODELS: The OSI Model - Layers in the OSI Model - TCP / IP Protocol Suite - Addressing.
PHYSICAL LAYER AND MEDIA: Analog and Digital - Transmission Impairment - Performance - Guided Media - Unguided Media.

Unit II   **10 Hr**
DATA LINK LAYER: Error Detection and Correction - Flow and Error Control - Protocols.
WIRELESS LANS: IEEE 802.11 - Bluetooth.
WIRELESS WANS: Cellular Telephony - Satellite Networks.

Unit III   **10 Hr**
NETWORK LAYER: IPv4 Addresses - IPv6 Addresses - Address Mapping - ICMP -IGMP - Delivery - Forwarding - Unicast and Multicast Routing Protocols.
TRANSPORT LAYER: Process-to-Process Delivery - User Datagram Protocol - TCP - Congestion - Congestion Control - Quality of Service.

Unit IV   **10 Hr**
APPLICATION LAYER: Name Space - Domain Name Space - Remote Logging - Electronic Mail - File Transfer.
NETWORK MANAGEMENT: Network Management System - Simple Network Management Protocol (SNMP).

Unit V   **10 Hr**
SECURITY: Introduction - Symmetric Key Cryptography - Asymmetric Key Cryptography.
NETWORK SECURITY: Security Services - Message Confidentiality - Message Integrity - Message Authentication.

Text Book

1. Behrouz A. Forouzan, "Data Communications and Networking", Tata McGraw Hill Publications, 4th Ed., New Delhi, 2007.

BOOKS FOR REFERENCE

1. Andrew S. Tanenbaum, "Computer Networks", Pearson Education, 5th Ed., 2011.
2. William Stallings, "Data and Computer Communications", Pearson Education, 9th Ed., 2011.

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Sem. V   **Hours/Week: 4**
14UBC530214   **Credits: 3**

C# •NET

Objective

* To understand a sound knowledge on the fundamental concepts of the C# programming language.

Unit I   **10 Hr**

FUNDAMENTALS: Evaluation of Programming Languages - Overview of .NET Framework - Basic Elements of C# - Navigating the Visual Studio IDE - Menu Bars and Tool Bars - Controls and Properties - Operators and Expressions - Conditional Statements and Looping Structures.

Unit II   **10 Hr**

CLASSES AND OBJECTS: Instance Variables and Properties - UML Class Diagram with Properties - Value Types and References Types - Constructors - Inheritances

METHODS: Operator Overloading - Method Overloading
EXCEPTION HANDLING: Try - Catch - Throw.

Unit III   **10 Hr**

ARRAY: Array Declaration - Single and Multidimensional Arrays - Passing Arrays - Passing Array by Value & By Reference.
COLLECTIONS: GenericCollection Classes -List - Sorted List.
STRINGS AND CHARACTERS: StringData Type - String Functions

Unit IV   **10 Hr**

ADO.NET OVERVIEW: Characteristics of ADO.NET - ADO.NET Object Model
ADO.NET DATA ACCESS: Creating a Connection - Using Command with Data Reader - Updating Data - Accessing Disconnected Data.

Unit V   **10 Hr**

LINQ: Introduction -Array of int Values using LINQ - Array of Employee Object using LINQ
FILES AND STREAMS: Files and Streams - Classes Files and Directory - Creating Sequential Access in Text File - Reading Data from a Text File.

Text Book

1. Paul Deitel and Hawey Deitel, "C# 2010 for Programmers", 4th Ed., Prentice Hall, 2011.

BOOKS FOR REFERENCE

1. C. Xavier, "C# - An Object Oriented Approach", S.C.Tech Publications (India) Pvt.Ltd, 2001.
2. Rob Stephen, "C# Programming with Visual Studio 2010- 24 hour Trainer", Wrox Publisher, 2010.
3. "Microsoft C# Language Specification", WP Publishers & Distributors (P) Limited, 2001.

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Sem. V   **Hours/Week: 4**
14UBC530215   **Credits: 3**

HTML5 AND CSS3

Objective

* To introduce the concepts and principles of HTML5 and CSS3 standards, to build dynamic websites.

Unit I   **10 Hr**

INTRODUCING HTML5: A Basic HTML5 Template -doctype- HTML Element- Head Element - Defining Page's Structure- Header Element - Section Element - Article Element - Nav Tag Element - Aside Element - Footer Element.

Unit II   **10 Hr**

HTML5 SEMANTICS: A New Perspective on Types of Content- The Document Online- New Elements in HTML5 - HTML5 Canvas.
HTML5 TABLES: Table attributes and Elements.

Unit III   **10 Hr**

HTML5 FORMS: HTML5 Attributes- HTML5 Form Input Types- New Form Controls in HTML5 - Changes to Existing Form Controls and Attributes.

HTML5 AUDIO AND VIDEO: Video Container Formats - Video Codecs - Audio Codecs - The Markup Attributes - Creating Custom Controls.

Unit IV   **10 Hr**
INTRODUCING CSS3: CSS3 Selectors - CSS3 Colors- Drop Shadows - Text Shadow
CSS3 GRADIENTS: Linear Gradients-Radial Gradients - Repeating Gradients.

Unit V   **10 Hr**
CSS TRANSFORMS AND TRANSITIONS: Transforms - Transitions - Animations -Embedded Fonts -CSS3 Multicolumn Layouts - SVG and Drag and Drop.

Text Book
1. Alexis Goldstein, Louis Lazaris, Estelle Weyl, "HTML5 & CSS3 for the Real World", SitePoint Pvt. Ltd., 2011

BOOKS FOR REFERENCE
1. Matthew MacDonald, "HTML5: The Missing Manual", O'Reilly, 2011.
2. Kogent Learning Solutions Inc. "HTML5 Black Book: Covers CSS3, JavaScript, XML, XHTML, AJAX, PHP and Jquery", Dreamtech Press, 2011.

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Sem. V   **Hours/Week: 3**
14UBC530216   **Credits: 2**

Software Lab-V
C# •NET

1. Create a desktop application using various controls
2. Simulate a Scientific Calculator
3. Create a Paint Brush Application
4. Classes and Methods
5. Arrays and strings
6. Generic collections
7. String functions
8. ADO.NET (Connected and Disconnected approach)
9. LINQ
10. Files and Streams

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Sem. V   **Hours/Week: 3**
14UBC530217   **Credits: 2**

Software Lab-VI
HTML5 AND CSS3

HTML5
1. Usage of New Semantic Elements
2. Create Page Structure and Navigation
3. Create Form Input and Validation.
4. Create Image onto Canvas.

CSS3
5. Selectors and Colors
6. Text and Drop Shadows
7. Transition- Rotating Box
8. Linear Gradient and Radial gradient.
9. 2D and 3D Animations
10. SVG, Drag and Drop.

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Sem. V   **Hours/Week: 4**
14UBC530301A   **Credits: 4**

Elective-I
MOBILE COMMUNICATION

Objective
* To understand the basic concepts and methods of mobile communication systems.

Unit I   **10 Hr**
MOBILE COMMUNICATIONS OVERVIEW: Mobile Communication- Mobile Computing - Mobile Computing Architecture -Mobile System Networks - Data Dissemination - Mobility management - Security.
MOBILE SYSTEMS: Mobile Phones - Smart Systems - Limitations of Mobile Devices

Unit II   **10 Hr**
GSM AND SIMILAR ARCHITECTURES: GSM - Services and System Architecture - Radio Interfaces - Protocols - Localization - Calling - Handover - Security - GPRS.

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WIRELESS MEDIUM ACCESS CONTROL AND CDMA-BASED COMMUNICATION: Medium Access Control - Introduction to CDMA Based Systems.

Unit III   **10 Hr**

MOBILE IP NETWORK LAYER: IP and Mobile IP Network Layers - Packet Delivery and Handover Management - Location Management - Registration - Tunnelling and Encapsulation - Route Optimization.
MOBILE TRANSPORT LAYER:Conventional TCP/IP Transport Layer Protocols - Indirect TCP - Snooping TCP - Mobile TCP.

Unit IV   **10 Hr**

MOBILE DEVICES: Device Management - Mobile File Systems - Security.
MOBILE AD-HOC AND SENSOR NETWORKS: Introduction to Mobile Ad-Hoc Network - MANET - Wireless Sensor Network - Applications.

Unit V   **10 Hr**

MOBILE APPLICATION LANGUAGES: XML - JAVA -J2ME - JAVA Card.
MOBILE OPEARTING SYSTEMS: Operating System -Windows CE - Symbian OS - Linux for Mobile Devices - Android.

BOOK FOR STUDY

1. Raj Kamal, "Mobile Computing", Oxford University Press, New Delhi, 2010.

BOOK FOR REFERENCE

1. Jochen Schiller, "Mobile Communication", Pearson Education, New Delhi, 2008.

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Sem. V	Hours/Week: 4
14UBC530301B	Credits: 4

Elective-I
WEB TECHNOLOGY

Objective

* To highlight various features about web technologyand developing web based applications.

Unit I   **10 Hr**

INTRODUCTION: Internet Principles - Basic Web Concepts - Client / Server Model - Retrieving Data from Internet - HTML - Scripting Languages.

Unit II   **10 Hr**

SERVER SIDE PROGRAMMING: Dynamic Web Content - Sever Side Technologies - Dynamic HTML - XML -Server Side Include Directives - Firewalls.

Unit III   **10 Hr**

WEB SERVICES: Introducing Web Services - The Web Services Technologies Architecture -UDDI- Public Versus Private Registries -Web Service Description Language (WSDL)

Unit IV   **10 Hr**

ONLINE APPLICATIONS: Simple Applications - Online Databases - Monitoring UserEvents - Plug-ins - Database Connectivity - Internet Information Services [IIS] - Internet Commerce.

Unit V   **10 Hr**

ONLINE SECURITY AND PAYMENT PROCESSING MECHANISMS: Secure Socket Layer (SSL)- Credit Card Processing Models - Secure Electronic Transaction (SET) -SSL Versus SET - 3D Secure Protocol - Electronic Money.

Text Books

1. R.Bremnath, C.S.Senthil Raja, V.Sivakumar, "Web Technology version 1.0", Pratheeba Publications, Coimbatore, 2004. UnitS: I, II & IV
2. Frank P. Coyle "XML, Web Services and Data Revolution", Pearson Education, New Delhi, 2007. Unit: III
3. Achyut S. Godbole, AtulKahate, "Web Technologies", TMG, New Delhi, 2003. Unit: V

BOOKS FOR REFERENCE

1. Xavier.C,"Web Technology and Design", New Age International Publishers, New Delhi, 2003.

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Sem. V   **Hours/Week: 4**
14UBC530302   **Credits: 4**

Elective (WS)
SOFTWARE TESTING

Objective

* To impart the basic concepts of software testing.

Unit I   **10 Hr**
SOFTWARE DEVELOPMENT LIFE CYCLE MODELS: Phases of Software project - Quality, Quality Assurance, Quality Control - Testing, Verification and Validation - Process Model to represent Different Phases.
WHITE-BOX TESTING: Static Testing - Structural Testing -Challenges in White-Box Testing.

Unit II   **10 Hr**
BLACK-BOX TESTING: Black-Box Testing- When and How to do Black-Box Testing - Challenges in White Box Testing.
INTEGRATION TESTING: Integration Testing as Type of Testing - Integration Testing as a Phase of Testing - Scenario Testing - Defect Bash.

Unit III   **10 Hr**
SYSTEM AND ACCEPTANCE TESTING: System Testing Overview - Why System testing is done? - Functional versus Non-functional Testing - Functional testing - Non-functional Testing - Acceptance Testing - Summary of Testing Phases.

Unit IV   **10 Hr**
PERFORMANCE TESTING: Factors governing Performance Testing - Methodology of Performance Testing - tools for Performance Testing - Process for Performance Testing - Challenges. Regression - What is Regression Testing? - Types of Regression Testing - When to do Regression Testing - How to do Regression Testing - Best Practices in Regression Testing.

Unit V   **10 Hr**
TEST PLANNING, MANAGEMENT, EXECUTION AND REPORTING: Test Planning - Test Management - Test Process - Test Reporting -Best Practices.
TEST METRICS AND MEASUREMENTS: Project Metrics - Progress Metrics - Productivity Metrics - Release Metrics.

46

Text Book

1. Srinivasan Desikan & Gopalswamy Ramesh, "Software Testing Principles and Practices", Pearson Education, 2006.

BOOKS FOR REFERENCE

1. William E. Perry, "Effective Methods of Software Testing", Wiley India.
2. Renu Rajani, Pradeep Oak, "Software Testing", TMH, 2007.

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Sem. V   **Hours/Week: 2**
14UBC540601   **Credits: 2**

Skill Based Elective-I
PHOTOSHOP CS3

OBJECTIVE

* To get an overview on the basic concepts of Photoshop and its tools.

Unit I   **5 Hr**
INTRODUCTION: Image Editing Concepts - Using the Photoshop Workspace - Navigating in Photoshop CS3. IMAGE MANAGEMENT: Opening, Duplicating, and Saving Images - Saving Images to Disk.

Unit II   **5 Hr**
PAINTING AND BRUSHES: Basic Techniques- Brush Sizes and Shape.
FILLING AND STROKING: Filling Selection with Color or Patterns - The Paint Bucket Tool - Backspaces and Delete Key Techniques- Applying Gradient Tools.
RETOUCHING AND RESTORING: Cloning and Healing.

Unit III   **5 Hr**
WORKING WITH LAYERS: Layer Basics- Moving, Linking, and Aligning Layers - 3D Image Editing.

Unit IV   **5 Hr**
SHAPES AND STYLES: Drawing Polygon, Lines, and Custom Shapes - Modifying and Saving Effects.
TEXT: The Five Flavours of Text - Text as Art - Using the Type Tool - Applying Character Formatting.

Unit V   **5 Hr**
MAPPING AND ADJUSTING COLORS: Color Effects and Adjustment - Quick and Automatic Color Effects - Quick and Automatic Corrections - **ANIMATION AND VIDEO**: Working with Video, Image, and Animation.

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Text Book

1. Louri Ulrich Fuller & Robert C. Fuller, "Photoshop CS3 Bible" Wiley India (P) Ltd, New Delhi, 2007.

BOOK FOR REFERENCE

1. Peter Bauer, "Photoshop CS3 for Dummies" , Wiley India (P) Ltd" New Delhi, 2007.

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Sem. V	Hours/Week: 2
14UBC540701	Credits: 2

IDC-1
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 1: 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.

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Sem. VI
14UBC630218
Hours/Week: 3
Credits: 2

SOFTWARE ENGINEERING

OBJECTIVE

* To introduce the basic concepts of software engineering and the various phases in software development.

Unit I: INTRODUCTION TO SOFTWARE ENGINEERING   12 Hr

Definitions - Size Factors - Quality and Productivity Factors. PLANNING A SOFTWARE PROJECT: Planning the Development Process - Planning an Organizational Structure.

Unit II: SOFTWARE COST ESTIMATION   12 Hr

Software cost Factors - Software Cost Estimation Techniques - Staffing-Level Estimation - Estimating Software Maintenance Costs. SOFTWARE REQUIREMENTS DEFINITION: The Software Requirements specification - Formal Specification Techniques.

Unit III: SOFTWARE DESIGN   12 Hr

Fundamental Design Concepts -Modules and Modularization Criteria. Design Notations - Design Techniques. IMPLEMENTATION ISSUES: Structured Coding Techniques - Coding Style - Standards and Guidelines - Documentation Guidelines.

Unit IV: TESTING TACTICS   12 Hr

Software Testing Fundamentals - White Box Testing - Basis Path Testing - Control Structure Testing - Black Box Testing.TESTING STRATEGIES: Strategic Approach to Software Testing - Test Strategies for Conventional Software - Validation Testing - System Testing - The Art of Debugging.

Unit V: WEB ENGINEERING   12 Hr

 Attributes of web-based Systems and Applications - WebApp Engineering Layers - Web Engineering Process. QUALITY MANAGEMENT: Quality Concepts - Software Quality Assurance - Formal Technical Review - Software Reliability. CHANGE MANAGEMENT: Software Configuration Management - SCM Repository - SCM Process.

TEST BOOKS

1. Richard Fairley, "Software Engineering Concepts", Tata McGraw Hill, 1997. UnitS: I, II & III
2. Roger S. Pressman, "Software Engineering - A Practitioner's Approach", 6th Ed., McGraw Hill International, 2005. UnitS: IV & V

Books for reference

1. Ian Sommerville, "Software Engineering", Addition Wesely, Singapore, 2002
2. K.K.Agarwal&Yogesh Singh, "Software Engineering", New Age Intl. Publishers, Revised 2nd Ed., 2005.

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Sem. VI
14UBC630219
Hours/Week: 5
Credits: 4

PHP WITH MYSQL

OBJECTIVE

* To impart basic knowledge of PHP and MySQL.

Unit I   12 Hr

ESSENTIAL PHP: Creating your Development Environment- Mixing HTML and PHP - Command Line PHP - Working with Variables - Creating Constants - Understanding PHP's Internal Data Types - Operators and Flow Control.

Unit II   12 Hr

STRINGS AND Arrays: String Function - Modifying Data in an Array - Deleting Array Elements - Array with Loops - PHP Array Functions - Sorting Array - Splitting Array - Merging Array. CREATING FUNCTION: Passing Function - Passing Arrays to Function - Passing by Reference - Using Default Arguments - Passing Variable Numbers of Argument - Returning Data from Function - Nesting Functions.

Unit III   12 Hr

READING DATA IN WEB PAGES: Setting up Web Pages to communicate with PHP - Text field - Checkbox - Radio Button - Password Controls - List Boxes -Button - Hidden Control - File Upload. PHP BROWSER HANDLING POWER:PHP's Server Variables - HTTP Header - Getting the User's Browser Type - HTTP Header - Data Validation - Client Side Data Validation.

Unit IV   12 Hr

WORKING WITH DATABASE:Creating a MYSQL Database - Creating a New Table - Putting Data into the New Database - Accessing the Database -Update data into the Database- Insert data into the Database - Delete data from Database- Handling and Avoiding Errors.

Unit V   12 Hr

AJAX:Writing AJAX - Creating XMLHTTP Request Object - Passing Data to the server with GET AND POST - Handling XML with PHP.

Text Book

1. Steven Holzner, "The Complete Reference PHP", Tata McGraw Hill Pvt. Ltd., 2008.

BOOK FOR REFERENCE

1. Leon Atkinson, "Core PHP Programming", Pearson Education, 2004.

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Sem. VI   **Hours/Week: 5**
14UBC630220   **Credits: 4**

ASP•NET

OBJECTIVE

* To provide fundamental concepts of ASP.NET programming and a brief introduction about XML.

Unit I: INTRODUCTION   **12 Hr**

The •NET Framework - Learning .NET Languages - Understanding Namespaces & Assemblies - Setting up ASP.NET and IIS. USING VISUAL STUDIO.NET: Starting VS.NET Project - Web Form Designer - Writing Code

Unit II: WEB CONTROLS   **12 Hr**

Stepping Up to Web Controls - Web Control Classes - AutoPostBack and Web Control Events. VALIDATION & RICH CONTROLS: Calendar - AdRotator - Validation Controls - Server Side Validation - Understanding Regular Expression.

Unit III: STATE MANAGEMENT   **12 Hr**

View State - Transferring Information-Cookies - Session State - Session State Configuration - Application State. ADO.NET OVERVIEW: Characteristics of ADO.NET - ADO.NET Object Model.

Unit IV: ADO•NET DATA ACCESS   **12 Hr**

Creating a Connection - Using Command with Data Reader - Updating Data - Accessing Disconnected Data. DATALIST AND DATAGRID - Using Templates with DataList - Data Binding with Multiple Templates - Selecting Items - Editing Items - Paging with DataGrid - Sorting with DataGrid.

Unit V: USING XML   **12 Hr**

Basics - XML Classes - XML Validation - XML Display and Transforms - XML in ADO.NET. CACHING AND PERFORMANCE TUNING: Caching - Data Caching

BOOK FOR STUDY

1. Mathew MacDonald, "ASP.NET: The Complete Reference", Tata McGraw Hill Ltd., New Delhi, 2008.

BOOK FOR REFERENCE

2. Dr. C. Muthu, "ASP.NET", Shalom InfoTech Pvt. Ltd., 2011.

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Sem. VI   **Hours/Week: 3**
14UBC630221   **Credits: 2**

Software Lab-VII: PHP WITH MYSQL

1. Simple Programs
2. String Functions
3. Arrays
4. Functions
5. Create a Home Page Design using PHP
6. Form Validation
7. Create Database and Tables using PHP
8. Database Operations - Insert, Update and Delete
9. Cookies Manipulation
10. File Upload and AJAX

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Sem. VI   **Hours/Week: 3**
14UBC630222   **Credits: 2**

Software Lab-VIII: ASP•NET

1. Form Design using Various Web Controls
2. Ad Rotator and Calendar Control, Login Control (Page Should Expire after 3 wrong attempts)
3. Validation Controls
4. Cookie Manipulation
5. State Management (using Session and Application)
6. Data Retrieval, Updating using ADO.NET (using Stored Procedure)
7. Template Creation using DataList and DataGrid
8. Sorting and Paging using DataGrid
9. Day Planner Preparation using XML and ADO.NET
10. Data Caching

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Elective-II
ANDROID PROGRAMMING

Objective

* To understand the concepts and learn the tools for developing applications on mobile platforms like Android.

Unit I   **10 Hr**

INTRODUCTION TO MOBILE DEVELOPMENT: Mobile Computing - History of Mobile Environments - Early Mobile Phones to Smartphones and Tablets - Development for Mobile Environments -Differences from Traditional Application Development - Trends in Mobile Development.

Unit II   **10 Hr**

MOBILE DEVELOPMENT: Advantages - Limitations -Features Useful for Mobiles - Geolocation- Offline Web Applications - Offline Web Storage - Animations - 2D/3D Graphics - Audio/Video - FRAMEWORKS: HTML5 - Phone Gap (Apache Cordova) Framework and jQuery Mobile Framework.

Unit III   **10 Hr**

INTRODUCTION TO ANDROID: Android Overview - Features Architecture- Applications- Application Frameworks - Libraries - Runtime - Kernel- Android Ecosystem - Application Stores - Publishing.

Unit IV   **10 Hr**

ANDROID DEVELOPMENT TOOLS: Android SDK - Android Emulator - Development on Hardware Devices. BASIC ANDROID DEVELOPMENT: Writing Android Applications - Activity Lifecycle - Multi Device Support.

Unit V   **10 Hr**

ANDROID DEVELOPMENT[Contd.]: Fragments - Data Storage - Intents - Data Sharing - Audio Playback - Photo Capture - Best Practices for Development - Security - Distribution and Monetizing.

Text Book

1. Ed Burnette, "Hello Android: Introducing Google's Mobile Development Platform", The Pragmatic Programmers, New Delhi, 3rd Ed., 2010.

Book for reference

1. Wei-Meng Lee, "Beginning Android 4 Application Development", Wiley India Pvt. Ltd., 2011.

Elective-II
FUNDAMENTALS OF LINUX

OBJECTIVE

* To understand the principles of Linux.

Unit I: LINUX INTRODUCTION AND INSTALLATION   **10 Hr**

Linux - Advantages -RedHatLinux - New Features -Installation ProceduresandMethods-Using Desktop - GNOME - KDE. ACCESSINGAND RUNNING APPLICATIONS: Installing Red Hat Linux Applications -Running Window Application -Running Window, DOS and Macintosh Applications.

Unit II: MULTIMEDIA IN RED HAT LINUX   **10 Hr**

Audio - Webcams and TV cards - digital camera - creating music CDs.TOOLS FOR USING INTERNETAND WEB: Internet Tools - Browsing the Web - Communicating with E-mail -Using Remote Login, Copy, and Execution.

Unit III: SYSTEM ADMINISTRATION   **10 Hr**

RootLogin -superuser -GUI Tools, Commands and Log Files -Configuring Hardware -File System and Disk Management -Monitoring Performances.

Unit IV: SETTING UP AND SUPPORTING USERS   **10 Hr**

Creating User Accounts - Setting User Defaults - Creating Portable Desktops - Providing Support to Users - Modifying Accounts - Deleting User Accounts - Checking Disk Quotas - Sending Mail to All Users.

Unit V: SECURITY ISSUES   **10 Hr**

Hacker versus Cracker -Password Protection -Protectionfrom Break-in - Filtering Network Access - Firewalls - Detecting Intrusions from Log Files - Encryption Techniques.

Text Book

1. Christopher Negus "Red Hat Linux 8 Bible", WILEY -Dreamtech India Pvt. Ltd, New Delhi, 1st Ed., 2003

Book for Reference

1. Thomas Schenk, "Red Hat Linux System Administration", Techmedia, New Delhi, 2003.

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Sem. VI   **Hours/Week: 2**
14UBC640602   **Credits: 2**

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Skill Based Elective-II
FLASH
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OBJECTIVE

* To get an overview on the basic concepts of Flash and its tools.

Unit I   **5 Hr**

INTRODUCTION: Flash MX Environment - Toolbar - Toolbox - Timeline - Panels-Property Inspector.

Unit II   **5 Hr**

GRAPHICS TOOLS IN FLASH: Drawing Tools - Object Selection Tools - Color Selection Tools - Viewing Tools.

Unit III   **5 Hr**

PANELS: Design Panel - Development Panel. EDITING TECHNIQUES: Reshaping the Object - Optimizing the Curves — Softening the Edges.

Unit IV   **5 Hr**

TRANSFORMATIONS: Arranging the Elements - Aligning Objects. ADVANCED CONCEPTS: Frames - Layers- Scenes.

Unit V   **5 Hr**

ANIMATION: Frame -By-Frame Animation - Motion Tweening - Shape Tweening - Text Animation - 3D Animation.

TEXT BOOK

1. K Kthyagharajan, B Anbumani, "FLASH MX 2004", Tata McGraw-Hill Publishing Limited, New Delhi, 2004.

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Sem. VI
14UBC630224   **Credits: 2**

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COMPREHENSIVE EXAMINATION
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UNIT-I   :   C, Digital Computer Fundamentals

UNIT-II   :   C++, Data Structures and Algorithms

Unit-III :   RDBMS, UML

UNI-IV   :   Java, Operating Systems

UNI-V   :   Computer Networks, Web Technology

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