

**NATIONAL COLLEGE (AUTONOMOUS)**  
**Nationally Accredited at "A" Level by NAAC**  
**Tiruchirapalli – 620 001**  
**Under Graduate Programmers Structure under CBCS**  
**(For candidates admitted from the academic year 2013 – 2014 onwards)**  
**B.Sc (Computer Science)**

SEM	PART	Course Title	Instru. Hours/ Week	Credit	Exam Hours	Marks			Total	
						Int.	Extn.	O		
I year  I sem	I	Language Course – I (LC)	6	3	3	25	75	-	100	
	II	English Language Course - (ELC - I)	6	3	3	25	75	-	100	
	III	Core Course – I (CC) – Programming in C	5	5	3	25	75	-	100	
			Core Course– II (CC) – programming in C Lab	3	3	2	15	30	5	50
			First Allied Course –I (1AC) – Mathematics -I	5	3	3	25	75	-	100
			First Allied Course –II (1AC) – Operation Research	3	-	*	-	-	-	-
	IV	Skill Based Elective – I(SBEC1) - Web Page Designing Using HTML	2	2	3	25	75	-	100	
		<b>TOTAL</b>	<b>30</b>	<b>19</b>					<b>550</b>	
I year  II sem	I	Language Course – II (LC)	6	3	3	25	75	-	100	
	II	English Language Course - (ELC - II)	4	2	3	25	75	-	100	
		Communicative English – (ELC – III)	2	1	3	25	70	5	100	
	III		Core Course – II(CC) – Programming in C++ Lab	3	2	-	15	30	5	50
			Core Course–III(CC)–OOPS Using C++	5	5	3	25	75	-	100
		First Allied Course –II (1AC) – Operation Research	3	3	3	25	75	-	100	
		First Allied Course –III (1AC) - Mathematics –II	5	3	3	25	75	-	100	
IV	Environmental Studies	2	2	3	25	75	-	100		
		<b>TOTAL</b>	<b>30</b>	<b>21</b>					<b>750</b>	
II year  III sem	I	Language Course – III (LC)	6	3	3	25	75	-	100	
	II	English Language Course –(ELC – IV)	4	2	3	25	75	-	100	
		Communication English – (ELC – V)	2	1	3	25	70	5	100	
	III		Core Course – IV(CC) – Java Programming	5	5	3	25	75	-	100
			Core Course – V (CC) – Java Lab& Data Structure Lab	2	2	2	15	30	5	50
		Second Allied Course – I (2AC) – Physics	5	3	3	25	75	-	100	
		Second Allied Course – II (2AC) – Physics Lab	2	-	*	-	-	-	-	
	IV	Skill Based Elective Course – II (SBEC II) – VB Script	2	2	3	25	75	-	100	
		Skill Based Elective Course – III (SBECIII) – HTML& VB Script Lab	2	2	3	25	75	-	100	
	<b>TOTAL</b>	<b>30</b>	<b>20</b>						<b>750</b>	

<b>II year</b>	I	Language Course – IV (LC)	6	3	3	25	75	-	100	
	II	English Language Course –(ELC – VI)	6	3	3	25	75	-	100	
	<b>IV sem</b>	III	Core Course – V (CC) – Java Lab& Data Structure Lab	3	3		15	30	5	50
			Cor Course–VI(CC)–Data Structure and Algorithm	5	5	3	25	75	-	100
			Second Allied Course – II (2AC) -Physics Lab	3	3	3	25	70	5	100
			Second Allied Course – III (2AC)-Physics(Digital Electronics)	5	3	3	25	75	-	100
	IV	Non Major Elective Course(NMEC I)– Basic concept of computer science	2	2	3	25	75	-	100	
		<b>TOTAL</b>	<b>30</b>	<b>22</b>					<b>650</b>	
<b>III year</b>	<b>V sem</b>	III	Core Course–VII (CC) – Visual Basic Programming	5	5	3	25	75	-	100
			Core Course – VIII(CC) – Microprocessor and its applications	5	5	3	25	75	-	100
			Core Course – IX (CC) – Data Base Systems	2	-	*	-	-	-	-
			Core Course – X (CC) – Visual Basic Lab & RDBMS(Oracle) Lab	3	3	2	15	30	5	50
			Major Based Elective Course – I (ECI) – Software Engineering/DOT NET	5	4	3	25	75		100
	IV	Major Based Elective Course – II (ECII) – Computer Graphics/ E-Commerce	4	4	3	25	75	-	100	
		Non Major Elective Course(NMEC –II) – Internet and its applications	2	2	3	25	75	-	100	
		Value Education Course - VEC	2	2	3	25	75	-	100	
		Soft skills	2	2		25	75	-	100	
		<b>TOTAL</b>	<b>30</b>	<b>27</b>					<b>750</b>	
<b>III year</b>	<b>VI Sem</b>	III	Core Course – IX (CC) – Data base Systems	3	5	3	25	75	-	100
			Core Course – X (CC) – Visual Basic Lab & RDBMS(Oracle) Lab	3	2	2	15	30	5	50
			Core Course –XI(CC) – Operating System	6	6	3	25	75	-	100
			Core Course– XII (CC) – Computer Networks	6	6	3	25	75	-	100
			Core Course – XIII(CC) – Project Work	6	6	3	25	75	-	100
		Major based Elective Course – (ECIII) – Advertisement Management/Internet Concepts	5	4	3	25	75	-	100	
	V	Gender Studies	1	1	3	25	75	-	100	
		<b>TOTAL</b>	<b>30</b>	<b>30</b>					<b>650</b>	
		Extension Activities	-	1	-	-	-	-	-	
		<b>TOTAL</b>	<b>180</b>	<b>140</b>					<b>4000</b>	

For the Science Programmes oral test will be conducted for the practical papers and five marks will be allotted and to be included in the External 75 marks.I.e.45 for the Practical lab +5 for the oral test = 50 Marks.

nraAs; (, ffhy , yffpak) > ci uei l > rWfi j > , yffa tuyhW > gadKi wj j kp;  
-U13T1

gUtk; : l

ghl k; : l

fwgpfFk; fhyk; : 6

j ugGssp : 3

**myF - 1:**

ghuj pahu; ftpi j fs; : ] u] ;tj p Nj tpa; Gfo;  
ghuj ehL  
ghuj j hrd; ftpi j fs; : j kpa; , dpi k  
, dgj j kp >  
cyfk; c dDi l aJ > nfhl L KuNr  
gl LfNfhl i l ahu; ftpi j fs; : ci ogGk; Nj i t  
, td; NrhW NghLfwhd >  
mtd; \$W NghLfwhd;  
ehkff; ftq; ghl yfs; : , sej kpaDfF  
fz z j hrd; ftpi j fs; : ghLtJ ehdy

**myF - 2:**

mgJy; uFkhd; : kz ;  
i tuKj J : ghuj p epi df;fggLfwhd;  
Nkj j h : nrUgGl d; xU Ngl b  
kth : Nt fk > j kpggwW >  
Ruz j ykh? >  
rptgGehl h > fhj Nyh fhj y >  
goffk; nghyyhj J  
, dFyhg; : xU Gddi fr; rkpi fahy;  
mKj ghuj p : i ` f\$  
ehl LgGwg; ghl yfs; : xggug; ghl y; - grpahwg; Nghtj yi y

**myF - 3: ci uei l:**

ghuj pahu; - j pahdqfS k; kej muqfS k;  
j pU.tpf. - kdj d;  
c .Nt.rh - vJ j kp?  
uh.gp NrJggps; i s - FbAk; gi l Ak;  
K.t. - nkhop , yyhj epi y  
GJ i kggj j d; - j kph; ehfupfj j py;

**fphkthofi f**

fy;fp - Gi d fsp; Nti y epWj j k;  
rpd; mz z hJ i u - gwW

- R[ hj h - fl TS; , Uf;f;pvhuh?
- myF - 4: rWfi j:**  
t;bay; fhyk; - Ki dtu; , uh.ghyRgukz ;ad;
- myF - 5:**  
**, yff;pa tuyhW** - , Ugj hk; E}wwhz ;L  
(Gj ;dk> ehl fk; eb;fyhf)
- gad;Ki wj j kp;** - tyk;Fk; tj; p;f;sp;d; nj hFgG  
k;f;hi k;f;Fupa tj; p;f;s; (eyy j kp; vOj  
Ntz ;Lkh ? gf;260 - 290.
- ghl E)y;**
1. nraAs> c i uei l - fy;Y}up nts;paL
  2. rWfi j - t;bay;fhyk>  
Ki dtu; , uh. ghyRgukz ;ad;
  3. , yff;pa tuyhW - nghJ
  4. gad;Ki wj j kp; - eyyj kp; vOj Ntz ;Lkh>  
m.f;pa guej hkdh> gf;260-290

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**nraAs; (, i l f;hy , yf;f;ak)> Gj ;dk> , yff;pa tuyhW**

**nraAs;U13T2**

**gUtk; : ll**  
**fwg;f;Fk; fhyk; : 6**

**ghl k; : ll**  
**j ugG;sp : 3**

**myF - 1**

- 1.1 j ;UQhdrkgej u; Nj thuk; j ;UfNf;hb;f;h j ;Uj j yk; (11 ghl y;f;s) , dW..
- 1.2. j ;UehT;f;furu; Nj thuk; j ;UgG;f;Y}u; j ;Uj j yk; (10 ghl y;f;s) kUsth..
- 1.3. Rej uu; Nj thuk; j ;Uthi d;f;f;h j ;Uj j yk; (10 ghl y;f;s); ki w;f;s;..
- 1.4. khz p;f;f;thrfu; j ;Uthrfk; - j ;Untkghi t (10 ghl y;f;s) Mj ;pAk;..

**myF - 2**

- 2.1. Mz ;l;hs; j ;Ugghi t (10 ghRuq;f;s) Xq;f;p
- 2.2. nj hz ;l;ubgnghbaho;thu;j ;Ukhi y (10 ghRuq;f;s) gri r
- 2.3. j ;Ugghz ho;thu;mkydhj ;g;puhd; (10 ghRuq;f;s)
- 2.4. FyNr;fuho;thu;ngUkhs; j ;UUnkhop (11 ghRuq;f;s) CNdW

**myF - 3**

- 3.1. - Kj ;J f;Fkhurhk;pa g;pa; sj j kp; (2 ghl y;f;s)
- 3.2. - eej p;f;fykgfk; - 5 ghl y;f;s;
- 3.3. - Kf;\$l wgsS - 5 ghl y;f;s;
- 3.4. - xsi tahu; ghl y;f;s; - 4 ghl y;f;s;
- 3.5. - fhsNkfgGytu; ghl y;f;s; - 3 ghl y;f;s;

3.6. - rfj pKj j gGytu; ghl y; - 1 ghl y;

3.7. - fkgu; ghl y;fs; - 3 ghl y;fs;

**myF - 4**

Gj pdk; - rKj ha tJ p - eh. ghuj j rhuj p

**myF - 5**

**5.1. , yffja tuyhW**

5.1.1. - gfj p , yffjak; [i rtk> i tz tk;]

5.1.2.- rpwpyffjak; [gpsi sj j kp> fykgfk>gsS

5.1.3 -Gj pd , yffjak;

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**fhggjak> ehl fk> , yffjatuyhW - U13T3**

**gUtk; : III**

**ghl k; : III**

**fwgpFFk; fhyk; : 6**

**j ugGssp : 3**

**myF - 1**

1. rpyggj pfhuk; (, sqNfhtbfs) - tof;Fi u fhi j

2. kz pNkfi y (rj j i yrrhj j dhu)- Mj pi u gpi rap l fhi j

**myF - 2**

3. fkguhkhaz k; (fkgu) - , uhkhtj huk; - fhl rpggl yk;

4. ngupaGuhz k; (Nrf;fphu) - Gryhu; ehadhu; Guhz k;

**myF - 3**

5. , NaRfhtpak; (fz z j hrd) - ki ygnghopT

6. rwhgGuhz k; (c kWgGytu) - khDf;Fg; gpi z epdw gl yk;

**myF - 4 :**

7. j z z l; j z z l; (Nfhky; Rthkpehj d)- ehl fk;

**myF - 5**

8. , yffjatuyhW - fhggjak> Guhz k> ehl fk;

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**gz i l , yffjak> , yffja tuyhW> nkhoggapwrp -U13T4**

**gUtk; : IV**

**ghl k; : IV**

**fwgpFFk; fhyk; : 6**

**j ugGssp : 3**

**myF - 1**

1. FWenj hi f - 10 ghl y;fs; (8>18>25>40>58>99>131>135>167>196)

2. ewwpi z - 5 ghl y;fs; (1> 3> 16> 30> 355)

3. l qFE}W - 10 ghl y;fs; (nryT mOqFtj j ggj ;J)

**myF - 2**

4. fyij nj hi f - 2 ghl y;fs; (FwQrpf;fyp - 15> Kyi yf;fyp - 11)

5. mfehD}W - 2 ghl y;fS; (129> 140)  
 6. GwehD}W - 10 ghl y;fS; (95> 165> 182> 183> 184> 188> 194> 195> 204)

**myF - 3**

7. j pJf;Fws; - mwj ;J gghy; 5 mj pfhuq;fS; (11> 13> 14> 43> 47)

**myF - 4**

8. gj ;J gghl L - Kyi ygghl L KOtJk; (egGj dhu)

**myF - 5**

, yf;fpa tuyhW-vl Lj nj hi f> gj ;J gghl L> gj pdz ; fb;f;fz f;F> nkhoggapwrp  
 - nghJ f;f;l Li u (nghJ mwpt> ehl LeI gG> rKj ha Nehf;F gwwpad)

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**ENGLISH FOR COMMUNICATION - U13E1**

**Semester : I**

**English Language Course : I**

**Instruction Hours/Week:6**

**Credit: 3**

**Unit I :** 1.Civilization and History – C.E.M. Joad

2. The Fun They Had – Issac Asimov

**Unit II :** 3. Big Numbers and Infinities – George Gamow

4. Oil – G.C. Thornley

**Unit III:** 5. An Observation and An Explanation – Desmond Morris

6. A Robot about the House – M.W.Thring

**Unit IV:** 7.A Wrong Man in Worker’s Paradise – Rabindranath Tagore

8. Making Surgery Safe – Horace Shipp

**Unit V:** 9. Using Land Wisely – L.Dudley Stam

10. The Karuburator – Karel Capek

**Text Book:** English through Reading, by W.W.S.Baskar and N.S.Prabu, Published by  
 Macmillan Publishers India Ltd.,

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**ENGLISH THROUGH EXTENSIVE READING - U13E2**

**Semester : II**

**English Language Course : II**

**Instruction Hours/Week:6**

**Credit: 3**

**Unit I**

R.K.Narayan

An Astrologer’s Day

Boman Desai

Between the Mosque and the Temple

## Unit II

O.Henry	The Gift Of the Magi
Premchand	The Child

## Unit III

R.P. Sisodia	The Last Salvation
Kasturi Sreenivasan	I Prepare to gotoCoimbatore

## Unit IV

F.E.B. Gray	A Slip of the Tongue
Ruskin Bond	The Eyes are not Here

## Unit V

Rabindranath Tagore	The Cabuliwallah
Guy de Maupassant	The Diamond Necklace

## Text book

Glimpses of Life ; An Anthology of Short Stories ; Board of Editors [Orient Longman]

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## Communicative English – I – U13CE1

**Semester : II**  
**Instruction Hours/Week:6**

**Communicative English Course : I**  
**Credit: 3**

## OBJECTIVES

01. To Facilitate communication
02. To expose the students to various levels/types of communication.
03. To help the students achieve communicative competency

## UNIT I

01. At the College
02. on the Campus
03. Outside the class

## UNIT II

04. At the Post office
05. For Business and Pleasure
06. Review

## UNIT III

07. Are you Smart?
08. Are you creative?

- 09. Is it too hard to improve?
- 10. How to win?

**UNIT IV**

- 11. View points
- 12. Snakes and ladders
- 13. Your Self

**UNIT V**  
**Write**

- 14. Circulars, notes-reminders, warnings, farewells, apology;
- 15. Draft invitations – marriage, annual day, inaugural functions of associations, valediction, seminar, workshop.
- 16. Draft Short messages- compliments, birthday wishes, notifications, etc., Draft Posters- Slogans, announcements etc.,
- 17. Dialogue writing

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Text Book : Creative English for Communication (2<sup>nd</sup> edition) by Krishnasamy and Sriraman.

Reference: Websites      [www.englishclub.com](http://www.englishclub.com)  
[www.usingenglish.com](http://www.usingenglish.com)  
 Owl-online writing lab  
 MIT-open course ware  
[www.escaf.com](http://www.escaf.com)

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**ENGLISH FOR COMPETITIVE EXAMINATIONS – U13E3**

**Semester : III**  
**Instruction Hours/Week:6**

**English Language Course : III**  
**Credit: 3**

**Unit-I:**

- Basics of English
- (a) Parts of speech
- (b) Tenses
- (c) Active and passive voice
- (d) Tag questions

**Unit –II:**

- (a) Errors and how to avoid them



- (b) Spotting errors
- (c) Reconstructing passages
- (d) Précis writing

**Unit –III**

Reading comprehension

**Unit –IV:**

Vocabulary – synonyms, antonyms, prefix & suffix, Homonyms, sentence completion, spelling Phrasal verbs & Idiomatic Expressions.

**Unit –V:**

- Writing letters and drafting a resume /cv
- Types of essays and how to write them
- Guidance to a group discussion and
- Guidance to attending an interview

**Text book :**

**English for Competitive Examinations** by R.P.Bhatnagar & Rajul Bhargava macmillan India Ltd. Delhi.

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**COMMUNICATIVE ENGLISH –II – U13CE2**

**Semester : III**

**Communicative English Course : II**

**Instruction Hours/Week:6**

**Credit: 3**

**Unit-I:**

Enriching Vocabulary – Register Development; who is who; Synonyms, antonyms  
Active and Passive vocabulary, proverbs

**Unit –II:**

Tense Forms with emphasis on differences between Present and Present Continuous;  
Past and Present Perfect – Framing questions, Auxiliaries, if clauses; conjunctions, and linkers;  
Prepositions

**Unit –III**

Pronunciation, Good Pronunciation habits, R.P., Greetings, Farewells commands etc.,

**Unit –IV:**

Conversational Skills – Affirmative or Negative Language – idiomatic expressions,

Phrases, Dialogue Writing,

**Unit –V:**

Writing Skills – Note- taking, note- making, e-mail- Describing an object- narrating a story

**Reference Books**

- i) A Practical English Grammar by A.J Thomson and A.V. Martinet.
- ii) Remedial English Grammar, by F.T. Wood.
- iii) English for competitive Examinations by R.P Bhatnagar & Rajul Bhargava.

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**READING POETRY AND DRAMA – U13E4**

**Semester : IV**

**English Language Course : IV**

**Instruction Hours/Week:6**

**Credit: 3**

**POETRY**

**Unit: I**

John Milton	:	On His Blindness
Oliver Goldsmith	:	The village Schoolmaster
William Wordsworth	:	The Solitary Reaper

**UNIT II**

P.B.Shelley: Ozymandias

John Keats	:	La Belle Dame Sans Merci
Browning	:	Incident of the French Camp

**UNITIII**

John Masfield	:	Laugh and Be Merry
Robert Frost	:	Stopping By the Woods On a Snow Evening
	:	John Drink water
	:	The Vagabond

**DRAMA**

**Unit: IV**

Anton Chekhov	:	The Bear
Norman Mckinnel	:	The Bishop’s Candlesticks

**Unit: V**

Fritz Karinthy	:	Refund
F.M. Synge	:	Riders to the Sea.

**Textbooks**

- 1) **An Introduction to Poetry** edited by A.G.Xavier; [Macmillan]
- 2) **Nine Modern Plays:** ed. B.T Reddy, Oxford University Press

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## PROGRAMMING IN C – U13CS1

**Semester : I**

**Core Course : I**

**Instruction Hours/Week : 5**

**Credit : 5**

### **UNIT – I**

Evolution and Application of C – Structure of a C Program – Data types – Declarations – Operators – Expressions – Type Conversions – Built – in Functions.

### **UNIT – II**

Data Input and Output – Control Statements: IF, ELSE – IF, GOTO, SWITCH, WHILE – DO, DO – WHILE, FOR, BREAK and CONTINUE.

### **UNIT – III**

Functions: Defining and Accessing Arguments – recursive functions – storage classes – Arrays: Defining and processing Arrays – Multidimensional arrays – passing arrays to functions – Arrays and strings – String Functions – String Manipulations.

### **UNIT – IV**

Pointers – Pointer Declarations – Operations on Pointers – Pointers to Functions – Pointer and Strings – Pointers and arrays – arrays of Pointers – Structures – Structures and Pointers – Unions.

### **UNIT – V**

Data files – Opening, Closing and processing files – files with structures and Unions – register variables – Bitwise Operations – Macros - Preprocessing.

### **Text Book:**

“Programming in C ”– E.Balagurusamy – Tata McGraw Hill Publications.

### **Books for Reference:**

1. “Programming with C” – Byron S.Gottfried – Schaum’s outline series – Tata McGraw Hill Publications.
2. “The Sprit of C ”– Mullish cooper – Schaum’s Outline Series – Tata McGraw Hill Publications.
3. “A first course in Programming with C ”- T.Jeyapoovan.Vikes Publishing House Pvt.Ltd, New Delhi.

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**Core course II – U13CS2P**  
**Programming in C Lab**

**Semester : I** **Core Course : II**  
**Instruction Hours/Week : 3** **Credit : 3**

1. Sum of Series (sine, cosine, exponential).
2. Ascending and descending order of numbers using Arrays (Use it to find Largest and Smallest Numbers).
3. Matrix operations (Addition, Subtraction, Multiplication) – using functions
4. Finding factorials, generating Fibonacci Numbers using recursive functions.
5. String manipulations without using string functions (string length, string comparison, string copy, palindrome checking, counting words and lines in strings (Use function pointers).
6. Program to prepare purchase report using pointers
7. Program to prepare Mark Sheet using files.

**Programming in C++ Lab**

**Semester : II** **Core Course : II**  
**Instruction Hours/Week: 3** **Credit : 2**

1. Program to implement classes, create object and member functions.
2. Functions using
  - i) Call by value
  - ii) Call by reference
  - iii) Recursive call
3. Class and All types of Constructors.
4. Program to implement the concept of function overloading
5. Program to implement the concept of Operator overloading.
6. Program to implement the concept of Inheritance.
7. Program to implement file handling concepts.

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**OOPS Using C++ - U13CS3**

**Semester : II** **Core Course : III**  
**Instruction Hours/Week :5** **Credit : 5**  
**Objective:**

To introduce the concepts of object oriented programming and to impart the programming skills in C++.

## Unit - I

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

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

## Unit - III

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

## Unit - IV

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

## Unit - V

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:

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

### BOOK(S) 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.

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## JAVA PROGRAMMING – U13CS4

**Semester : III**

**Instruction Hours/Week : 5**

**Core Course : IV**

**Credit : 5**

## UNIT I

Data Types and Variables: The Simple Types - Literals - Variables - Type Conversion and Casting - Automatic Type Promotion in Expressions - Arrays Strings - Classes and Methods: Class Fundamentals - Declaring Class Objects Constructors – Garbage Collection - The finalize ( ) Method - Overloading Methods - Argument Passing -Recursion - Understanding Static - Access Control--: The main ( ) method.

## UNIT II

Operators: Arithmetic Operators - Bit wise Operators - Relational Operators Boolean Logical Operators - The Assignment Operator - The? Operator - The Dot Operator -Operator Precedence.

## UNIT III

Inheritance, Packages, and Interfaces: Inheritance - Using Super -When Constructors are called - Method Overriding - Abstract Classes - The final Keyword - Packages - Importing Packages - Access Control Interfaces – Keyword Summary.

## UNIT IV

GUI: AWT Components –Layout – Event model – Graphics.

## UNIT V

Applets – Applet Tag in HTML – Threads – Multithreads – Stream I/O and files.

### Book for study:

1. "Java - Programmer's Reference", Herbert Schildt with Joe O'Neil, Tata McGraw Hill.
2. Patrick Navghtan and Herbert Schildct "Java The Complete Reference", Tata McGraw Hill, New Delhi .
3. Programming in Java by C.Muthu

### Books for reference:

1. "Internet Programming", Kris Jamcs Ph.D., and Ken Cope, Galgotia Publication,
2. "Java Unleashed", Michael Morrison, Scond Edition. , ,
3. "Complete Reference", 'Patrick Naughton and Herbert Schildt, 3rd Edition, Tata McGraw Hill Publishing Company Ltd.,

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## JAVA Lab & Data Structure Lab – U13CS5P

**Semester: III**

**Core Course : V**

**Instruction Hours/Week : 2**

**Credit : 2**

### JAVA Lab

Write a Java Program to implement the following concepts.

1. Create a Program using Classes – Objects.
2. Create a Program for String Manipulation.
3. Implement the concept of interfaces and package.
4. Create a try block that is likely to generate three types of exception and then incorporate necessary catch blocks to catch and handle them appropriately.
5. Develop a Multithread program to move the ball around the screen in all the four direction.

6. Create an Applet Programming to Draw the different types of shapes
7. Create a BIO – DATA by Using AWT form design

**Data Structure Lab**

**Semester : IV**

**Core Course : V**

**Instruction Hours/Week :3**

**Credit : 3**

1. Implement PUSH, POP operations of stack using Arrays.
2. Implement add, delete operations of a queue using Arrays.
3. Binary Search tree traversals (in-order, pre-order, and post-order) using Recursion.
4. Sorting - Quick sort.
5. .Operations on Singly linked list –C
6. Operations on Doubly linked list-C
7. Sorting - Heap sort.

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**DATA STRUCTURES AND ALGORITHMS – U13CS6**

**Semester : IV**

**Core Course : VI**

**Instruction Hours/Week :5**

**Credit : 5**

**Objective:**

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

**UNIT - I**

Arrays: Ordered Lists - Representation of arrays. Stacks and queues: fundamentals- evaluation of expressions-multiple stacks and queues.

**UNIT - II**

Linked Lists: Singly Linked Lists- Linked stacks and queues- The Storage Pool - Polynomial Addition- More on Linked Lists. Doubly Linked Lists: Node Insertion and Node Deletion.

**UNIT - III**

Trees: Basic terminology-Binary trees-Binary tree Representations -Binary tree traversal. Threaded Binary Trees- Binary Tree Representation of Trees.

**UNIT - IV**

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

## UNIT - V

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

### BOOK(S) FOR STUDY:

1. Ellis Horowitz and Sartaj Sahni, "Fundamentals of Data structure", Galgotia Publications, New Delhi, 1985. Units I, II, III
2. S.E. Goodman and S.T. Hedetniemi, "Introduction to the Design and analysis of algorithms", McGrawHill, International edition, 1988: Units IV,V

### BOOK(S) FOR REFERENCE:

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

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## VISUAL BASIC PROGRAMMING – U13CS7

**Semester : V**

**Core Course : VII**

**Instruction Hours/Week :5**

**Credit : 5**

## UNIT-I

Introduction to Visual Basic – Integrated Development Environment (IDE) features – VB editor - customizing the IDE - Anatomy of a form - Working with form properties -setting form's Properties - Introducing form events & form methods.

## UNIT- II

Variables in Visual Basic: Declaring variables - Data types - Null value, Error value,Empty value - The scope of a variable - Module level variables - constants – Creating your own constants - scope of a constant - converting data types - arrays -declaring arrays - fixed size arrays - dynamic arrays -preserve keyword –REDIM Writing code in Visual Basic: The anatomy of a procedure - ubroutine and functions -language constructs: for, next, the while loop, select case, Exit statement, with structure.

## UNIT-III

Selecting & Using controls: Introducing standard controls - Command buttons –Text buttons - levels - option buttons -check boxes -frame controls -list boxes -combo boxes - Image objects - picture boxes -Timer - scroll bars - file system controls



## **UNIT-IV**

Introduction to Built In Active X Control: Tool bar - the tree view control - the Listview control - the Imagelist control - common Dialog control - Status bar control – Rich textbox control - Menu Editor.

## **UNIT-V**

DDE properties - DDE Events -DDE methods -OLE properties - Active X control creation and usage and Active X DLL creation and usage -Data Base Access - Data control - Field control - Data Grid Record set using SQL to manipulate data - Open data connectivity (ODBC)

## **TEXT BOOK**

1. Mohammed. Azam, Programming with Visual Basic 6.0- VIKAS publishing House pvt. Ltd.,

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## **MICROPROCESSOR AND ITS APPLICATIONS – U13CS8**

**Semester : V**

**Instruction Hours/Week : 5**

**Core Course : VIII**

**Credit : 5**

## **UNIT 1**

Evaluation of Microprocessors – Single Chip Microcomputer Microprocessor Applications – Programming Digital Computers – Memory – Buses – Memory addressing capacity and CPU – Microcomputers – Processor Architecture – Intel 8085 –Instruction Cycle – Timing diagram.

## **UNIT 2**

Instruction set of Intel 8085 – Instruction and Data Formats – Addressing Modes – Status flags – Intel 8085 Instructions – Programming of Microprocessors – Assembly language – Assemblers – Stacks and Subroutines – MACRO – Microprogramming.

## **UNIT 3**

Assembly language Programming – Simple examples – Addition and Subtraction of Binary and Decimal Numbers – Complements – Shift – Masking – Finding the largest and smallest numbers in an Array – Arranging a series of numbers – Sum of a series of Numbers – Multiplication – Division – Multibyte Addition and Subtraction.

## UNIT 4

Peripheral Devices and Interfacing – Address Space Partitioning – Memory and I/O Interfacing – Data transfer schemes – Interrupts of Intel 8085 – Interfacing memory and I/O devices

## UNIT 5

I/O ports – Programmable peripheral Interface – Programmable Counter /Interval Timer – A/D Converter and D/A Converter - Microprocessor Applications – Microprocessor based Traffic Control.

### TEXT BOOK:

1. Fundamentals of Microprocessors and Microcomputers – Badri Ram – Fourth Revised And Enlarged Edition – Dhanpat Rai and Sons – 1993.
2. The Intel Micro Processor – Barry B.Bray – 6<sup>th</sup> Edition – 2003 – Published by Prentice Hall of India private limited

**REFERENCE BOOK**      Microprocessor Architecture, Programming and Applications with the 8085 / 8080A –Romesh S.Gaonkar – Wiley Eastern – 1990

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## SOFTWARE ENGINEERING – U13CS9E

**Semester** : V

**Elective Course** : I

**Instruction Hours/Week** : 5

**Credit** : 4

### UNIT I

Introduction to Software Engineering : Definitions - Size factors – Quality and Productivity Factors – Managerial Issues.The Product : The evolving role of software – Software – characteristics - applications.The process : Software engineering : A Layered Technology – The software process –Evolutionary software process models : Spiral model.

### UNIT II

Planning a Software Project : Defining the problem – Developing a solution Strategy – Planning the development Process – Planning an organizational structure – Other Planning Activities .

### **UNIT III**

Software Cost Estimation : Software Cost Factors – Software Cost Estimation

Techniques – Staffing Level Estimation. Software Requirements Definition : The Software Requirements Specification – Formal Specification Techniques.

### **UNIT IV**

Software Design : Fundamental Design Concepts – Modules and Modularization Criteria

– Design Notation – Design techniques – Design Guidelines. Implementation Issues : Structured coding techniques – coding style – Documentation guidelines.

### **UNIT V**

Verification and Validation Techniques : Quality Assurance – Walkthroughs and inspections –

Static analysis – Unit testing and debugging – System testing – Formal verification.

#### **Text Books:**

1. Richard E. Fairly – “Software Engineering Concepts”, Tata McGraw Hill

Publication, 1997 edition.

2. Roger S. Pressman – “Software Engineering A Practitioner’s Approach”, 5th

edition, McGraw Hill, 2001.

#### **Reference book:**

1. Watts S. Humphrey – “A Discipline for Software Engineering”, Addison

Wesley Company, 1995.

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## **2. DOTNET – U13CS9E**

**Semester : V**

**Elective Course : I**

**Instruction Hours/Week : 5**

**Credit : 4**

### **UNIT I:**

Client server architecture: 2-tier model – 3-tier model – n-tier model – J2EE architecture – DOTNET architecture – MVC architecture – struts framework

### **UNIT II:**

ASP.NET : Introduction – architecture – ASP.NET Runtime – Internet Information Services – Visual Web Developer Web Server – ASP.NET Parser – Assembly – Page class. Web Server Controls – HTML Controls – AdRotator and Calendar controls – Validation Controls – Security Management.

**UNIT III:**

ASP.NET and ADO.NET: System.Data, SqlClient and Xml namespaces – Provider objects and Consumer objects – Disconnected data access – GridView FormView.

**UNIT IV:**

Advanced Features of ASP.NET – Security in ASP.NET – State Management in ASP.NET - Mobile Application development in ASP.NET – Critical usage of these features in website development

**UNIT V:**

Web Services – Role of Web Services in Distributed Computing –WSDL, UDDI, SOAP Concepts involved in web Services – Connecting a Web Service to a Data Base-Accessing a web Services through an ASP.Net Application

**BOOK(S):**

1. Justin Couch, Daniel H.Steinberg, "J2EE Bible", Wiley India(P) Ltd, New Delhi, 2002
2. Paul Tremblett, "Instant Enterprise Java y - Beans", Tata McGraw Hill, New Delhi, 2001
3. Platt S David, "Introducing Micorsoft .Net", Prentice Hall of India, New Delhi, 2003.

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**E-COMMERCE – U13CS10E**

**Semester : V**

**Elective Course : II**

**Instruction Hours/Week : 4**

**Credit : 4**

**Objective:**

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

**Unit-I**

Electronic Commerce - Electronic data interchange - Benefits of EDI- E-commerce over the Internet - Internet commerce - Examples –Commercenet - Electronic communication - PCs and networking: Networking- Network topology - Communication Media - VSAT.

**Unit II**

Electronic Mail – The X.400 Message handling system –Internet Addresses – Multipurpose Internet Mail Extension – X.500 Directory Services – E-mail user agent.

**Unit III**

EDI- Costs and benefits – Components of EDI Systems – EDI implementation issues – EDIFACT – EDIFACT Message Structure.

**Unit IV**

Cyber Security – Cyber Attacks – Hacking- SSL - Authentication and assurance of data integrity – Cryptographic based solutions – Digital Signatures – VPN.

**Unit V**

Electronic Payment Systems – payment gateway – internet banking – the SET Protocol – E-cash – E-Cheque –Elements of electronic payments.

**Textbook**

1. "E-Commerce The Cutting Edge Of Business" 2-Edition by Kamalesh K Bajaj ,Debjani Nag – Tata Mc Graw Hill Publishing Co. Ltd., New Delhi, 2000.

**BOOK FOR REFERENCE**

P.T. Joseph, SJ, "E-Commerce – An Indian Perspective", Third edition, PHI Publishing Co. Ltd., New Delhi, 2000

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**COMPUTER GRAPHICS – U13CS10E**

**Semester : V**

**Elective Course : II**

**Instruction Hours/Week : 4**

**Credit : 4**

**Unit I**

A survey of computer graphics: Computer aided design – Presentation graphics – computer art – Entertainment – Education and training – Visualization – ImageProcessing – Graphical user interfaces.Overview of graphics systems: Video display devices – Raster-scan systems – Randomscansystems – Graphics monitors and workstation – Input devices – Hard-copy devices –Graphics software.

**Unit II**

Output primitives: Points and lines – Line-drawing algorithms – DDA algorithm – Bresenham’s line algorithm – Circle-generating algorithms – Filled-area primitives –Boundary-fill algorithm.

**Unit III**

Attributes of output primitives: Line attributes – Area-fill attributes – Character attributes – Bundled attributes – Inquiry functions – Antialiasing

#### **Unit IV**

Two-dimensional Geometric transformations: Basic transformations – Matrix representations – Composite transformations – Other transformations.

#### **Unit V**

Window-to-viewport coordinate – Two-dimensional viewing functions – Clipping operations – Point clipping – Line clipping – Polygon clipping.

#### **Text book:**

1. Computer Graphics C Version Second Edition, Donald Hearn and M.Pauline Baker, Pearson Education, 2006.

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### **INTERNET AND ITS APPLICATIONS – U13CS10E**

**Semester : V**

**Elective Course : II**

**Instruction Hours/Week : 4**

**Credit : 4**

#### **Objective**

To understand the fundamental concepts of Internet and its Applications.

#### **UNIT I**

Internet – Introduction – Internet Access/Dial-up connection – Internet Services Features – GettingConnected: TCP/IP accounts vs Shell accounts – Configuring TCP/IP Account – Configuring the shell account.

#### **UNIT II**

World Wide Web: Web Pages – HTML – HTML Tags – Net Surfing – Web Browsing: Internet Explorers –Netscape Navigator.

#### **UNIT III**

Internet Addressing – IP address – Domain Name – Electronic Mail – URL.

#### **UNIT IV**

Internet Protocol: TCP/IP - File Transfer Protocol – Hyper Text Transfer Protocol –Telnet – Gopher – WAIS.

## UNIT V

Searching the Web: Web Index – Web Search Engine – Web Meta – Searcher – Search Functions – Simple Search Using Alta Vista – Advanced Searches.

### Text Book

Lexis Leon and Mathews Leon, *Internet For Every One*, Leon Press, 1999.

### Reference Books

1. Deitel and Deitel, *Internet and World Wide Web - How to Program*, PHI, Fourth Edition, 2008.
2. Christian Cramlish, *The Internet*, BPB, Second Edition, 2004.

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## DATABASE SYSTEMS – U13CS11

**Semester : V & VI**

**Instruction Hours/Week : 2+3**

**Core Course : IX**

**Credit : 5**

### Unit I

Introduction: Database-System Applications- Purpose of Database Systems - View ofData --Database Languages - Relational Databases - Database Design -Object-Basedand Semi structured Databases - Data Storage and Querying Transaction Management Data Mining and Analysis - Database Architecture - Database Users and Administrators - History of Database Systems.

### Unit II

Relational Model: Structure of Relational Databases - Fundamental Relational-AlgebraOperations Additional Relational-Algebra Operations- Extended Relational-Algebra Operations - Null Values - Modification of the Database.

### Unit III

SQL: Data Definition - Basic Structure of SQL Queries - S e t O p e r a t i o n s - A g g r e g a t e F u n c t i o n s - N u l l V a l u e s - Nested Subqueries – Complex Queries - Views - Modification of the Database - Joined Relations - SQL Data Types and Schemas - Integrity Constraints -Authorization - Embedded SQL

## Unit IV

Relational Languages: The Tuple Relational Calculus - The Domain Relational Calculus- Query-by- Example. Database Design and the E-R Model: Overview of the Design Process - The Entity-Relationship Model - 3 Constraints - Entity-Relationship Diagrams - Entity-Relationship Design Issues - Weak Entity Sets - Database Design for Banking Enterprise

## Unit V

**Relational Database Design:** Features of Good Relational Designs - Atomic Domains and First Normal Form - Decomposition Using Functional Dependencies - Functional-Dependency Theory - Decomposition Using Functional Dependencies – Decomposition Using Multivalued Dependencies-More Normal Forms - Database-Design Process

### Text Book:

1. Database System Concepts, Fifth edition, Abraham Silberschatz , Henry F. Korth, S.Sudarshan, McGraw-Hill-2005.

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### Visual Programming Lab & RDBMS (ORACLE) LAB – U13CS12P

**Semester : V & VI**

**Core Course : X**

**Instruction Hours/Week : 3+3**

**Credit : 5**

1. Simple exercises using standard control.
2. Program to design and implement a scientific calculator.
3. Use the circle method to draw several ellipses and circles so that they have the appearance of a pair of eyes.
4. Create a designer with basic primitives like circle, square, rectangle, ellipse and fill the same.
5. Program to expand and shrink an object while program is running.
6. Program to create animation by using move method and a timer object.
7. Program to prepare a student's mark list.

### RDBMS (ORACLE) LAB

1. Table Creation & Data insertion, Deletion & Updation
2. DML : Aggregate function , Set Operations & nested Queries
3. PL/SQL - block using cursors
4. Functions & procedures



5. D2K : insertion, deletion & updation through forms

6. Calling other forms & reports.

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### **OPERATING SYSTEMS – U13CS13**

**Semester : VI**

**Core Course : XI**

**Instruction Hours/Week : 6**

**Credit : 6**

#### **UNIT- 1**

Evolution of operating systems- Functions – Different views of OS – Batch processing, Multiprocessing, Time sharing OS – I / O programming concepts – Interrupt Structure & processing

#### **UNIT -2**

Memory Management – Single Contiguous Allocation- Partitioned Allocation – Relocatable Partitions allocations – Paged and Demand paged Memory Management – Segmented Memory Management – Segmented and Demand paged Memory Management – overlay Techniques – Swapping

#### **UNIT- 3**

Processor Management – Job Scheduling – Process Scheduling – Functions and Policies – Evolution of Round Robin Multiprogramming Performance – Process Synchronisation – Wait and Signal mechanisms – Semaphores P & V Operations – Deadlock – Banker’s Algorithm.

#### **UNIT -4**

Device Management – Techniques for Device Management – I/O Traffic Controller, I/O Scheduler, I/O Device Handlers – Spooling.

#### **UNIT- 5**

File Management: Simple File System, General Model of a File System, Physical and Logical File System. Case Studies: MSDOS, UNIX.

#### **TEXT BOOK:**

1. Operating Systems – E. Madnick & John J.Donavan, Tata McGraw Hill Publishing Co., Limited.
2. Distributed Operating Systems – Pradeep K.Sinha ,Prentice – Hall of India Private Limited

#### **REFERENCE BOOK:**

System Programming and Operating Systems – D.M. Dhamdhere, Tata McGraw Hill Publishing Co., Limited.

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## COMPUTER NETWORKS – U13CS14

**Semester : VI**  
**Instruction Hours/Week : 6**

**Core Course : XII**  
**Credit : 6**

### Unit 1

Introduction: uses of computer networks - network hardware - network software -  
Reference models - example networks - network standardization

### Unit II

The physical layer: guided transmission media - wireless transmission - communication  
satellites - the public switched telephone network

### Unit III

The data link layer: data link layer design issues - error detection and correction -  
elementary data link protocols - sliding window protocols

### Unit IV

The network layer: network layer design issues - routing algorithms - congestion control  
algorithms- quality of service – internetworking

### Unit V

The transport layer: the transport service - elements of transport protocols - a simple  
transport protocol the application layer: dns--domain name system - electronic mail - the  
world wide web

### Text Book:

1. Computer Network , Fourth edition, Andrew S. Tanenbaum, Prentice Hall, 2006.

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## U13CS15 – PROJECT WORK

**Semester : VI**  
**Instruction Hours/Week : 6**

**Core Course : XIII**  
**Credit : 6**

## PROJECT WORK

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## **ADVERTISEMENT MANAGEMENT – U13CS16E**

**Semester : VI**

**Elective Course : III**

**Instruction Hours/Week :5**

**Credit : 4**

### **UNIT-I INTRODUCTION**

Nature, scope and types of advertising, Role of advertising for business units.  
Economics, Social and ethical aspects of advertising.

### **UNIT-II- ADVERTISING STRATEGY, PLANNING AND BUDGETING**

Devising advertising strategy, Objectives and process of advertising budgeting models.  
Advertising budget allocation, decision making related to advertising.

### **UNIT-III- ORGANISING ADVERTISING CAMPAIGNE**

Planning and organizing advertisement campaign creativity in advertising campaign:  
Copy writing and layout: various advertising media and their selection. Displays and role point  
of purchase advertising.

### **UNIT-IV- ADVERTISING AGENCIES:**

Advertising agencies- their organization, functions need-utility and co-ordination with  
client. Selection of advertising agency- agency compensation.

### **UNIT-V- EFFECTIVENESS AND CONTROL:**

Methods of measuring advertising effectiveness: Cost benefit-analysis, social and legal  
control of advertising, role of consumer's organization.

### **Text Book Recommended:**

Rathor, B.S. Advertising Management-Himalaya Publishing House

### **Reference:**

1. Myers-Advertising Management-PHI
2. Norms-Advertising-PHI

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## 2. INTERNET CONCEPTS – U13CS16E

**Semester : VI**

**Elective Course : III**

**Instruction Hours/Week :5**

**Credit : 4**

### UNIT-I

Internet and the World wide web: The world wide web.Browsing the web-Web address-web browser basics-Strong and managing(book marks)-Surfing the web with web browser(APPLE CYBER DOG, LYNX, HOT JAVA,Microsoft Internet Explorer-Netscape Navigator)

### Unit II

searching the web directory-search engines-navigation tools.

### UNIT-III

Email: Sending-Reading-Replying-Deleting-Exiting-Sending Mail to more than one person-sending folder-forwarding a mail

### UNIT IV

checking the spelling-attachments. Usenet-Telnet-FTP-Chat-News group's.

### UNIT-V

Html: Overview of HTML-adding structure to a page formatting text and pages-linking page to the world-including picture-clearing lists-arranging items within tables-getting feedback from form splitting a page into frames.

### BOOK(S) FOR STUDY

1. Joe krayank & Joe Habraken, " Internet 6 in 1", Prentice Hall of India Private Limited, New Delhi, 1998.
2. Internet Complete, BPB publications, New Delhi,1998.

### BOOK(S) FOR REFERENCE

1. Christina Crumlish: The Internet, BPB Publications, New Delhi, 1998.

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### Allied Mathematics I – U13AMS1C

**Semester : I**

**Allied Course : I**

**Instruction Hours/Week :5**

**Credit : 3**

### UNIT-I

Algebraic and Transcendental equations: Finding the root of the equation using Bisection method, Newton Raphson method, Iteration method, Method of false position.

Book I : Chap2: (sec 2.1-2.5)

**UNIT-II**

Finite differences-forward, backward differences-Newton’s forward and backward difference interpolation formulae. Lagrange’s interpolating polynomial.

Book I : Chap 3: (sec 3.3.1,3.3.2,3.6,3.9.1)

**UNIT-III**

Diagrammatic and Graphical Representation of Numerical Data - Formation of Frequency Distribution -Histogram, Cumulative Frequency – Polygon and Ogives - Measures of Central Tendency - Measures of Dispersion - Moments and Measures of Skewness and Kurtosis.

Book II: Chap 4 (Page no.27-49),Chap 5(Page no.50-84),Chap 6,7

**UNIT-IV**

Theory of Probability - Definitions of Probability - Sample Space - Probability of an Event - Independence of Events - Theorems on Probability - Conditional Probability - Baye's Theorem.

Book II: Chap 14(Page no.370-408)

**UNIT-V**

Correlation and Regression - Properties of Correlation and Regression Coefficients - Numerical Problems for Finding The Correlation and Regression Coefficients.

Book II: Chap 8(Page no.177-223), Chap 9(Page no.224-255)

**Text Books:**

1. Introductory Methods of Numerical Analysis, S.S.Sastry, fourth edition, 2010, PHI(P)Ltd.
2. Business Statistics, P.R.Vittal, 2001, Margham Publication.

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**Allied Mathematics – II – U13AMS2C**

<b>Semester</b>	<b>: I&amp;II</b>	<b>Allied Course</b>	<b>: II</b>
<b>Instruction Hours/Week</b>	<b>:3+3</b>	<b>Credit</b>	<b>: 3</b>

**Unit I**

Operations Research: Introduction-Basics of OR-Linear Programming formulations &graphical solution of two variables – Canonical & standard forms of LPP. Simple Method: Simplex Method for <,=> constraints- Charne’s method or penalties method

Chapter 2(sec2.1,2.2) ,Chapter 3(sec3.1-3.5) ,Chapter 4(sec4.3,4.4)

**Unit II**

Transportation problem: Finding the IBFS by North West corner rule, Least cost method, VAM method. Optimal solution by MODI method – Degeneracy in Transportation Problem, Unbalanced transportation problem and Maximization problem

Chapter 5 (sec5.1-5.3,5.7,5.9) ,Chapter 10 (sec10.1-10.3,10.9,10.12,10.14)

**Unit III**

Assignment algorithm – Balanced assignment problem- Unbalanced assignment problem, travelling sales man problem. Game theory – introduction- saddle point (with and without)-mixed Strategy.

Chapter 11 (sec11.1-11.4,11.6) ,Chapter 17 (sec17.1-17.5)

**Unit IV**

Sequencing problem: Processing of n jobs through two machines – Processing of n jobs through 3 machines- processing of two jobs through m machines.

Chapter 21 (sec21.1,21.7)

**Unit V**

Networks: Network – Fulkerson’s rule – measure of activity – PERT computation – CPM computation- Resource scheduling

Chapter 12 (sec12.1-12.6)

**TEXT BOOK(S)**

1. Man Mohan & Gupta , Operations Research, Sultan Chand Publishers, New Delhi

**REFERENCE(S)**

1. Prem Kumar Gupta and D.S. Hira, Operations Research: An Introduction, S.Chand and Co., Ltd. New Delhi,
2. Hamdy A.Taha, Operations Research (7<sup>th</sup>Edn.),McMillan Publishing company, New Delhi, 1982.

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**Allied Mathematics – III – U13AMS3C**

<b>Semester : II</b>	<b>Allied Course : III</b>
<b>Instruction Hours/Week :5</b>	<b>Credit : 3</b>

**UNIT – I**

Integration - Integrals of functions containing linear functions of x -Integrals of functions involving  $a^2+x^2$ - integrals of rational algebraic functions - Integration of irrational functions.

Book 1: Chap. I sec 6.1, 6.2, 7 (Omit 7.4), 8 case (i) to (iv) only  
Page no: 7-13, 23-31, 39-47.

**UNIT – II**

Properties of definite integrals - Simple applications - Integration by parts - Bernoulli's formula.

Book 1: Chap. I Sec. 11, 12, 15  
Page no: 61-72, 93, 94.

**UNIT – III**

Differential equations of first order - Variable separable -Homogeneous equations – Non homogeneous equations - Linear equation -Bernoulli's equation.

Book 1: Chap 4: Sec 1-5  
Page no: 205-218.

**UNIT – IV**

Second order Linear equations with constant co-efficient – Particular integrals for  $e^{kx}$ ,  $\sin kx$ ,  $\cos kx$ ,  $x^n$  and  $e^{kx} X$ .

Book 2: Chap 2  
Page no.49-74

**UNIT – V**

Laplace transform - Definition - Some general theorems – Inverse Transform.

Book 1: Chap 7: Sec 7.1, 7.2, 7.3, 7.4, 7.5  
Page no: 289-308.

**Text Book:**

1. Ancillary Mathematics, Vol-II (2009), S. Narayanan, R. HanumanthaRao, T.K. Manicavachagam Pillay, Kandaswamy.
2. Calculus, volume III, S. Narayanan, , T.K. Manicavachagam Pillay.

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## APPLIED PHYSICS FOR COMPUTER SCIENCE I – U13APH1C

Semester : III  
Instruction Hours/Week: 5

Second Allied Course: 1  
Credit: 3

### UNIT I – ELECTROSTATICS

Fundamentals of electrostatics – Gauss theorem and its application – Intensity due to a charged sphere – intensive at a point between two charged parallel plane conductors – Intensity at a point due to uniformly charged cylinder– Electrostatic potential – Equipotential surface – capacity – Principles of a capacitor –cylindrical capacitor – energy of a charged capacitor – Energy loss due to sharing of charges.

### UNIT II - MAGNETOSTATICS

Magnetic field – Magnetic flux density – Magnetization – Intensity of magnetization – Permeability – Susceptibility – Relation between them – Magnetic potential – Potential due to a dipole – Relation between potential and intensity – Magnetic shell and its potential at any point – Properties of dia Para and Ferro magnetic materials – Hysteresis – Magneto mater method – Finding coercivity, retentivity and energy loss from hysteresis loop (BH Curve)

### UNIT III – CURRENT ELECTRICITY

Laplace's law – Intensity at a point due to a straight conductor carrying current - Force between two parallel conductors – standard unit of current – Definition of Ampere – Units of voltage and resistance – Ohm's law – Kirchoff's law - Application to Wheatstone's bridge – Carey Foster's bridge – Potentiometer – Measurement of current and resistance – Calibration of low range voltmeter – Fleming's left hand rule – Theory of moving coil galvanometer– Ballistic galvanometer – Fleming's right hand rule

### UNIT IV – ELECTROMAGNETIC INDUCTION

Laws of electromagnetic induction – Relation between induced emf and mutual inductance – Eddy current – Determination of self inductance – Anderson's method coefficient of mutual induction – Determination – Absolute method – Coefficient of coupling – Transformer theory

### UNIT V – ALTERNATING CURRENT

A/C Circuits with single components – Double components – Measurement of current and voltage – Power in A/C Circuit – Power factor derivation – Wattless current – Choke-series and parallel resonance circuits – Impedance – Q factor – Selectivity and Sharpness of resonance – Oscillatory discharge of a condenser.

### BOOKS FOR REFERENCE

1. Electricity and Magnetism – Brijlal and Subramanian – Ratan Prakashan Mandir Delhi (1997).
2. Electricity and Magnetism – Narayanamurthy & Nagarathinam (1977).



3. Electricity and Magnetism – D.L. Seghal and Chopra (2005).

**BOOKS FOR STUDY**

1. Electricity and Magnetism-Wilson,Cg-London(1974).
2. Electricity and Magnetism-Saaxena-Meerut (1980).
3. Fundamental Magnetism and Electricity-Vasudeva D.N-Newyork,S.Chand & Co-1964.

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**APPLIED PHYSICS FOR COMPUTER SCIENCE PRACTICAL - U13APH2CP**

**Semester : III & IV**  
**Instruction Hours/Week:2+3**

**Second Allied Course: II**  
**Credit: 3**

**(At the end of the Fourth Semester-Any Twelve expts.)**

1. Semiconductor diode – Characteristics
2. Zener Diode – Characteristics
3. FET – Characteristics
4. Transistor Characteristics – CE configuration
5. Transistor Characteristics – CB configuration
6. Regulated power supply using Zener diode.
7. Field along the axis of a coil – M and H
8. Potentiometer –Calibration of Low range voltmeter
9. Potentiometer Calibration of Low range Ammeter
10. Carey Foster's bridge – specific resistance
11. Calibration of a Thermistor and determination of its Energy gap
12. Series resonance circuit
13. Parallel Resonance circuit
14. FET amplifier
15. Astable Multivibrator
16. Mathematical operators – Addition, subtraction using op-amp
17. Printed circuit board design
18. Determination of Self Inductance-Anderson's Bridge.
19. Differentiator and Integrator using op-amp.
20. Study of Logic gates using suitable IC's.

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## APPLIED PHYSICS FOR COMPUTER SCIENCE II- U13APH3C

**Semester : IV**

**Second Allied Course: III**

**Instruction Hours/Week: 5**

**Credit: 3**

### **UNIT I – SEMICONDUCTOR PHYSICS**

Theory of Energy bands in crystals – distinction between conductors, insulators and semiconductors – Intrinsic and Extrinsic semiconductors – Hall effect in semiconductors – Zener diode Tunnel diode Backward diode Breakdown voltage – avalanche Breakdown

### **UNIT II - TRANSISTORS**

PNP and NPN transistor working- DC Characteristics of CE and CB configuration – Hybrid parameters – Functions of Transistors as an amplifier– FET – N – channel and P-Channel FET performance Characteristics- FET amplifier.

### **UNIT III – LASERS AND MASERS**

Basic concepts of stimulated emission – Population inversion and Meta stable state – Ammonia maser – Ruby laser-He Ne laser-Semiconductor Laser production – Advantages

### **UNIT IV – OPTO ELECTRONIC DEVICES**

LED: Radiation transition Emission spectra Luminent efficiency – Method of Excitation – Visible LED – Materials for LED – LED configuration and performance – Photo conduction – photo diode – Photo transistor – electronic watches – Seven segment displays – LCD

### **UNIT V – OPERATIONAL AMPLIFIERS**

The basic operational amplifier – Inverting and Non inverting operational amplifier – Differential Operational amplifier – CMRR – Basic uses of Operational amplifier as sign changer- phase shifter integrator-Differentiator and adder D/C – Binary weighted method – R-2R ladder method – A/C Successive approximation and counter methods – OpAmp as a comparator.

### **BOOKS FOR STUDY**

1. Microelectronics – Jacob Millman – MCGraw Hill (2000).
2. The fundamentals of solid state physics – Theraja Sultan Chand & Co., Delhi

3. Pulse & Digital electronics–G.K Mithal and Vanvasi – Khanna Publication – Delhi (1985)
4. Functional Electronics – Ramanan – TMH(2005).
5. Electronic devices and Circuits – Millman & Halkias – TMH(1991).

**BOOKS FOR REFERENCE**

1. Electronic Devices, circuits and systems-Cirovic, Micheal.M-America-1987.
2. Fundamentals of Solid State Physics-Saxena, B.S.Meerut(1977).

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**WEB PAGE DESIGNING USING HTML –U13SBE1C**

**Semester : I**

**Skill Based Elective : I**

**Instruction Hours/Week : 2**

**Credit : 2**

**.UNIT-I**

Introduction to Internet – Definition-Connecting to the Internet-Physical Connections- Telephone Lines- E-mail- Protocol address-Internet Address-Modem Basics

**UNIT-II**

Internet Browser – Internet Explorer- Introduction to HTML - History of HTML, HTML Documents, Anchor Tag, Hyper Links. Head and body sections

**UNIT-III**

Header Section - Title, Prologue, Links, Colorful WebPage, Comment Lines.- Designing Body Sections -Heading printing, aligning the headings

**UNIT-IV**

Horizontal rule,Paragraph, Tab Settings, Lists, Unordered Lists, Ordered Lists. Layout with tables

**UNIT-V**

Advanced Layout: Frames and Layers-HTML and other media types-Style Sheets- Programming and HTML Forms-Introduction to scripting

**Text Book**

1. C.Xavier World wide web Design with HTML Tata MC Graw Hill,New Delhi,1991.
2. Joel Sklar, Web Design Principles Vikas Publications 2000.

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## VB Script – U13SBE2C

**Semester : III**

**Instruction Hours/Week :2**

**Skill Based Elective Course :II**

**Credit : 2**

### **UNIT I:**

Introduction to VB script-Difference between VB and VBScript-programming in VB script (Simple program: Insert a script-Write text using VB script-Write text using VB script-Format script with html tags-a function in head section-a script in body section)-data type-program flow.

### **UNIT-II:**

Introduction to procedure in scripts-Intrinsic function-Basic function-String function-Conversion function-Math function-Time and date function-Boolean function.

### **UNIT-III:**

Intrinsic controls-Intro to events in VB script-Message to GUI Environment-placing controls in HTML-Intrinsic control checkbox-Select using controls in your document.

### **UNIT-IV:**

Scripting models windows, document frames-documents object using document property and methods-History object-Navigator object-Location object-Link object.

### **UNIT-V:**

Error handling-handling errors in VB script pages-coding to avoid errors-coding to handle errors-looking examples of error handling.

### **Reference Book:**

VB script in 21 days sams publishing 2004.

VB script Bible-Good Man2002.

### **Prescribed Book:**

VB script unleashed pet rousos,schongol.

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## HTML and VB Script Lab – U13SBE3CP

Semester : III

Instruction Hours/Week : 2

Skill Based Elective Course : II

Credit : 2

### HTML Lab

1. (a) Creation of Vertical Frameset  
(b) Creation of Horizontal Frameset
2. Sending Mail
3. Insertion of Image
4. Application form Creation
5. Creating an Advertisement for a Company

### VB Script Lab

#### 1. Scripts Using Date and Time Functions

- (a) Display date and time
- (b) Display the Days
- (c) Display the months
- (d) Display the current month and day

#### 2. Scripts using Date and Time Functions

- (a) Countdown to year 3000
- (b) Add a time interval to a date
- (c) Format date and time
- (d) Is this a date

#### 3. Scripts using Built – in Functions

- (a) Uppercase or lowercase Characters
- (b) Remove leading or trailing spaces from a String
- (c) Reverse a String
- (d) Round a number

#### 4. Scripts using Built – in Functions

- (a) Return a random number
- (b) Return a random number between 0 – 99
- (c) Return a specified number of characters from left or right side of a String
- (d) Replacing some characters in a String

#### 5. Checking Validation of a Textbox

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## ENVIRONMENTAL STUDIES - U13ES

Semester : II  
Instruction Hours/Week: 2

Environmental Studies Course  
Credit: 2

### Unit 1:

#### Environment and Natural Resources :

Definition, scope, importance of Environmental Studies - Need for public awareness.

Natural resources — classification - Associated problems

a) Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people.

b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.

c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.

d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.

e) Energy resources: Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Case studies.

f) Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.

- Role of an individual in conservation of natural resources.
- Equitable use of resources for sustainable lifestyles.

#### Unit 2: Ecosystems

- Concept of an ecosystem.
- Structure and function of an ecosystem.
- Producers, consumers and decomposers.
- Energy flow in the ecosystem.
- Ecological succession.
- Food chains, food webs and ecological pyramids.
- Introduction, types, characteristic features, structure and function of the following ecosystem:

- a. Forest ecosystem
- b. Grassland ecosystem
- c. Desert ecosystem
- d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

### **Unit 3: Biodiversity and its conservation**

- Introduction — Definition : genetic, species and ecosystem diversity.
- Biogeographical classification of India
- Value of biodiversity : consumptive use, productive use, social, ethical, aesthetic and option values
- Biodiversity at global, National and local levels.
- India as a mega-diversity nation
- Hot-spots of biodiversity.
- Threats to biodiversity : habitat loss, poaching of wildlife, man-wildlife conflicts.
- Endangered and endemic species of India
- Conservation of biodiversity In-situ and Ex-situ conservation of biodiversity.

### **Unit 4: Environmental Pollution**

Definition

- Cause, effects and control measures of
  - a. Air pollution
  - b. Water pollution
  - c. Soil pollution
  - d. Marine pollution
  - e. Noise pollution
  - f. Thermal pollution
  - g. Nuclear hazards
- Solid waste Management : Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution.
- Pollution case studies.
- Disaster management floods, earthquake, cyclone and landslides.

## **Unit 5 : Social Issues and the Environment**

- From Unsustainable to Sustainable development
- Urban problems related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rehabilitation of people; its problems and concerns. Case Studies
- Environmental ethics : Issues and possible solutions.
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case Studies.
- Wasteland reclamation.
- Consumerism and waste products.
- Environment Protection Act.
- Air (Prevention and Control of Pollution) Act.
- Water (Prevention and control of Pollution) Act
- Wildlife Protection Act
- Forest Conservation Act
- Issues involved in enforcement of environmental legislation.
- Public awareness.

## **REFERENCE**

- a) Agarwal, K.C. 2001 Environmental Biology, Nidi Pubi. Ltd. Bikaner.
- b) Sharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad — 380 013,. India, Email:mapin@icenet.net (R)
- c) Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc. 480p
- d) Clark R.S., Marine Pollution, Clanderson Press Oxford (TB)
- e) Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Publ. House, Mumabai, 1196p
- f) De A.K., Environmental Chemistry, Wiley Eastern Ltd.
- g) Down to Earth, Centre for Science and Environment (R)
- h) Gleick, H.P. 1993. Water in crisis, Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute Oxford Univ. Press. 473p



- i) Hawkins R.E., Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R)
- j) Heywood, V.H & Waston, R.T. 1995. Global Biodiversity Assessment. Cambridge Univ. Press 1140p.
- k) Jadhav, H & Bhosale, V.M. 1995. Environmental Protection and Laws. Himalaya Pub. House, Delhi 284 p.
- l) Mckinney, M.L. & School, R.M. 1996. Environmental Science systems & Solutions, Web enhanced edition. 639p.
- m) Mhaskar A.K., Matter Hazardous, Techno-Science Publication (TB)
- n) Miller T.G. Jr. Environmental Science, Wadsworth Publishing Co. (TB)
- o) Odum, E.P. 1971. Fundamentals of Ecology. W.B. Saunders Co. USA, 574p
- p) Rao M N. & Datta, A.K. 1987. Waste Water treatment. Oxford & IBH Pubi. Co. Pvt. Ltd. 345p. q) Sharma B.K., 2001. Environmental Chemistry. Geol Pubi. House, Meerut
- r) Survey of the Environment, The Hindu (M)
- s) Townsend C., Harper J, and Michael Begon, Essentials of Ecology, Blackwell Science (TB) t) Trivedi R.K., Handbook of Environmental Laws, Rules Guidelines, Compliances and Stadards, Vol I and II, Enviro Media (R)
- u) Trivedi R. K. and P.K. Goel, Introduction to air pollution, Techno-Science Publication (TB) v) Wanger K.D., 1998 Environmental Management. W.B. Saunders Co.Philadelphia, USA 499p (M) Magazine (R) Reference (TB) Textbook

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**VALUE EDUCATION - U13VE**

**Semester :V**

**Value Education Course**

**Instruction Hours/Week: 2**

**Credit: 2**

**UNIT 1: PHILOSOPHY OF LIFE**

Human Life on Earth ( Kural 629), Purpose of Life ( Kural 46) Meaning and Philosophy of Life( Kural 131, 226) The Law of Nature (Kural 374) Glorifying All form of Life in this Universe (Kural 322, 327) – Protecting Nature /Universe (Kural 16, 20, 1038)

## **UNIT 2: INDIVIDUAL QUALITIES**

Basic Culture (Kural 72, 431) Thought Analysis (Kural 282, 467, 666) Regulating desire (Kural 367), Guarding against anger (Kural 158, 305, 306, 314), To get rid of Anxiety (Kural 629), The Rewards of Blessing (Kural 3), Benevolence of Friendship (Kural 786), Love and Charity (Kural 76), Self – tranquility/Peace (Kural 318)

## **UNIT 3: SOCIAL VALUES (INDIVIDUAL AND SOCIAL WELFARE)**

Family (Kural 45), Peace in Family (Kural 1025), Society (Kural 446), The Law of Life (Kural 952), Brotherhood (Kural 807) , The Pride of Womanhood (Kural 56) Five responsibilities/duties of Man : a) to himself, b) to his family, c) to his environment, d) to his society, e) to the Universe in his lives (Kural 43, 981), Thriftness (Thrift)/Economics (Kural 754), Health (Kural 298), Education (Kural 400), Governance (Kural 691), People's responsibility/ duties of the community (Kural 37), World peace (Kural 572)

## **UNIT 4: MIND CULTURE**

Mind Culture (Kural 457) Life and Mind - Bio - magnetism, Universal Magnetism (God – Realization and Self Realization) - Genetic Centre – Thought Action – Short term Memory – Expansiveness – Thought – Waves, Channelising the Mind, Stages - Meditation (Kural 261, 266, 270), Spiritual Value (Kural 423)

## **UNIT 5: TENDING PERSONAL HEALTH**

Structure of the body, the three forces of the body, life body relation, natural causes and unnatural causes for diseases (Kural 941), Methods in Curing diseases (Kural 948, 949) The Five units, simple physical exercises.

### **Books for Reference:**

1. Philosophy of Universal Magnetism (Bio-magnetism, Universal Magnetism) The World Community Service Centre Vethatri Publications (for Unit IV)
2. Pope, G.U., Dr. Rev., Thirukkural with English Translation, Uma Publication, 156, Serfoji Nagar, Medical College Road, Thanjavur 613004 (for All Units)
3. Value Education for Health, Happiness and Harmony, The World Community Service Centre Vethatri Publications Rs 35/- (for All Units)

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## **SOFT SKILLS - U13SS**

**Semester :V**

**Soft Skills**

**Instruction Hours/Week: 2**

**Credit: 2**

### **Learning objective**

Today's world is all about relationship, communication and presenting oneself, one's ideas and the company in the most positive and impactful way. This course intends to enable students to achieve excellence in both personal and professional life.

#### **Unit I**

Know Thyself / Understanding Self

Introduction to soft skills self discovery – Developing positive attitude – Improving perceptions – Forming values.

#### **Unit II**

Interpersonal Skills/ Understanding Others

Developing interpersonal relationship –Team building –group dynamics –Net working- Improved work relationship

#### **Unit III**

Communication Skills/ Communication with others

Art of Listening –Art of reading –Art of speaking –Art of writing –Art of writing emails- e mail etiquette

#### **Unit IV**

Corporate Skills/ Working with Others

Developing body language –Practising etiquette and mannerism – Time management – Stress management.

#### **Unit V**

Selling Self/ Job Hunting

Writing resume /cv-interview skills – Group discussion –Mock interview Mock GD – Goal setting –Career planning

### **TEXT BOOKS**

Meena. K and V.Ayothi (2013) A Book on Development of Soft Skills (Soft Skills: A Road Map to Success) P.R. Publishers & Distributors, No, B-20 &21, V.M.M Complex, Chatiram Bus Stand, Tiruchirapalli -620 002.

(Phone No: 0431-2702824: Mobile No: 94433 70597, 98430 7442)

Alex K. (2012) Soft Skills – Know Yourself & Know the World, S.Chand & Company LTD, Ram Nagar, New Delhi -110 055.

Mobile No: 94425 14814(Dr.K.Alex)

## REFERENCE BOOKS

- (i) Developing the leader within you John C Maxwell
- (ii) Good to Great by Jim Collins
- (iii) The Seven habits of highly effective people Stephen Covey
- (iv) Emotional Intelligence Daniel Goleman
- (v) You can Win Shive Khera
- (vi) Principle centred leadership Stephen Covey

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## GENDER STUDIES - U13GS

**Semester :VI**

**Gender Studies Course**

**Instruction Hours/Week:1**

**Credit: 1**

### Objectives

To make boys and girls aware of each other strengths and weakness

To develop sensitivity towards both genders in order to lead an ethically enriched life.

To promote attitudinal change towards a gender balanced ambience and Women empowerment

### Unit-I

Concepts of Gender: Sex-Gender-Biological Determinism- Patriarchy- Feminism -Gender Discrimination -Gender Division of Labour -Gender Stereotyping-Gender Sensitivity - Gender Equity —Equality-Gender Mainstreaming Empowerment

### Unit-II

Women's Studies Vs Gender Studies: UGC's Guidelines - VII to XI Plans- Gender Studies: Beijing Conference and CEDAW-Exclusiveness and Inclusiveness.

### Unit III

Areas of Gender Discrimination: Family Sex Ratio-Literacy -Health -Governance Religion Work Vs Employment- Market - Media - Politics Law Domestic Violence — Sexual Harassment — State Policies and Planning

### Unit-IV

Women Development and Gender Empowerment: Initiatives International Women's Decade - International Women's Year - National Policy for Empowerment of Women - Women Empowerment Year 2001- Mainstreaming Global Policies.

## Unit-V

Women's Movements and Safeguarding Mechanism:— In India National / State Commission for Women (NCW) - All Women Police Station Family Court- Domestic Violence Act - Prevention of Sexual Harassment at Work Place Supreme Court Guidelines - Maternity Benefit Act - PNDT Act - Hindu Succession Act 2003 Eve Teasing Prevention Act - Self Help Groups 73 and 74 Amendment for PRIS.

## References

- Bhasin Kamala, Understanding Gender: Gender Basics, New Delhi: Women Unlimited 2004
- Bhasin Kamala, Exploring Masculinity: Gender Basics, New Delhi: Women Unlimited, 2004
- Bhasin Kamala, What is Patriarchy? : Gender Basics, New Delhi: Women Unlimited, 1993
- Pernau Margrit Ahmad Imtiaz, Reifeld Hermut (ed.) Family and Gender: Changing Values in Germany and India, New Delhi: Sage Publications, 2003
- Agarwal Bina, Humphries Jane and Robeyns Ingrid (ed.) Capabilities, Freedom, and Equality: Amartya Sen's Work from a Gender Perspective, New Delhi: Oxford University Press, 2006
- Rajadurai.S.V, Geetha.V, Themes in Caste Gender and Religion, Tiruchirappalli: Bharathidasan University, 2007
- Misra Geetanjali, Chandiramani Radhika (ed.) Sexuality, Gender and Rights: Exploring Theory and Practice in South and Southeast Asia, New Delhi: Sage Publication, 2005
- Rao Anupama (ed.) Gender & Caste: Issues in Contemporary Indian Feminism, New Delhi: Kali for Women, 2003
- Saha Chandana, Gender Equity and Gender Equality: Study of Girl Child in Rajasthan, Jaipur: Rawat Publications, 2003
- Krishna Sumi,(ed.) Livelihood and Gender Equity in Community Resource Management New Delhi: Sage Publication, 2004
- Wharton .S Amy, The Sociology of Gender: An Introduction to Theory and Research, USA: Blackwell Publishing, 2005.
- Mohanty Manoranjan (ed.) Class, Caste, Gender: Readings in Indian Government and Politics- 5, New Delhi: Sage Publications, 2004.
- Arya Sadhna, Women, Gender Equality and the State, New Delhi: Deep&Deep Publications, 2000.

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