NATIONAL COLLEGE (AUTONOMOUS)

Nationally Accredited at "A" Level by NAAC
Tiruchirapalli – 620 001
Under Graduate Programmers Structure under CBCS
(For candidates admitted from the year 2016 – 2019 onwards)

B.Sc. (Computer Science)

Aim:

Our aim is a high quality degree program that ensures that students will be able to integrate theory and practice, recognize the importance of abstraction and appreciate the value of efficient design created to meet clearly developed requirements.

Objective:

- The B.Sc. degree in Computer Science provides students the opportunity to acquire knowledge and skills to develop their understanding creatively and professionally.
- The Programme balances theory with 'real world' practice in information and computer management.
- Students will acquire a comprehensive understanding of computer science and a grasp of the central elements of a computer system.
- Graduates will be prepared for the next step in their careers, for example, having done a research project (for those headed to graduate school), a programming project (for those going into the software industry), or some sort of business plan (for those going into startups).

Eligibility:

- Candidates for admission to the first year programme leading to the Degree of Bachelor of Computer Science will be required to possess.
- Pass with 50% of marks in HSC. In case of SC/ST candidates, merely pass with 40% of marks in HSC will be sufficient.

SEM	PART	Course Title	Instru. Hours/ Week	Credit	Marks		Total
					Int 25	Ext 75	
I year I sem	I	Tamil – I / Hindi – I / Sanskrit – I U16T1, U16H1, U16S1	6	3	25	75	100
	II	English -1 U16E1	6	3	25	75	100
	III	U16CS1 – Programming in C	5	5	25	75	100
		U16CS2P -Programming in C Lab	**3**	**3**	**25**	**75**	**100**
		U161AMS1C – Mathematics – I	5	3	25	75	100
		U161AMS2C - Operations Research (Mathematics - II)	3	--	25	75	-
	IV	U16ES – Environmental Studies	2	2	25	75	100
		Paper : 7	**30**	**19**			**600**
I year II sem	I	Tamil – II / Hindi – II / Sanskrit – II U16T2, U16H2, U16S2	6	3	25	75	100
	II	English - II U16E2	4	2	25	75	100
		Communicative English - I U16CE1	2	1	25	75	100
	III	U16CS3 – OOPs Using C++	5	5	25	75	100
		U16CS4P – Programming in C++ Lab	**3**	**3**	**25**	**75**	**100**
		U161AMS2C - Operations Research (Mathematics - II)	3	3	25	75	100
		U161AMS33C – Mathematics -III	5	3	25	75	100
	IV	U16SBE1C – Skill Based Elective I – Web page designing using HTML	2	2	25	75	100
		Paper : 8	**30**	**22**			**800**
II year III sem	I	Tamil – III / Hindi – III / Sanskrit – III U16T3, U16H3, U16S3	6	3	25	75	100
	II	English - III U16E3	6	3	25	75	100
	III	U16CS5 – Visual Basic Programming	4	4	25	75	100
		U16CS6P- Visual Basic Programming Lab	**3**	**3**	**25**	**75**	**100**
		U16APH1C – Applied Physics for computer science	4	3	25	75	100
		U16APH2CP – Physics Lab	3	--	25	75	--
	IV	U16SBE2C- Skill Based Elective II – Java Script & ASP	2	2	25	75	100
		U16SBE3CP - Skill Based Elective III – HTML, Java Script and ASP Lab	2	2	25	75	100
		Paper : 8	**30**	**20**			**700**

	I	Tamil – IV / Hindi – IV / Sanskrit – IV U16T4, U16H4, U16S4	6	3	25	75	100
	II	English - IV U16E4	4	2	25	75	100
		Communicative English - II U16CE2	2	1	25	75	100
II year	III	U16CS7 – Data Structure and Algorithm	4	4	25	75	100
IVsem		**U16CS8 P– Data Structure Lab**	**3**	**3**	**25**	**75**	**100**
		U16APH2CP – Applied Physics Lab	3	3	25	75	100
		U16APH3C – Physics(Digital Electronics)	5	3	25	75	100
	IV	U16NMCS1 – Basic Concepts of Computer Science	2	2	25	75	100
		U16VE – Value Education	1	2	25	75	100
		Extra Credits I : E- Commerce.	-	*4**	25	75	*100**
		Extra Credits II : Multimedia Technology.	-	*4**	25	75	*100**
		Paper : 9	**30**	**23**			**900**
	III	U16CS11 – Programming in Java	6	5	25	75	100
		U16CS12P – Programming in Java Lab	**6**	**6**	**25**	**75**	**100**
III year		U16CS9E– Microprocessor and its Applications	5	5	25	75	100
V sem		U16CS10E – Computer Graphics	5	4	25	75	100
		U16CS13 – Fundamentals of XML	4	4	25	75	100
	IV	U16NMCS2 – Internet and its Application	2	2	25	75	100
		U16SS– Soft Skill	2	2	25	75	100
		Extra Credits III: BPO (Business Processing Outsource).	-	*4**	25	75	*100**
		Paper : 8	**30**	**28**			**700**
	III	U16CS14 – Database System	5	5	25	75	100
		U16CS15 – Computer Networks	6	5	25	75	100
III year		U16CS18 – PHP	6	5	25	75	100
VI Sem		**U16CS17 – Project Work**	**6**	**6**	**25**	**75**	**100**
		U16CS16E – Operating System	6	5	25	75	100
	V	U16GS – Gender Studies	1	1	25	75	100
		Extension Activity		1	25	75	100
		Extra Credits III: Cloud Computing.	-	*4**	25	75	*100**
		Paper : 8	**30**	**28**			**600**
		GRAND TOTAL	**180**	**140**	-	-	**4300**

***Extra Credits are not included in Grand Total.**

NjraffyY}u (jddhlr) jUrruhggss – 1.
Kjw gUtk

jhs: nkhoggh lk - 1 nraAs (,ffhyk) ciueil rWfij ,yffatuyhW

U16T1

fwgfFk fhyk: 6 kz **jugGssfs: 3**

myF 1: ghujahu - gukngh Us thojJ
ghujjhrd - eqfNs nrhyYqfs
ftkz - Nfhty tohL
glLfNfhlilahu - xz zha Uff Zk mz zhrr
ehkffyyhu - Rjejuk ahJ?

myF 2: fz zjhrd - NtzLk NtzLk
thy - Gddif kddd
itu KjJ - ghuj eidffggLfwhd
K.Nkjjh - RtUk geJk
mgJy uFkhd - jtwhd vz

myF 3: ciueil:

1. gukgiufFzk - c.Nt.rh
2. fyt - ahogghzk nghddkgyggsis
3. ,yffaKk r%fKk - v].itahGuggsis
4. fiyAk fwgidAk - uh.gNrJggsis
5. Fws fhlLk new - f.M.ng.tRtehjk
6. ,awiff fhlrfs - f.th.[feehjd
7. rka ,yffaqfsy mwnew - FdwfFb mbfshu

myF 4: rWfij:

1. jeijAk kfDk - fyf
2. flTSk fejrhkggsisAk - GJikggjjd
3. ejgj tffyhdhu - mzzhJiu
4. Kjygby - e.grr%ujj
5. fhfj cwT - R.rKjjuk
6. kNdhghtk - tyyfzzd
7. kdjaejuk - tejd
8. grirffdT - yh.r. uhkhkujk

myF 5: tyydk kFk ,lqfs tyydk kfh ,lqfs
,yffa tuyhW (trdftij GJfftij ciueil rWfij klLk)

ghlE}y: jko - KjwgUtk - NjraffyY}u ntsaL
,yffatuyhW - NjraffyY}u ntsaL

jkohaTjJiw NjraffyY}u (jddhlr) jUrruhggss – 1.
,uzlhk gUtk

jhs: nkhoggh lk - 2 nraAs (gfj mw ,yffaqfs) Gjdk ,yffa tuyhW.

U16T2

fwgfFk fhyk: 6 kz **jugGssfs: 3**

myF 1: jUQhdrkgeju - jUthidffh gjfk - kioahu klwhkO thSilaha..
jUehTffuru - tlk jujj gjfk - xdW nfhyhk mtu reijAautiu
nguahothu - jUtuqfk ghRuk 2 - kutbiaj jkgfF

FyNrfuu - tpjJtf NfhlL mkkhid Ntzb epwwy - jUJauk....10

myF 2: tssyhu - jpUtUlgh - ngwhgNgW - Mth vdwid MlnfhzlUspk..10
jhAkhdtu - gdkhiy - gdkhiy jpuspUff...9
,NaRfhtpak - ctik topk nrajp - flNyhuk xUehs VR epdwhu..
FzqFb k]jhd - epuhkaffz zp – 1-25 fz zpfs

myF 3: ehdkzpffbif: (ghly vzfs: 6› 10› 12› 16› 31› 38› 45› 56› 69› 75)
ehybahu: (ghly vzfs: 2› 29› 35› 77› 95› 109› 114› 172› 248› 269)
rpWgQr%yk: (ghly vzfs: 9› 12› 16› 26› 32› 39› 63› 82› 85› 90)
,dpait ehwgJ: Kjy gjJ ghlyfs.

myF 4: Gjpdk - fddpfh - uFehjd Jiw ntspaL

myF 5: ,yffpa tuyhW (irtk›itztk›rkzk›ngsjjk›fwpjJtk› Kfkjpak kwWk Gjpdk gwwpad klLk)

ghlE}y: jkpo - ,uzlhkgUtk - Njrpaffy Y}upntspaL.
fddpfh - rij gjpggf ntspaL› nrdid.
,yffpatuyhW - Njrpaffy Y}upntspaL.

jkpohaTjJiw› Njrpaffy Y}up (jddhlrp)› jpUrrpuhggsspp – 1. %dwhk gUtk

jhs: nkhopgghlk - 3 nraAs (fhggpak)› ehlfk› ,yffpatuyhW
U16T3

fwgpfFk fhyk: 6 kzp **jugGsspfs: 3**

myF 1: rpyggjpfhuk - euggil fhij
kzpNkfiy - ghjjpuk ngww fhij

myF 2: fkguhkhazk - Ajj fhzlk - ,ejpurpjJ tijgglyk
ngupaGuhzk - fzzgg ehadhu Guhzk

myF 3: Njkghtzp - tsd rdpjj glyk
rwhgGuhzk - khDfFg gpizepdw glyk
ghQrhyp rgjk - #jhllr rUffk

myF 4: ehlfk: xjjpif – m. ,uhkrhkp (vdrpgpvr. ntspaL)

myF 5: ,yffpa tuyhW (fhggpak› Guhzk› ehlfk gwwpad klLk)

ghlE}y: jkpo - %dwhkgUtk - Njrpaffy Y}upntspaL.
xjjpif – m. ,uhkrhkp (vdrpgpvr. ntspaL)
,yffpatuyhW - Njrpaffy Y}upntspaL.

jk;ohaTjJiw> Njr;affyY}u; (jddhlr;)> j;Urr;uhggss; – 1.

ehdfhk gUtk

jhs: nkho;gghlk - 4 nraAs (gzila ,yff;ak> ,yff;atuyhW> nkho;ngaugG) U16T4

fwg;fFk fhyk: 6 kz; **jugGss;fs: 3**

myF 1:

ewwpiz: 1. Ntu g;z; ntj;ujJ – ghiy - ,sqfudhu
2. r;yUk gyUk filffz - neajy - cNyhrrdhu
3. mu;fhy khw;a mk fz - kUjk k;isff;ohdeyNtlldhu
4. ,iy ,y g;ltk-Kyiy - t;off lNgijg ngUqfz zdhu
5. Gjytd <dw G+qfz - Fw;Qr;

FWenjhif : 1. nfhqF Nju thofif - Fw;Qr; - ,iwadhu
2. ,bfFq Nfs;u - Fw;Qr; - ntss;tj;ahu
3. ahuzqFwwid flNy - neajy - mk%tdhu
4. khu; ahkgydd - neajy - Fdw;adhu
5. ckzu NrueJ fo;ej kUqf;d - ghiy - ngUqfLqNfh
6. Mlik GiuAk - ghiy - XNuUotdhu
7. Ks;ja;u g;irej - Kyiy - $lY}u f;ohu
8. ,sik ghuhu - Kyiy - xf$u khrhjj;ahu
9. Ntkg;d igqfha - kUjk - k;isffejdhu

myF 2:

mfehD}W: 1. gidjj;us mdd - Fw;Qr; - guzu
2. girgL grir - Kyiy - kJiu kssdhu
3. ,kik cyfjJ ,irnahLk - kUjk - nryY}ufNfhr;fd
4. j;iucoeJ mir,a - neajy - cNyhrrdhu
5. ms;e;iy nghwhmJ mku;a – ghiy - ngUqfLqNfh

fy;jnjhif: 1. RlujnjhB, Nfsha - Fw;Qr;
2. fhu Mug ngaj fb nfhs - Kyiy
3. tqF eu mt;o eyk gfutu - kUjk
4. khkyu Kzlfk - neajy
5. mu;jha mwndaj; - ghiy

myF 3:

GwehD}W : 1. xUehl nryyyk - ghlhz - xsitahu
2. gilgGggy giljJ - nghJt;ay - mw;Tilekg;
3. ,isNahu #lhu - nghJt;ay - Fltha;y fujjdhu
4. gyrhdwNu - nghJt;ay - eu;nt&cj jiyahu
5. fhaney mWjJfftsq nfhs;Nd - ghlhz - g;r;uheijahu

j;UfFws: 1. mwd ty;AWjjy> 2.gzGilik> 3. xOffKilik>
4. thaik> 5. Co> 6.nrhytdik

myF 4: KyiygghlL KOikAk

myF 5: ,yff;atuyhW (gj;ndz Nkwfz fF> foffz fF)> nkho;ngaugG> nghJfflLiu

ghlE}y: 1. jk;o - ehdfhkgUtk - Njr;affyY}u; ntsaL.
2. ,yff;atuyhW - Njr;affyY}u; ntsaL.

U16H1

Semester – I

PAPER 1 – PROSE, SHORT STORY AND GRAMMAR

PROSE

Prescribed Text Book

INDI GADYA PRABHAKAR, Ed. Dr. Hiranma Shiksha Bharathi, shmiri Gate, Delhi-06.

Prescribed Lessons

1. Bharat Eke hay	By	Ramdhari Singh Dinkar
2. Japan Mein kaya dekka	By	Premchand
3.Jeevan ke theen pradhan baathey	By	Aacharya Vinobabavey

SHORT STORY

Prescribed Text Book

KAHANI VIVDHA, V. Mahadeven, Trichy.

Prescribed Lessons

1. Idhaah	By	Premchand
2. Usne kaha tha	By	chandradhar Sharma guleri

GRAMMER

Prescribed Portion

1. Noun
2. Verb
3. Gender (Change the gender only)
4. Number (Change the number only)
5. Aarth and Ultey Sabdh Likeye

Reference Book

VYAKARANPRADEEP By Ramdev, Saraswathi Prakashan, Varansi

UNITISED SYLLABUS

PAPER 1 – PROSE, SHORT STORY AND GRAMMAR

Semester – I

Time 3 Hrs Max Marks 75

UNIT- 1

1.Noun
2.Bharath Eke Hai
3.Gender

UNIT- 2

1.Gender
2.Idhgaah
3.Jaapan mein kya dheka

UNIT- 3

1.Jeevan ke theyeen pradhan bhathey
2.Idhgaah
3. Number

UNIT-4

1.Ling Badhaliye,Vachan Badhaliye
2.Verb
3.Aarth (Meanings) Likeye

UNIT-5

1.Aarth (Meanings) Likeye
2.Ultey Sabdh (opposite) Likeye

QUESTION PAPER PATTERN

SECTION- A (20 Marks)

I 1. Change the Gender (Ling) **10/12** (10Marks)

2. Change the Number (Vachen) **10/12**

SECTION- B (25 Marks)

II. One Question from each unit (either or)

1. From Prose (1 out of 2) 5 Marks
2. From Short story (1 out of 2) 5 Marks
3. From Grammar (1 out of 2) 5 Marks
4. Meanings 5 nos (Either or) 5 Marks
5. Opposites 5 nos (Either or) 5 Marks

SECTION- C (3x10=30 Marks)

III. One Question from each unit **(Three out of five)**

1. From Prose
2. From Prose
3. From Short Story
4. From Grammar
5. From Grammar

U16H2

Semester – II

PAPER II – COMPREHENSION, DRAMA, GRAMMAR-II,GENERAL ESSAY AND TRANSLATION – I

COMPREHENSION : General Paragraph from Anuvadh Abyas Bah – 3, Dakshina Bharath Hindi Prachar Sabha, Chennai – 17.

DRAMA

:

Prescribed Text Book : Subodh Hindi patamala – 2 Dakshina Bharath Hindi Prachar Sabha, Chennai – 17.

Prescribed Portion : APPOORVA THYAG By Balashori Reddy

GRAMMAR – II

Prescribed Portion : 1. Pronoun
2. Adjectives
3. Adverb
4. Case Endings
(Definition and Name of types only)
5. Paryaivachaye Sabdh

Reference Book : VYAKARANPRADEEP
By Ramdev, Saraswathi Prakashan, Varansi

GENERAL ESSAY

Prescribed Book : Subodh Hindi Rachna – 2 Dakshina Bharath Hindi Prachar Sabha, Chennai – 17

Prescribed Portions : 1. Priya Theohar
2. Gaayi
3. Samachar pathra

TRANSLATION -1

Prescribed Book : Anuvadh Abyas Bah – 1,1 to 10 lessons Dakshina Bharath Hindi Prachar Sabha, Chennai – 17

Prescribed Portions : 1 to 10 Lessons

UNITISED SYLLABUS

PAPER II – COMPREHENSION, DRAMA, GRAMMAR-II,GENERAL ESSAY AND TRANSLATION – I

Semester – II

Time 3 Hrs Max Marks 75

UNIT- 1

Comprehension
Aproova Thyag
Pronoun
Translation 1,2

UNIT- 2

Comprehension
Aproova Thyag
Adjectives
Translation 3,4

UNIT- 3

Comprehension
Priya Theohar
Adverb
Translation 5,6

UNIT-4

Comprehension
Gaayi
Case Endings
Translation 7,8

UNIT-5

Comprehension
Samachar pathra
Paryaivachaye Sabdh
Translation 9,10

QUESTION PAPER PATTERN

SECTION- A (20 Marks)

I . Answer all the Questions:

Write Same meaning (Paryavachi) 10 x 1 = 10
(Each word two meaning must) – 10/12

(a) Answer in one sentence (Any 5) 5 x 2 = 10

SECTION- B (25 Marks)

II. One Question from each unit (either or)

1. From Drama (1 out of 2) 5 Marks
2. From Grammar (1 out of 2) 5 Marks
3. From Grammar (1 out of 2) 5 Marks
4. Translation (Hindi to English) (Either or) 5 Marks
5. Translation (English to Hindi) (Either or) 5 Marks

SECTION- C (3x10=30 Marks)

III. One Question from each unit (Three out of five)

1. From General Essay
2. From General Essay
3. From Grammar
4. From Grammar
5. Comprenhension

U16H3

SEMESTER – III
PAPER III – MODERN AND MEDIEVAL POETRY, DIOLOGUE WRITING AND TRANSLATION – I

1. POETRY

Book Name	**:**	**1. KAVYA SAURABH** **2. SUBODH HINDI – 2** **Pub. Dakshina B. Hindi P.Sabha Chennai.**
Prescribed Lessons	**:**	**1. Samaya** **2. Chhah** **1.Kabir key Dhohay 1to 5** **2.Thulsi key Dhohay 1to 5** **3.Rahim key Dhohay 1 to 5**
2. DIALOGUE WRITING	**:**	**1. Doctor Aur Marij** **2. Kithab key Dhukhan** **3.Pariksha key Bharey Mein**

3. TRANSLATION - II

Prescribed Book	**:**	**Anuvadh Abyas Bah – 1, Dakshina Bharath Hindi Prachar Sabha, Chennai – 17**
Prescribed Portions	**:**	**11 to 20 Lessons**

UNITISED SYLLABUS
PAPER III – MODERN AND MEDIEVAL POETRY, DIOLOGUE WRITING AND TRANSLATION – II

Semester – III
Time 3 Hrs Max Marks 75

UNIT- 1
Samya
Kabir key Dhohay
Translation 11, 12

UNIT- 2
Chhah
Thulsi key Dhohay
Translation 13, 14

UNIT- 3
Rahim key Dhohay
Dialogue – Doctor Aur Marij
Translation 15, 16

UNIT-4
Dialogue – Kithab key Dhukan
Poetry Review
Translation 17, 18

UNIT-5
Dialogue – Parisha key Bharey mein
Translation 19,20

QUESTION PAPER PATTERN
SECTION- A (20 Marks)
I . Answer in one sentence 10 x 2 = 20 Marks
SECTION- B (25 Marks)
II. One Question from each unit (either or)
1. Annotation from modern poetry (1 out of 2) 5 Marks
2. Annotation from modern poetry (1 out of 2) 5 Marks
3. Short Notes from Poetry (1 out of 2) 5 Marks
4. Translation (Hindi to English) (Either or) 5 Marks
5. Translation (English to Hindi) (Either or) 5 Marks

SECTION- C (3x10=30 Marks)
III. One Question from each unit (Three out of five)
Summary of Modern Poetry

1. Summary of Medieval Poetry
2. Summary of Medieval Poetry
3. Dialogue Writing
4. Dialogue Writing

U16H4

SEMESTER - IV

PAPER IV – FUNCTIONAL HINDI, GENERAL ESSAY, GRAMMAR – III AND TRANSLATION – III

1. LETTER WRITING

Prescribed Book : Abinav Patralekhan
Hindi Parchar Sabha
Chennai.

Presribed Portion : 1. Leave Letter
2. Placing Order for Books
3. Complaints Letter
4. Permission Letter for Tour

2. TECHNICAL TERMS

Prescribed Book : Hindi Vatayan, by Dr.Chandra Mohan
Vishavidyalay Prakashan, Varansi.

Prescribed Portion : Annexure enclosed

3. GENERAL ESSAY

Prescribed Book : Nibandh Praveshika, Dakshina Bharath Hindi
Prachar Sabha, Chennai – 17

Prescribed Portions : 1. Pushthakalaya
2. Pradhusan
3. Vidhyarthi Jeevan

4. GRAMMAR – II

Prescribed Portions : 1. Tense (Kal parivarthan)
2. Correct the Sentence (Sudha Keyjiye)

Reference Book : Vyakaranpradeep, by Ramdev, Saraswathi Prakashan, Varansi.

5. TRANSLATION – III

Prescribed Book : Anuvadh Abyas Bah – 2,
Dakshina Bharath Hindi
Prachar Sabha, Chennai – 17

Prescribed Portions : 1 to 10 Lessons

UNITISED SYLLABUS
PAPER IV – FUNCTIONAL HINDI, GENERAL ESSAY, GRAMMAR – III AND TRANSLATION – III

Semester – IV
Time 3 Hrs Max Marks 75

UNIT- 1

Leave Letter
Technical Terms
Pushthakalaya
Translation 1,2

UNIT- 2

Placing Order for Books
Technical Terms
Pradhusan
Translation 3,4

UNIT- 3

Compliant Letter
Vidhyarthi Jeevan
Technical Pharses
Translation 5,6

UNIT-4

Permission Letter for Tour
Technical Pharses
Kal Parivarthan (Change the Tense)
Translation 7,8

UNIT-5

Kal Parivarthan (Change the Tense)
Sudha Keyjiye (Correct the Sentence)
Translation 9,10

QUESTION PAPER PATTERN
SECTION- A (20 Marks)

I . Answer all the Questions: 10x2 = 20 Marks
Write 10 Technical Terms in Hindi 10/12 (Only Designation)

SECTION- B (25 Marks)

II. One Question from each unit (either or)

1. Change the Tense (5 out of 7) 5 Marks

2. Correct the Sentence (5 out of 7) 5 Marks
3. Technical Pharses (English to Hindi) 5 nos (Either or) 5 Marks
4. Technical Pharses (Hindi to English) 5 nos (Either or) 5 Marks
5. Translation (Hindi to English) (Either or) 5 Marks

SECTION- C (3x10=30 Marks)

III. One Question from each unit (Three out of five)

From General Essay

1. From General Essay
2. From Letter Writing
3. From Letter writing
4. Translation (10nos) English to Hindi

Subject Code:U16S1

National College (Autonomous) Tiruchirapalli
Language Programme Part I Sanskrit Semester I
Paper I - Sanskrit - I
(For the students admitted from the the academic year June 2016 onwards)

Time: 3 Hours **Maximum Marks: 75**

Unit I

देवनागरी लिपिः - परिचयः

१। स्वराः (१५)
२। व्यञ्जनानि (३३)
३। संयुक्ताक्षराणि
४। संयुक्ताक्षराणां लेखनप्रकारः
५। विसर्गस्य प्रयोगः तस्य उच्चारणप्रकारश्च।

Unit II

कर्तृपदानि - परिचयः

१। अकारान्त-शब्दाः (पुंलिङ्गः)
देवः
२। अकारान्त-शब्दाः (नपुंसकलिङ्गः)
फलम्
३। लिङ्गाः - सामान्यविधिः
अ। पुंलिङ्गः
आ। स्त्रीलिङ्गः
इ। नपुंसकलिङ्गः
४। लिङ्गः वचनम् विभक्तिः च
केवलम् एकवचनम् बहुवचनम् च
५। अनुवाद-अभ्यासः -
अ। आङ्गल/तमिल् भाषातः संस्कृते
आ। संस्कृतात् आङ्गल/तमिल् भाषायाम्

Unit III

१। क्रियापदानि (परिचयः)

१। वर्तमानकाले परस्मैपदिनः धातवः
अ। अन्यपुरुषः/प्रथमपुरुषः
आ। मध्यमपुरुषः
इ। उत्तमपुरुषः
ई। एकवचनम्
उ। बहुवचनम्।

Unit III (continued)

२। क्रियापदानि - धातवः -
एकवचन-बहुवचन-मात्रम्
अ। गम् (गच्छ्)
आ। पठ्
इ। क्रीड्
ई। वद्

३। अव्ययाः — तत्र, अत्र, कुत्र, यत्र, तदा, यदा, कदा, इदानीम्, शीघ्रम्, अपि , सह, एव, तु, किम्, च (१५)

४। अन्ये अकारान्त-कर्तृपदानि — अश्वः, बालकः, सूर्यः, मनुष्यः, हस्तः, अध्यापकः, इत्यादीनि (१०)

५। अनुवाद-अभ्यासः — अ। आङ्गल/तमिल् भाषायाः संस्कृते
आ। संस्कृतात् आङ्गल/तमिल् भाषायाम्

Unit IV

१। विभक्ति-अन्त प्रत्ययानां आदेशाः — अ। चतुर्थी विभक्ति-प्रत्ययस्य - अर्थम् इति आदेशः
आ। पञ्चमी विभक्ति-प्रत्ययस्य - तः इति आदेशः

२। तृतीया विभक्तिः — अ। सह सार्धम् साकं इति अव्ययानां उपयोगः

३। प्रश्न-निर्माण-पदानि — किम्, कुत्र, कथं, किमर्थं, कुतः, कदा

४। क्रियापदानि - (द्वितीय-स्तरः) — वर्तमानकाले परस्मैपदिनः धातवः
भू (भव्), कृ (कर्), अस् ,
धाव् , पत्, आ-गच्छ्
केवलम् एकवचनम् बहुवचनम् च

५। अनुवाद-अभ्यासः — अ। आङ्गल/तमिल् भाषायाः संस्कृते
आ। संस्कृतात् आङ्गल/तमिल् भाषायाम्

Unit V

१। विशेषण-विशेष्यौ

अ। शुक्ल - नील - पीत - रक्त - हरित - कपिश - कृष्ण वर्णा:।
आ। संख्या-वाचक-पदानि (० तः ९ पर्यन्तम् मात्रम्)
इ। सुन्दरः - सुन्दरी - सुन्दरम् ,
मधुरः - मधुरा - मधुरम् इत्यादयः।

२। विभक्तीनां पुनः परिचयः (द्वितीयस्तरः)
अकारन्त-शब्दः पुंलिङ्गः/नपुंसकलिङ्गः

१। प्रथमा विभक्तिः
२। द्वितीया विभक्तिः
३। तृतीया विभक्तिः
४। चतुर्थी विभक्तिः

३। विभक्तीनां पुनः परिचयः (तृतीयस्तरः)
अकारन्त-शब्दः पुंलिङ्गः/नपुंसकलिङ्गः

५। पञ्चमी विभक्तिः
६। षष्ठी विभक्तिः
७। सप्तमी विभक्तिः
८। सम्बोधन-प्रथमा विभक्तिः

४। सर्वनाम-पदानि (अन्यपुरुषः/प्रथमपुरुषः)

१। सः - एषः
२। सा - एषा
३। तत् - एतत्
प्रथमा विभक्तिः एकवचन-बहुवचन-मात्रम्

५। सर्वनामपदानि (उत्तमपुरुषः)
(मध्यमपुरुषः)

४। अस्मद्
प्रथमा विभक्तिः, षष्ठी विभक्तिः च
एकवचन-बहुवचन-मात्रम्।

६। अनुवाद-अभ्यासः

अ। आङ्गल/तमिल् भाषायाः संस्कृते
आ। संस्कृतात् आङ्गल/तमिल् भाषायाम्

Subject Code:U16S2

National College(Autonomous) Tiruchirapalli

Language Programme Part I Sanskrit Semester II

Syllabus - Paper II - Sanskrit - II

(For the students admitted from the academic year, June 2016 onwards)

Time: 3 Hours Maximum Marks: 75

Unit I

क्रियापदानि

१। पुनश्चर्या

लट् लकारे (वर्तमानकाले)
पूर्वस्मिन् षाण्मासे अभ्यस्तानां
क्रियापदानां द्विवचनेन साकं
पुनश्चर्या
द्विवचन-परिचयः - उपयोगः च

२। लृट् लकारः - भविष्यत्कालः

३। लृट् लकारः - भविष्यत्कालः (अधिकम्)

४। लृट् लकारः - भविष्यत्कालः (अधिकम्)

५। लृट् लकारः - भविष्यत्कालः (अधिकम्)

१। गम् (गच्छ्)
२। पठ्
३। वद्
४। पत्
५। लिख् (लेख्)
६। क्रीड्
७। आ - गम् (गच्छ्)
८। भू - भव
९। धाव्
१०। पा - पिब्
११। दृश् - पश्
१२। कृ - कर्

Unit II

१। लृट् लकारे अभ्यस्तानां
धातुरूपाणाम् अभ्यासः
वाक्येषु उपयोगः
अनुवाद-अभ्यासः च
(संस्कृत-आङ्गल/तमिल्-संस्कृतेषु)

२। सर्वनामशब्दाः

१। अस्मद् शब्दः - पुनश्चर्या
(त्रिषु वचनेषु)

२। युष्मद् शब्दः
(त्रिषु वचनेषु)
३। युष्मद्-शब्द-आधारित-
वाक्येषु लृट् लकार-क्रियापदानां
उपयोगः अनुवाद-अभ्यासः च
(संस्कृत-आङ्गल/तमिल्-संस्कृतेषु)
४। तद् शब्दः - त्रिषु वचनेषु
पुंलिङ्ग-मात्रम्।
५। सर्वनाम-शब्दान् (युष्मद्-तद्)
आहत्य वाक्येषु उपयोगः
अनुवाद-अभ्यासः।
(संस्कृत-आङ्गल/तमिल्-संस्कृतेषु)

Unit III १। भोज्य-पदार्थ-नामानि

धान्य-नामानि -
चणकः, मुद्गः, माषः, तण्डुलः,
जीरकम्, मरिचम्, लशुनम्
फल-नामानि -
जम्बीरम्, आमलकम्, दाडिमम्,
नारङ्गः, बदरम्, जम्बूफलम्, कदलीफलम्
शलाटुका-नामानि
आलुकम्, आर्द्रकम्, कन्दर्पः,
भोज्यपदार्थ-नामानि
ओदनम्, रोटिका, पोलिका
दुग्धम्, दधि, तक्रम्, नवनीतम्, घृतम्,

२। वार्तालापः

एतावता अभ्यस्त-शब्दानां वाक्येषु
उपयोगः - अनुवाद-अभ्यासः
(संस्कृत-आङ्गल/तमिल्-संस्कृतेषु)

३। क्त-प्रत्यय-धातवः

गतः गता गतम्
पीतः पीता पीतम्
पठितः पठिता पठितम्
क्रीडितः क्रीडिता क्रीडितम्
धावितः धाविता धावितम्
पतितः पतिता पतितम्

क्त-प्रत्यय-धातवः	आगतः आगता आगतम् लिखितः लिखिता लिखितम् खादितः, खादिता, खादितम्
३। क्रियापदानि	लट् लकारे एव - भक्ष्, खेल्, पाल्, तुल्, मार्, गण्, कथ्, क्षाल्,
४। तुमुन्नत-अव्ययाः	गन्तुम्, पातुम्, पठितुम्, क्रीडितुम्, धावितुम्, पतितुम्, लेखितुम्, भवितुम्, अर्चितुम्, खेलितुम्, चलितुम्, क्षालयितुम्, तुलयितुम्, मारयितुम्, गणयितुम्
५। अनुवाद-अभ्यासः	संस्कृतात् आङ्गले/तमिल् भाषायाम्, आङ्गलात् संस्कृते

Unit IV

१। कृषि-क्षेत्र-सम्बन्धीनि नामानि	कृषकः, कृषीवलः, बलीवर्दः, वृषभः सस्यम्, धान्यम्, तृणम्, क्षेत्रम्, हलः बीजम्, आलवालम्, मेघः, जलदः, खेटः, ग्रामः, क्रयः, विक्रयः, हट्टः, आपणः, आपणिकः, व्यवसायः- इत्यादीनि
२। काल-संबन्धीनि पदानि संख्यावाचकपदानि च	a. प्रातः, मध्याह्नः, सायम्, रात्रिः b. समयलेखनम् - सपाद-सार्ध-पादोन- पदानाम् उपयोगः c. ऋतु(काल) नामानि वसन्तः,ग्रीष्मः,वर्षाः,शरद्, हेमन्तः,शिशिर d. संख्यावाचकपदानि - १ तः २५ पर्यन्तम्
३। क्रियापदानि	लट् लकारे - क्री, वि-क्री, रुह् (रोह्), वर्ष्, वप् रच्, कृष् (कर्ष्), वस्, अर्च्
४। नपुंसकलिङ्ग-कर्तृ-पदानि	सस्यम्, धान्यम्, तृणम्, क्षेत्रम्, बीजम्, आलवालम्।
५। अनुवाद-अभ्यासः	संस्कृतात् आङ्गले/तमिल् भाषायाम्, आङ्गलात् संस्कृते

Unit V

१। आकारान्त-स्त्रीलिङ्ग-पदानि	a। माला शब्दः (एकवचन - बहुवचनमात्रम्) b। अन्यानि स्त्रीलिङ्गपदानि रमा, शाला, पेटिका, शिखा, निशा, दिशा, बाला, सभा, भार्या, स्वसा, नासिका
२। क्त्वा प्रत्यय-अन्त-अव्ययाः	गत्वा, पठित्वा, क्रीडित्वा, पीत्वा, धावित्वा, लिखित्वा, भक्षयित्वा, खेलित्वा, धारयित्वा, पतित्वा, कृत्वा, चलित्वा, क्षालयित्वा, पालयित्वा, अर्चयित्वा
३। क्रियापदानि	लृट् लकारे (एकवचन-बहुवचन-मात्रम्) धार्, कथ्, क्षाल्, पाल्, तोल्
४। सन्धि-प्रकरणम्	a. स्वरसन्धिः b. गुणसन्धिः c. वृद्धि-सन्धिः पाठ्य-पुस्तके दत्तानां पदानां परिचयः
५। अनुवाद-अभ्यासः	संस्कृतात् आङ्गले/तमिल् भाषायां तथा आङ्गलात् संस्कृते

Prescribed book:

. Saral Sanskrit Sikshak Part I, Bharatiya Vidya Bhavan (lessons 6 to 9, and 1) Mumbai 400007.

Reference:

Sanskrit for beginners, Dr Narasimhachari, M, and Dr Ramaratnam, S, N & R Publications, Chennai 600004.

Subject Code: U16S3

National College (Autonomous) Tiruchirapalli

Language Course Part I Sanskrit Semester III

Paper III - Sanskrit III

(For the candidates admitted from the academic year June 2016 onwards)

Syllabus

Time: 3 Hours

Maximum Marks: 75

Unit I

1. क्रियापदानि कर्तृपदानि च - पुनश्चर्या

लट् लकारे लृट् लकारे च पठितानां
पूर्वस्मिन् षाण्मासद्वये अभयस्तानां
क्रियापदानां, कर्तृपदानां च पुनश्चर्या

2. शब्दाः(कर्तृपदानां परिचयः)

१। इकारान्तः पुल्लिङ्गः कवि शब्दः
तस्य केचन समानान्तशब्दाः च।
एकवचनं तथा बहुवचनम् एव।
हरिः, रविः, अरिः ऋषिः, पतिः,यतिः इत्यादयः।

२। सर्वनामशब्दः
दकारान्तः स्त्रीलिङ्गः तद् शब्दः
एकवचनं तथा बहुवचनम् एव।

३। इकारान्तः स्त्रीलिङ्गः मति शब्दः
तस्य एकवचनं तथा बहुवचनम् एव।
तस्य केचन समानान्तशब्दाः - रुचिः, शान्तिः
कीर्तिः, बुद्धिः, मुक्तिः इत्यादयः

४। उपर्युक्त-शब्दानां वाक्येषु उपयोगः
अनुवाद-अभ्यासः च (संस्कृत-तमिल/संस्कृत-
आङ्गल/आङ्गल-संस्कृतेषु)

Unit II

क्रियापदानि

१। लट् लकारः (वर्तमानकालः)

२। लट् लकारः (वर्तमान्कालः) - अधिकम्

३। लट् लकारः (वर्तमानकालः) -अधिकम्

१। जप्
२। चर्
३। रक्ष्
४। हस्
५। वम्
६। नम्
७। दह्
८। तप्

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९। वस्
१०। इच्छ्

५। क्रियापदानां वाक्येषु उपयोगः अनुवाद-अभ्यासः च - संस्कृतात् आङ्गले/तमिल् भाषायां अथवा आङ्गलात् संस्कृते वा।

Unit III

१। क्रियापदानि	उपर्युक्त-क्रियापदानां वाक्येषु प्रयोगः संस्कृतात् आङ्गले/तमिल् भाषायां अथवा आङ्गलात् संस्कृते वा।
२। नूतन-शब्दानां परिचयः	अकारान्त-आकारान्त-इकारन्त कर्तृपदानि क्रियापदानि च मिश्रित्य वाक्येषु उपयोगः अनुवाद-अभ्यासः च
३। वार्तालाप-परिचयः	उपर्युक्त-कर्तृपद-क्रियापदानि उपयुज्य छात्रेषु वार्तालाप-अभ्यासः
४। लृट् लकारः (भविष्यत्कालः) नूतन-क्रियापदानि	१। अर्ज्
	२। दण्ड्
	३। चिन्त्
	४। ज्वल्
५। लृट् लकारः (भविष्यत्कालः) नूतन-क्रियापदानि (अधिकम्)	५। तर्ज्
	६। तर्क्
	७। तप्
	८। नट्

Unit IV

१। लङ् लकार-परिचयः (भूतकालः)	१। भूतकालः नाम किम्? भूतकालिक-क्रियापदानां परिचयः।
	१। गम् (गच्छ्)
	२। पा (पिब्)
	४। पश्य्
२। लङ् लकार-परिचयः (भूतकालः) (अधिकम्)	५। वस्
	६। पठ्
	७। वद्
	८। पत्

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३। बन्धु-वर्ग-नामानि	माता, जननी, पिता, जनकः, स्वसा भगिनी, सहोदरः, भ्राता, अनुजः, अग्रजः, अनुजा, अग्रजा, मातुलः, मातुलानी, जामाता, वधूः, वरः, मातामहः, मातामही, पितामहः, पितामही, पुत्रः, पुत्री, पौत्रः, पौत्री
४। वाक्येषु उपयोगः	उपर्युक्त-पदानां वाक्येषु प्रयोगः अनुवाद-अभ्यासः(संस्कृतात् आङ्गले/तमिल् भाषायाम् , आङ्गलात् संस्कृते वा)

Unit V

१। गृहे उपयुक्तानां उपकरणानां नामानि	पर्यङ्कः, मञ्जूषा, तालकम्, कुञ्जिका, अङ्कनी, लेखनी, उत्पीठिका, आसनम्, गणकयन्त्रम्, दूरदर्शनम्, आकाशवाणी, दूरभाषणी, दीपः, विद्युत्, विद्युत्व्यजनम्, शीतकयन्त्रम्, शीतकपेटिका, अग्निपेटिका, वस्त्रम्।(अन्यानि मुख्यानि च)
२। वासरनामानि	सोमवासरः, मङ्गलवासरः, बुधवासरः, गुरुवासरः, शुक्रवासरः, शनिवासरः, भानुवासरः
३। पक्षनामानि	शुक्लपक्षः, कृष्णपक्षः
४। मास-नामानि	चैत्रः, वैशाखः, ज्येष्ठः, आषाढः,श्रावणः, भाद्रपदः, आश्वीनः, कार्तीकः, आग्रहायणः, पौषः, माघः, फाल्गुनः अथवा मेषः, ऋषभः, मिथुनः, कटकः, सिहः, कन्या, तुला, वृश्चिकः, धनुः, मकरः, कुम्भः, मीनः ।
५। तिथिनामानि	प्रथमा, द्वितीया, तृतीया, चतुर्थी,पञ्चमी, षष्टी, सप्तमी, अष्टमी, नवमी, दशमी, एकादशी, द्वादशी, त्रयोदशी, चतुर्दशी, अमावास्या (अमाः), पूर्णीमा (पौर्णमी)

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७। नवग्रहनामानि	सूर्य, चन्द्रः, कुजः, बुधः, गुरुः, शुक्रः, शनैश्चरः, राहुः, केतुः
८। संख्या-वाचकपदानि	षड्विशतिः आरभ्य पञ्चाशत् पर्यन्तम्।(२६-५०)

Prescribed Book:

सरलसंस्कृतशिक्षकः भागः २, भारतीयविद्याभवनम्, कुलपतिःमुन्शी मार्गः, मुम्बई, ४०००७

Reference:

1. Samskrt for Beginners, Dr M. Narasimhachari & Dr S. Ramaratnam, N&R Publications, Mylapore, Chennai 60004.
2. संस्कृत-व्यवहारसाहस्री, संस्कृत-भारती, माता मन्दिर् गली, झन्डेवाला, नव देहली ११००५५।

Subject Code: U16S4

National College (Autonomous) Tiruchirapalli

Language Course Part I Sanskrit Semester III

Paper IV - Sanskrit IV

(For the candidates admitted from the academic year June 2016 onwards)

Syllabus

Time: 3 Hours

Maximum Marks: 75

Unit I

१। कर्तृपदानि, क्रियापदानि च पुनश्चर्या

लट् लकारे, लृट् लकारे, लङ् लकारे च पूर्वस्मिन् षाण्मासत्रये अभ्यस्तानां कर्तृपदानां क्रियापदानां च पुनश्चर्या।

२। शब्दाः (कर्तृपद-परिचयः)

१। उकारान्तः पुल्लिङ्गः गुरु शब्दः केचन समानान्त-शब्दाः च।
एकवचनम् तथा बहुवचनम् केवलम्।
पशुः, मनुः, साधुः, शिशुः, प्रभुः इत्यदि शब्दाः

२। उकारान्तः स्त्रीलिङ्गः धेनु शब्दः
एकवचनम्, तथा बहुवचनम् केवलम्।

३। सर्वनामशब्दः -
दकारान्तः नपुंसकलिङ्गः तद् शब्दः
दकारान्तः पुल्लिङ्गः एतद् शब्दः
एकवचनम्, तथा बहुवचनम् केवलम्।

४। उपर्युक्त-कर्तृपदानां कर्मपदानां च वाक्येषु उपयोगः

५। अनुवाद-अभ्यासः (संस्कृतात् आङ्गले/तमिल् भाषायाम्, तथा आङ्गलात् संस्कृते च)

Unit II

क्रियापदानि

१। लट्/लृट् लकारौ नूतनक्रियापदानि

१। अञ्च्
२। दल्
३। नन्द्
४। यच्छ्

२। लट्/लृट् लकारौ नूतनक्रियापदानि

५। धृ (धरति)
६। धृ (धारयति)
७। नद् (नदति)
८। तृ (तर्)

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३। लट्/लृट् लकारौ नूतनक्रियापदानि	९। नश् १०। निन्द् ११। पीड् १२। पोष्
४। शरीर-अङ्ग-नामानि	शिरः, केशः, कर्णः, नासिका, नयनम्, मुखम्, दन्तः, ग्रीवा, कण्ठः, उरः, स्कन्धः, करः, बाहुः, हस्तः, अङ्गुली, नखः, स्मश्रुः, शिखा, उदरः, कटिः, जानुः, पादौ, अस्थि, मांसं, रुधिरः, मेधः।
५। प्रतिदिनं-उपयुक्तानि वस्तु नामानि	वस्त्रम्, निचोलः, ऊरुकम्, उष्णीषः, उपनेत्रम्, दण्डः, पादरक्षा, घटी, द्विचक्रिका, त्रिचक्रिका, कार्-यानम्, लोकयानम्, आकाशविमानम्, रेल्-यानम्
Unit III	
१। पर्यटन-स्थल-नामानि	१। धर्म-सम्बन्धीनि स्थलानि २। आह्लादकर-संबन्धीनि स्थलानि ३। देशस्य चरित्र-चारित्र-संबन्धीनि स्थलानि ४। अन्वेषण-संबन्धीनि स्थलानि ५। विदेश-यात्रा
२। प्रतिदिनं गमनीयानि स्थलानि	देवालयः, कार्यालयः, विद्यालयः, धनकोषः, पुस्तकालयः, आपणः, चलनचित्रशाला, नाट्यशाला, महाविद्यालयः, विश्वविद्यालयः, मित्रगृहम्, स्नानगृहम्, शौचालयः, सुविधालयः,
Unit IV	
१। रचनालेखनम्	रचना-लेखन-प्रकारः उपोद्घातः, रचना, समापनम् - विधयः दश-वाक्येषु पर्यटनस्थानमेकमधिकृत्य लेखनम्
२। पत्रलेखनम्	पत्रम् नाम किम्? पत्रलेखन-प्रकारः पत्रलेखने उपयुक्ताः रीतयः पत्र-आरम्भः, शरीरम्, समापनम्

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३। पत्रलेखनम् (वैचित्र्यम्)	१। मित्राय पत्रम्।
	२। विद्यालयाय विरामपत्रम्।
	३। जनकाय पत्रम्।
४। अनुच्छेद-अभ्यासः	१। कथा-युक्तम् अनुच्छेदं पठित्वा उत्तर-लेखनम्।
	२। वार्ता-संबन्धि-लेख-युक्तम् अनुच्छेदं पठित्वा उत्तर-लेखनम्।

Unit V

१। नूतन-कर्तृपदानि	मृगवर्गः - सिंहः, व्याघ्रः, भल्लूकः, शृगालः, मूषकः, आखुः, सारमेयः, कुक्कुरः, बिडालः, वानरः, उष्ट्रः, अश्वः, गजः, वृषभः, अजः, मेषः, वराहः, धेनुः,गौः, महिषः, वत्सः, हरिणः, शशकः
	पक्षिवर्गः - काकः, कुक्कुटः, मयूरः, टिट्टिभः, गरुढः, शुकः, कपोतः,
	जलचराः - मीनः, मत्स्यः, कूर्मः, तिमिङ्गिलः,
२। व्यवहार-पदानि/वाक्यानि	शिष्टाचारः, मित्राणि, प्रयाणम्, छात्राः, परीक्षा, शिक्षकः, महिला, वेश-भूषा, कार्यालयः, आरोग्यम्, वाणिज्यम्, वातावरणम्, भोजनम्, शुभाशयाः, संकीर्ण-पदानि।
३। कर्मकाराः	घटकारः, कुविन्दः/तन्तुवायः, अयस्कारः, सुवर्णकारः, रजकः, आपणिकः, वणिजः, चर्मकारः, नापितः, संवाहकः, शाकटिकः, आरक्षकः गोपालकः, अश्वपालकः, अजपालकः, पुरोहित;,
३। व्याकरणम्	सन्धिप्रकरणम् -
	प्रभेदाः - स्वरसन्धिः, व्यञ्जन-सन्धिः
	विसर्गसन्धिः
	स्वरे - सवर्णदीर्घः, गुणः, यण्, वृद्धिः,
	अयवायावः, प्रकृतिभावः

Prescribed Books:

1. सरलसंस्कृतशिक्षकः, भागः २, भारतीयविद्याभवनम्, कुलपति मुन्शी मार्गः, मुम्बई ४०००७।
2. संस्कृत-व्यवहार-साहस्री 3. सन्देशसंस्कृतम्, -संस्कृतभारती, माता मन्दिर् गली, झण्डेवाला, नव देहली ११००५५

Reference:

1. Samskrt for Beginners, Dr M. Narasimhachari and Dr S. Ramaratnam, N & R Publications, Mylapore, Chennai 600004.

ENGLISH FOR COMMUNICATION – U16E1

Semester: I **English Language Course I**

Instruction Hours/Week: 6 **Credit: 3**

UNIT I: 1. At the College
2. On the Campus

3. Outside the Class
4. At the Post office
5. For Business and Pleasure
6. Review

UNIT II: 7. Are you Smart ?
8. Are You Creative?
9. Is it too hard to improve?
10. How to win ?
11. View Points
12. Snakes and Ladders
13. Yourself

UNIT III: 1. Birbal story- The loyal gardener
2. Hindu mythological story- The origin of coconut tree
3. Achinese story: The generous student
4. An Africal Story ; The Three Runners

UNIT IV:

5. The Golden place
6. The one – hundreth prince
7. The mouse Merchand

UNIT V: 8. When wishes come true – Rabindranath Tagore
9. The World and after
10. Julius caesar

Text Books: 1. Crystal Streams – A Prose collection by D.E. Benet. Published by New Century Book House (P) Ltd.

2. Creative English for Communication (2nd edition) by Krishnasamy and Sriraman. Published by Macmillan

ENGLISH THROUGH EXTENSIVE READING – U16E2

SEMESTER : II **ENGLISH LANGUAGE COURSE : II**

INSTRUCTION HOURS/WEEK : 4 **CREDIT : 2**

UNIT I

Excitement : Mack R. Douglas
Tight Corners : E.V. Lucas

UNIT II

Water – The Elixir of Life : C.V. Raman
Tree Speaks : C. Rajagopalachari

UNIT III

The Art of Telling Tales : April Hersey
A Job Well Done : Ruskin Bond

UNIT IV

The Panorama of India's Past : Jawaharlal Nehru
The Origin of Grammar : Margaret Bryant & Janet

UNIT V

Dangers of Drug Abuse : Hardin B. Jones
Crime and Punishment : R.K. Narayan

Text Book : Dr. Ananthan , R. Effective Communication. Ed. Chennai : Anu Chithra Pub.2010.

COMMUNICATIVE ENGLISH I – U16CE1

Semester : II **Communicative English Course : I**

Instruction Hours/ Week : 2 **Credit : 1**

UNIT I

Writing Stories

Grammar Components : Articles, Prepositions and Tenses

UNIT II

Precis Writing

Grammar Components : Non- Finite Verbs and Phrasal Verbs

UNIT III

Writing Letters

Grammar Components : Conjuctions and Interjections and Punctuation

UNIT IV

Reporting

Grammar Components : Reported Speech and Transformation of Sentences

UNIT V

Writing an Essay

Grammar Components : Sentence structure (S/V/O/C/A) and Simple, Compound and Complex sentences

Text book : Pillai, Radhakrishna G. English Grammar & Composition Ed. Chennai : Emerald Pub.2016

ENGLISH FOR COMPETITIVE EXAMINATIONS – U16E3

SEMESTER : III **ENGLISH LANGUAGE COURSE : III**

INSTRUCTION HOURS/WEEK : 6 **CREDIT : 3**

UNIT I:

Basics of English(Revision)

(a)Parts of speech and Articles

(b)Active and passive voice

(c)Framing Questions

(d)Tag questions

(e)Indirect speech

(f)Tenses

UNIT II:

(a)Errors and how to avoid them

(b)Spotting errors

(c)Reconstructing passages

(d)Précis writing

UNIT III:

Reading comprehension

UNIT IV:

(a)Sentence completion,

(b) Spelling

(c)Vocabulary – Words often confused or Misused, Synonyms, Antonyms.

UNIT V:

Letter writing , Report writing ,Paragraph writing, Essay writing

Text book : English for Competitive Examinations by R.P.Bhatnagar&Rajul Bhargava macmillanIndia ltd. Delhi.

COMMUNICATIVE ENGLISH II – U16CE2

SEMESTER : IV **COMMUNICATIVE ENGLISH COURSE : II**

INSTRUCTION HOURS/WEEK : 2 **CREDIT : 1**

UNIT I:

Enriching Vocabulary – Register Development; who is who; Synonyms, 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, Phonetic Transcription, 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.
- Circulars
- Notes - reminders, warnings, farewells, apology.
- Draft invitations – marriage, annual day, inaugural functions of associations, valediction, seminar, workshop.
- Draft Short messages- compliments, birthday wishes, notifications
- Draft Posters- Slogans, Announcements
- Draft Advertisements
- Dialogue writing

Text Book

1. Communicative English by Department of English, National College(Autonomous), Trichy

READING POETRY AND DRAMA – U16E4

SEMESTER : IV **ENGLISH LANGUAGE COURSE : IV**

INSTRUCTION HOURS/WEEK : 6 **CREDIT : 2**

POETRY:

UNIT I : John Milton : On His Blindness
Oliver Goldsmith : The Village School Master
William Wordsworth : The Solitary Reaper

UNIT II : P.B.Shelly : Ozymandias
John Keats : La Belle Dame Sans Merci
Robert Browning : Incident of the French camp

UNIT III : John Masefield : Laugh and Be Merry
Robert Frost : Stopping by Woods On a Snowy Evening
John Drinkwater : The Vagabond

DRAMA:

UNIT IV: Anton Chekov : A Marriage Proposal
Lady Gregory : The Rising of the Moon

UNIT V: W.St. John Tayleur : Reunion
William Shakespeare : Othello, The Moor of Venice – Act V

Text Books : 1)**An Introduction to Poetry** edited by A.G.Xavier; [Macmillan]
2)**A Book Plays**: A Group of Editors, Published by Orient Blackswan

Hours/Week: 5

Core Course I (U16CS1) **Programming in C** **Credit: 5**

Objective:

- To understand the syntax and the semantics of C programming language
- To be able to build own logic for a given problem and finally develop one's own programs.

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 – 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:

1. E. Balagurusamy, "*Programming in C* ", 4th Edition, Tata McGraw Hill Publications.

UNIT I: Chapter 1 Sections 1.1, 1.2,1.8 Chapter 2 Sections 2.7 – 2.9 Chapter 3 Sections 3.1 – 3.12, 3.14, Appendix III
UNIT II: Chapter 4 Sections 4.1 – 4.5 Chapter 5: Sections 5.1 – 5.9 Chapter 6 Sections 6.1 – 6.5
UNIT III: Chapter 9 Sections 9.1,9.4 – 9.14, 9.16, 9.19 Chapter 7 Sections 7.1 – 7.7 Chapter 9 Section 9.17 Chapter 8 Section 8.9, Appendix III, Chapter 8 Section 8.8
UNIT IV: Chapter 11 Sections 11.1, 11.4 – 11.6, 11.9, 11.15, 11.11, 11.10, 11.12 Chapter 10 Sections 10.1 – 10.5 Chapter 11 Section 11.16, Chapter 10 Section 10.12
UNIT V: Chapter 12 Section 12.1 – 12.4, 12.6, Appendix I, Chapter 14 Sections 14.1, 14.2

Reference Books:

1. Byron S. Gottfried, "*Programming with C*", 2nd Edition,Sehaum's outline series, Tata McGraw Hill Publications.
2. Mullish Cooper, "*The Spirit of C*", 4th Edition, Schaum's Outline Series, Tata McGraw Hill Publications.
3. T. Jeyapoovan, "*A first course in Programming with C*", Vikes Publishing House Pvt. Ltd, New Delhi.

Semester I **Hours/Week: 3**
Core Course II (U16CS2P) **Programming in C Lab** **Credit: 3**

Objective:

To introduce students the rudiments of Computer programming andProgramming methodology using C language.
Program to implement the following concepts

1. Control statements
2. Looping structures
3. Functions
4. Arrays
5. String manipulations
6. Structures
7. Application
8. Debugging

Semester I **Hours/Week: 5**

Allied Course I (U16AMS1C) **Mathematics – I** **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. (problem only)

UNIT II:

Finite differences – forward, backward differences – Newton's forward and backward difference interpolation formulae. Lagrange's interpolating polynomial. (problem only)

UNIT III:

Measures of Central Tendency – Measures of Dispersion –Moments and measures of Skewness and Kurtosis.

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.

UNIT V:

Correlation and Regression – Properties of Correlation and Regression Coefficients – Numerical Problems for Finding the Correlation and Regression Coefficients.

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.

Unit I : Book 1: Chapter 2 – Sec 2.1-2.5
Unit II : Book 1: Chapter 3 – Sec 3.3.1,3.3.2,3.6,3.9.1
Unit III : Book 2: Chapter 5 – Page No. 50-84, Chapter -6,7
Unit IV : Book 2: Chapter 14 –Page no. 370-408
Unit V : Book 2: Chapter 8 – Page no. 177-223, Chapter 9- Page no.224 -225.

Semester I & II **Hours/Week: 6**

Allied Course II (U16AMS2C) Mathematics-2 **Credit: 3**

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 only.

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

UNIT III

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

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.

UNIT V

Networks: Network – Fulkerson's rule – measure of activity – PERT computation – CPM computation – Resource scheduling.

Text Book:

1. Manmohan & Gupta, *"Operations Research"*, Sultan Chand Publishers, New Delhi

UNIT 1: CHAPTER 2(sec 2.1, 2.2), CHAPTER 3(sec 3.1-3.5), CHAPTER 4(sec 4.3, 4.4)
UNIT 2: CHAPTER 5(sec 5.1-5.3, 5.7, 5.9), CHAPTER 10(sec 10.1-10.3, 10.9, 10.12, 10.14)
UNIT 3: CHAPTER 11(sec 11.1-11.4, 11.6), CHAPTER 17(sec 17.1-17.5)
UNIT 4: CHAPTER 21(sec 21.1, 21.7)
UNIT 5: CHAPTER 12(sec 12.1-12.6)

Reference Books:

1.Prem Kumar Gupta and D.S. Hira, *"Operations Research: An Introduction"*, S.Chand and Co., Ltd. New Delhi,

2. Hamy A.Taha, *"Operations Research"*, 7th Edition, McMillan Publishing Company, New Delhi, 1982.

Semester II **Hours/Week: 5**
Core Course III (U16CS3) **OOPs using C++** **Credit: 5**

Objective:

- To understand the syntax and the semantics of C programming language.
- To be able to build own logic for a given problem and finally develop one's own programs.

UNIT– I

Principles of Object Oriented Programming – Software Evolution – Basic Concepts of ObjectOriented Programming – Benefits of OOP – Applications of OOP – Structure of C++ Program –Tokens – Keywords – Identifiers and Constants – Basic Data Types – User Defined Data Types – Derived Data Types – Declaration of Variables – Operators – Manipulators – Expressions and their types – Control Structures.

UNIT– II

Functions – The Main Function – Function Prototyping – Call by Reference – Return by Reference – Inline Functions – Default Arguments – Function Overloading. Classes and Objects – Specifying a Class – Defining Member Functions – A C++ program with Class – Static DataMembers – Static Member Functions – Arrays of Objects – Objects as Function Arguments –Friendly Functions – Returning Objects.

UNIT– III

Constructors and Destructors – Constructors – Parameterized Constructors – MultipleConstructors in a Class – Copy Constructors – Destructors – Operator Overloading – DefiningOperator Overloading – Overloading Unary Operators – Overloading Binary Operators –Overloading Binary Operators using Friends – Rules for Overloading Operators.

UNIT – IV

Inheritance: Extending Classes – Defining Derived Classes – Single Inheritance – MultilevelInheritance – Multiple Inheritance – Virtual Base Classes – Pointer, Virtual Functions andPolymorphism – Pointers – Pointers to Objects – this Pointer – Pointers to Derived Classes –Virtual Functions – Pure Virtual Functions.

UNIT– V

Managing Console I/O Operations – C++ Streams – C++ Stream Classes – Unformatted I/O Operations – Formatted Console I/O Operations – Working with Files – Classes for File StreamOperations – Opening and Closing a File – Detecting End – of – file – More about Open( ): File Modes .

Text Books:

E.Balagurusamy, *"Object–Oriented Programming with C++"*, 4nd Edition, 2008.
UNIT I : Chapter 1, Chapter 2 Section 2.6, Chapter 3
UNIT II : Chapter 4 Sections 4.1 – 4.7, 4.9, Chapter 5 Sections 5.3 – 5.6, 5.11 – 5.16
UNIT III : Chapter 6 Sections 6.1 – 6.4, 6.7, 6.11, Chapter 7 Sections 7.1 – 7.5, 7.7
UNIT IV : Chapter 8 Sections 8.1 – 8.3, 8.5, 8.6, 8.9, Chapter 9 Sections 9.1 – 9.7
UNIT V : Chapter 10 Sections 10.1 – 10.5, Chapter 11 Sections 11.1 – 11.5

Reference Books:

1. Robert Lafore, *"Object–Oriented Programming in Microsoft C++"*, 2nd Edition, Galgotia Publications, New Delhi, 2000.

Semester II **Hours/Week: 3**
Core Course IV (U16CS4P) **Programming in C++ Lab** **Credit: 3**

Objective:

To introduce students the rudiments of computer programming and Programming methodology using C++ language.

Program to implement the following concepts

1. Class and object
2. Functions using
    (i) Call by value
    (ii) Call by reference
    (iii) Recursive call
3. Constructor and its types
4. Function Overloading
5. Operator Overloading
6. Inheritance
7. File Handling concept

Semester II **Hours/Week: 5**

Allied Course III (U16AMS3C) **Mathematics - III** **Credit: 3**

UNIT – I

Integration - Integrals of functions containing linear functions of x -Integrals of functions involving a2 + x2 - integrals of Rational algebraicfunctions - Integration of irrational functions.

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

UNIT – III
Differential equations of first order - Variable separable -Homogeneous equations - Nonhomogeneous equations - Linear equation -Bernoulli's equation.

UNIT – IV
Second order Linear equations with constant co-efficients - Particularintegrals for e(kx), sin kx, cos kx, xn and e(kx) X.

UNIT – V
Laplace transform - Definition - Some general theorems - InverseTransform.

Text Book:
1. Ancillary Mathematics, Vol-II (2009), S. Narayanan, R. HanumanthaRao, T.K. Manicavachagom Pillay, Kandaswamy.
2. Ancillary Mathematics Book II: Narayanan, Manicavachagom PIllay.

Unit I : 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 : Book 1: Chap. I Sec. 11, 12, 15
Page no: 61-72, 93, 94.
Unit III: Book 1: Chap 4: Sec 1-5
Page no: 205-218.
Unit IV: Book 2: Chap 3: Sec 1-4, Page no: 42-60.

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

Semester II **Hours/Week: 2**
Skill Based Elective I (U16SBE1C) **Web page designing using HTML** **Credit:2**

Objectives:

- To learn the basics of HTML and its Tags
- To introduce the concept Multimedia contenting HTML like and Scripting

UNIT – I

Introduction to HTML: History of HTML– HTML Documents– Anchor Tag– Hyper Links – Head and body sections.

UNIT – II

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

UNIT – III

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

UNIT – IV

Sounds and videos – link to a sound – sound considerations – embedded sound – extended video – video considerations – internal video.

UNIT – V

Advanced Layout: Frames and Layers–Style Sheets– Programming and HTML Forms– Introduction to scripting

Text Book:

C.Xavier,"*World wide web Design with HTML"*, Tata McGraw Hill,New Delhi, 1991.

UNIT I: CHAPTER 4(Sec 4.1 – 4.6)
UNIT II: CHAPTER 5(Sec 5.1 – 5.6) CHAPTER 6(Sec 6.1,6.2)
UNIT III: CHAPTER 6(Sec 6.3 – 6.7) CHAPTER 7(Sec 7.1, 7.2, 7.4,7.5)
UNIT IV: CHAPTER 8(Sec 8.1 – 8.6)
UNIT V: CHAPTER 9(Sec 9.1 – 9.7)

Reference Books:

1. Joel Sklar, *"Web Design Principles*",Vikas Publications 2000.

2. Alexis Leon & Mathews Leon, *"Internet for Everyone"*, Leon Tech World, Chennai.

3. Eric Kramer, *"HTML"*.

Semester III **Hours/Week: 4**
Core Course V (U16CS5) **Visual Basic Programming** **Credit: 4**

Objective:

- To understand the standard control and properties of form
- To include Database concepts and Visual Programming using Visual Basic.

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 – subroutine 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 List view control – the Image list control – common Dialog control – Status bar control – Rich textbox control – Menu Editor.

UNIT – V

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

Text Books:

1. Mohammed. Azam, "*Programming with Visual Basic 6.0*" – VlKASpublishing House pvt. Ltd.2009

UNIT I: CHAPTER 1, 3
UNIT II: CHAPTER 4, 5
UNIT III: CHAPTER 2, 6

2. Dr.A. Murugan,Dr.K.Shymala and GrashaJacob*"Visual Basic Programming"*Margham Publications

UNIT IV: CHAPTER 8
UNIT V: CHAPTER 13

Reference Book:

1. Noel jerke,*"Visual Basic 6:The Complete Reference"*,Tata McGraw – Hill Edition, 2008.

Semester III **Hours/Week: 3**
Core Course VI Visual Basic Programming Lab **Credit: 3**
(U16CS6P)

Objective:

- To attain the knowledge in Visual Basic programming
- To gain Knowledge about the DML, DDL Operations.
- To understand about RDBMS, Object Oriented Databases.

Visual Basic Programming Lab

Program to implement the following concepts.

1. Standard control
2. Control array of a command button
3. Geometric shapes control
4. Basic primitives
5. Timer control
6. Move method
7. DataBound Control

Semester III **Hours/Week: 4**

Second Allied Course I (U16APH1C) Applied Physics for Computer Science Credit: 3

UNIT – I ELECTORSTATICS

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 MAGETOSTATICS

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, reterntivity 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 OPERATION 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 REFERENCE

1. Electricity and Magnetism – Brijial and Subramanian – Ratan Prakashan Mandir Delhi(1997).
2. Electricity and Magnetism – Narayanamuthy & Nagarathinam (1977).
3. Functional Electronics – Ramanan – TMH(2005).
4. Electronic devices and Circuits – Millman &Halkias –TMH(1991).

BOOKS FOR STUDY

1. Electricity and Magnetism – Wilson, Cg – London(1974).
2. Electricity and Magnetism – Saxena – Meerut (1980).
3. Electronic Devices, circuits and systems – Cirovic, Micheal.M – America -1987.

Semester III &IV **Hours/Week: 6**

Second Allied Course II (U16APH2CP) Applied Physics Lab Credit: 3

(At the end of the Fourth Semester – Any Fifteen 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. Mathematical operators – Addition, subtraction using op-amp
15. Differentiator and Integrator using op-amp.
16. Study of Logic gates using suitable IC's.
17. Study of Universal IC gates – NAND & NOR.
18. Use of logic gates for arithmetic operations – Half adder & Full adder.
19. Use of logic gates for arithmetic operations – Half subtractor & Full subtractor.
20. Study the function of Shift registers – IC – 7495.
21. Study the function of Multiplexers & Demultiplexers – IC 74153,74154

Semester III **Hours/Week: 2**

Skill Based Elective II **Java Script & ASP** **Credit:2 (U16SBE2C)**

Objective:

- To explain the JavaScript Role in the Web page development.
- To implement the concepts of Variable, Functions, Data Types, Operators, Decision making and Repetition Statements, Frames and Forms of JavaScript.

UNIT – I

Introduction to Java Script: JavaScript's Role on the Web – A First JavaScript Program – Working with Variables, Functions: Variables – Defining Functions – Calling Functions – Understanding JavaScript Objects – Object Methods – Variable Scope

UNIT – II

Windows: The Window Object Model – Opening and closing Windows – Frames and Other Objects: Creating Frames – Using the TARGET Attribute – Nesting Frames – The NOFRAMES Tag

UNIT – III

Forms: Overview of Forms – The <FORM> Tag – Form Elements: Input Fields – Selection Lists – Multiline Text Fields – Validating a User's Input to a Form

UNIT – IV

Introduction to Active Server pages – Advantages – Processing ASP Scripts with forms variables & Constants – Subroutines.

UNIT – V

ASP Objects: Response – Request, Applications , Session, Server & ASP Error Objects.

Text Book:

1.Don Gosselin, *"JavaScript Comprehensive"* – Vikas Publishing house.
UNIT I: CHAPTER 1& 2
UNIT II: CHAPTER 5
UNIT III: CHAPTER 6
2. N. P. Gopalan and J. Akilandeswari, Web Technology – A Developer's Perpective, PHI Pvt Ltd., 2011.
Unit IV: Chapter 11.1 -11.8
Unit V: Chapter 12.1, 12.2,12.4 – 12.6 and 12.9.

Reference Books:

1. Steve Suehring, *"JavaScript Step by Step"*, 2nd Edition, Microsoft Corporation
2. Ivan Bayross, HTML, DHTML, Java Script, Perl, CGI,BPB, Third Revis.

Semester III **Hours/Week: 2**
Skill Based Elective III (U16SBE3CP) **HTML, Java Script and ASP Lab** **Credit:2**

Objective:

- To improve the students in developing the web page designing concept of using java script

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.

Java Script Lab

1. Functions.
2. Frames.
3. Validation.

ASP

1. Create an ASP file to display the message "Have a Good Weekend" if it is a Saturday otherwise "Hang in there, the week will get better".

2. Write an program to get the name and favorite ice cream flavor. Respond with the price of the corresponding ice cream.

3. Create an advertisement for a bookshop using Ad Rotator component.

4. Write a program to manipulate cookies with the information between HTTP sessions such as i. Last Date visited ii. Last Time visited iii. Number of visits

Semester IV **Hours/Week: 4**
Core Course VII (U16CS7) **Data Structure and Algorithm** **Credit: 4**

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

UNIT – I
Introduction and Preliminaries : Basic terminology, Elementary data organization, Data structures – Data structure operations, Algorithms : complexity, time – space Tradeoff –

Mathematical Notations and Functions – Control Structures – Complexity of Algorithms.

UNIT – II

Arrays and Stacks : Arrays – Introduction – Linear Array, Representation of Linear Array in Memory, Traversing Linear Arrays, Inserting and Deleting, Multidimensional Arrays – Stacks –Array Representation of Stack, Arithmetic Expressions: Polish Notation – Recursion.

UNIT – III

Queues and Linked Lists : Queues – Deques – Array Representation Queues – Insertionand Deletion – Linked List, Representation of Linked Lists in memory, Traversing a Linked List,Insertion into a Linked List, Deletion from a Linked List, Two – Way Linked Lists.

UNIT – IV

Trees and Graphs : Binary Trees, Representing Binary Trees in Memory, Traversing binary tree – threads, Binary Search Tree, Searching and Inserting in Binary Search Tree, Deleting inBinary Search tree – Graph Theory – Terminology, Sequential Representation of Graph:Adjacency Matrix, Path Matrix.

UNIT – V

Sorting and Searching : Sorting – Bubble Sort, Insertion Sort, Selection Sort, #Merge Sort#,Quick sort, Heap Sort – Searching; Liner Search, Binary Search.

Text Book:

1. Seymour Lipschutz and G.A. VijayalakshmiPai (Schaum's Series), *"Data Structures"*, Tata McGraw Hill Publishing Company Ltd., New Delhi, Indian Adopted Edition, 2006.

UNIT I : Chapter I Sections 1.1 to 1.5 , Chapter II Sections 2. 2 , 2 .4 , 2 . 5
UNIT II : Chapter IV Sections 4.1 – 4.5 , 4.9, Chapter VI Sections 6.1 to 6.3 , 6.5 , 6.7
UNIT III : Chapter VI Sections 6.1.0 – 6.1.2 , Chapter V Sections 5.1 to 5.4 , 5.7 to 5.8 , 5.1.0.
UNIT IV : Chapter VI Sections 7.1 to 7.9 , Chapter VII Sections 8.1 to 8.3
UNIT V : Chapter IX Sections 9.1 to 9.6, 4.6 to 4.8 , 6.6 , 7.17.

Reference Book:

1. Ashok N. Kamthane, Introduction to Data Structures in C, Pearson Edition, 2007

Semester IV **Hours/Week: 3**
Core Course VIII (U16CS8P) **Data Structure Lab** **Credit: 3**

Objective:

To introduce students the rudiments of programming using C and C++ Programming language.

1. Merging two arrays into a single array.
2. To find the following in a matrix:

(a) Row Sum

(b) Column Sum

(c) Trace Sum (Sum of Diagonal Elements)

(d) Sum of all the elements

3. Matrix Addition and Multiplication operations
4. To find an element using Sequential and binary search.
5. Perform the following types of Sorting:

(a) Bubble sort

(b) Insertion sort

(c) Selection sort

6. To find the Factorial of a number using Recursion
7. To PUSH and POP an element from STACK
8. To Insert and Delete an element from QUEUE.
9. To insert and delete a node in a linked list.
10. Program to traverse a binary tree.

Semester IV **Hours/Week: 5**

Second Allied Course III (U162APH3C) Physics(Digital Electronics) 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 master – 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 LEK – Materials for LED – LED configuration and performance – Photo conduction - Photo diode – Photo transistor – electronic watches – Seven segment displays – LCD.

UNIT V – FIBRE OPTICS AND APPLICATIONS

Introduction – Principle of Optic Fibre – Propagation of optical signal through fibre – Acceptance Angle – Numerical Aperture – Single and Multi mode Fibres – Characteristics of Step Index and Graded Index fibres – Light Sources – Detectors – Optic Fiber communication Link (block diagram)- Fibre optic sensors – Temperature & displacement – Endoscope – advantages of fiber optics communication.

BOOKS FOR REFERENCE

1. Fundaments of Solid State Physics – Saxena, B.S.Meerut(1977).
2. Engineering Physics –I – Dr.Senthil Kumar. VRB Publishers Pvt.Ltd.(2009)

BOOKS FOR STUDY

1. Microelectronics – Jacob Millman – MCGraw Hill (2000)
2. The fundamentals of solid state physics – Theraja Sulta Chand & Co., Delhi
3. Pulse & Digital electronics – G.K Mithal and Vanvasi- Khanna Publication – Delhi (1985)
4. Engineering Physics – I –Dr. P.Mani – Dhanam publications (2009)- 5^{th} edition.

Semester: IV **Hours/Week: 2**

Non Major Elective: I (U16NMCS1)Basic Concepts of Computer Science Credit: 2

Objectives:

- To impart knowledge about the fundamental concepts of computers in a logical and informative manner.

UNIT I: Introduction: Characteristics of Computers – The Evolution of Computers – The Computer Generations. Basic Computer Organization: Input Unit – Output Unit - Storage Unit – Arithmetic Logic Unit – Control Unit – The Central Processing Unit. Processor and Memory: The Main Memory.

UNIT II: Secondary Storage Devices: Sequential and Direct Access Devices – Magnetic Disk - Optical Disk – CD-ROM. Input-Output Devices: Input Devices: Keyboard – Point-and-Draw Devices – Data Scanning Devices – Electronic-card Reader. Output Devices: Monitors – Printers – Plotters. Computer Software: Types of Software.

UNIT III: Operating Systems: Main Functions of an Operating System. Business Data Processing: Data Processing – Data Storage Hierarchy – Standard Methods of Organizing Data – File Management System: File Types – File Organizations – Database Management System: Database Models.

UNIT IV: Data Communication and Computer Networks: Basic Elements of a Communication System – Data Transmission Modes – Data Transmission Speed – Data Transmission Media – Digital and Analog Data Transmission.

UNIT V: The Internet: Definition- Basic Services: Electronic Mail – File Transfer Protocol – Telnet - The World Wide Web. WWW Browsers – Uses of the Internet. Multimedia: Multimedia Computer System – Multimedia Components – Multimedia Applications.

Text Book:

Pradeep K. Sinha and Priti Sinha,"*Computer Fundamentals"*, BPB Publications, 3rd Edition.

Unit 1: chapter (1, 2)
Unit 2: chapter (8, 9, 10)
Unit 3: chapter (14, 16)
Unit 4: chapter (17)
Unit 5: chapter (18, 19)

Reference Book:

V.Rajaraman and Neeharika Adabala,"*Fundamentals of Computers*",6th Edition,PHI Learninig Private Limited,2014

Semester IV **E – Commerce** **Credit: 4***

Objective:

- This subject deals with E–commerce concepts like E–Security and E–payment.
- To understand the process of Electronic commerce and Business strategy involved in it.

UNIT – I

E–Commerce–Electronic Commerce – E–Commerce types – E–Commerce and world at the large – E Commerce Case studies: Intel, Amazon

UNIT – II

Electronic Mail – The X, 400 Messages 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 solution – Digital Signatures – VPN.

UNIT – V

Electronic Payment Systems – Payment gateway – internet banking – the SET protocol – E–Cash – E–Cheque – Elements of electronics payments

Textbook:

1. Kamalesh.Kbalaji, Debjani Nag "*E–Commerce – The Cutting Edge of Business*", 2nd Edition, Tata McGraw Hill.

Reference Books:

1. Ravi Kalakota and Andrew B.Whinston" *Frontiers of E–Commerce* " – Pearson Edu.
2. S.Jaiswal"*E–Commerce : Doing Business through internet* " , Galgotia Publication, 2001

Semester IV **Multimedia Technology** **Credit: 4***

Objective:

To provide fundamental concepts of Multimedia

UNIT – I

Definition – Where to use Multimedia – Multimedia in Business – Multimedia in Schools – Multimedia at Home – Virtual Reality – Delivering Multimedia – CD-ROM,

DVD, Flash Drives – The broadband Internet – Fonts and Faces – Cases – Serif vs. Sans Serif – Using text in Multimedia – Designing with Text – Fields for Reading – HTML documents.

UNIT – II

Computer and Text – Character sets and Alphabets – Mapping text across platforms – Font editing and design tools – Fontlab – Making pretty text – Hypermedia and Hypertext – The power of Hypertext – Using Hypertext – Hypermedia structures – Hypertext tools – Making still images – Bitmaps – Vector Drawing – 3D Drawing and rendering – Color – Color Palettes – Image file formats.

UNIT – III

Digital Audio – Making digital audio files – MIDI Audio – MIDI vs. Digital Audio – Multimedia system sounds – Audio File formats – Audio recording – Keeping tract of our sounds – Audio CDs – Sound for mobile – Sound for Internet – The Power of motion – Principles of Animation – Animation by Computer – Animation techniques – Animation File formats.

UNIT – IV

Using Video – How video works and is displayed – Analog video – Digital video – Displays – Digital video containers – Video format converters – Shooting and editing video – The stages of a multimedia project – Hardware – Windows vs. Macintosh – Connections – Memory and storage devices – Input devices – Output devices.

UNIT – V

Software – Text editing and word processing tools – OCR software – painting and drawing tools – 3D modeling and animation tools – Image editing tools – Sound editing tools – Animation, video, and digital movie tools – The team – Project manager – Multimedia designer – Interface designer – Writer – Video Specialist – Audio Specialist – Multimedia Programmer.

Text Book:

1. Tay Vaughan, Multimedia: Making it Work, Tata McGraw Hill, Eighth Edition, 2011.

UNIT I : Chapters 1, 2
UNIT II : Chapters 2, 3
UNIT III : Chapters 4, 5
UNIT IV : Chapters 6, 7
UNIT V : Chapters 7, 8

Reference Books:

1. John F. Koegel Buferd, *Multimedia Systems"*, Published by Addison Wesley Longman, 3rd Edition 2000.
2. David Hillman, *"Multimedia Technology and Applications"*, Galgotia Publications Pvt. Ltd. 1998.

Semester V **Hours/Week: 6**
Core Course XI (U16CS11) **Programming in Java** **Credit: 5**

Objective:

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

UNIT – I

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

UNIT – II

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

UNIT – III

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

UNIT – IV

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

UNIT – V

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

Text Books:

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

UNIT I : Chapter 1 Sec.1.3,1.4 , Chapter 2 Sec. 2. 1, 2 .2 , 2 .9, Chapter 3 Sec 3.6, Chapter 4 Sec. 4.2 – 4.4,Chapter 5 Sec. 5.1 – 5.15,Chapter 6 Sec. 6.1 – 6.8,Chapter 7 Sec. 7.1 – 7.6.
UNIT II: Chapter 8 Sec. 8.5,8.7 to 8.9 ,8.11 – 8.16,8.18 Chapter 9 Sec. 9.1 – 9.9.
UNIT III:Chapter 10 Sec.10.2 – 10.5, Chapter 11,Sec. 11.1 – 11.10.Chapter 12 Sec. 12.5,12.7 – 12.9.
UNIT IV: Chapter 13 Sec. 13.1 – 13.6, Chapter 16 Sec. 16.2,16.3,16.5,16.11 – 16.13,16.15.
UNIT V: Chapter 9 Sections 9.4,9.6 – 9.11,9.13 – 9.15, Chapter 10 Sections 10.3,10.5,Chapter 8 Sections 8.2,8.4

Reference Book:

1. Herbert Schildt, *"Complete Reference JAVA 2"*, Tata MeGraw – Hill Publishing Company Ltd., 5th Edition, 2009

Semester V **Hours/Week: 6**
Core Course XII (U16CS12P) **Programming in Java Lab** **Credit: 6**

Objective:

To make the student to understand the java programming concepts and make them to write their own programs using those concepts.

Program to implement the following concepts

1. Class and Object
2. String Manipulation
3. Package
4. Exception Handling
5. Multithreading
6. Applet
7. AWT Components

Semester V **Hours/Week: 5**
Elective Course I Microprocessor and its Application (U16CS9E) **Credit: 5**

Objective:

- To introduce the Intel 8085 architecture and its application
- To implement Assembly language programming in 8085
- To explain the interrupt and I/O ports in 8085

UNIT – I

Evolution of Microprocessor –Single Chip Microcomputer–Microprocessor Applications–Programming– Digital Computers–Memory –Buses–Memory Addressing Capacity and CPU– Microprocessor Architecture–Intel 8085–Instruction Cycle–Timing Diagram

UNIT – II

Instruction Set of Intel 8085 – Instruction and Data Formats – Addressing Modes– Status Flag – Intel 8085 Instructions– Programming of Microprocessors – Assembly Language – Assemblers – Stack and Subroutine – Macro – Microprogramming.

UNIT – III

Assembly Language Programming – Simple Examples – Addition and Subtraction of Binary and Decimal Numbers – Complements – Shift – Masking – Finding the Largest and Smallest Number in an Array –Arranging a Series of Number –Sum of a Series of Numbers – Multiplication – Division – Multibyte Addition and Subtraction.

UNIT – IV

Peripheral Device and Interfacing – Address Space Partitioning – Memory and I/O Interfacing – Data Transfer Scheme – Interrupts of Intel 8085 – Interfacing Memory and I/O Device.

UNIT – V

I/O Ports – Programmable Peripheral Interface – Programmable Counter/Interval Timer – A/D Converter and D/A Converter – Microprocessor Applications – Delay Subroutine – 7 **–** Segment LED Display – Measurement of Electrical Quantities – Frequency Measurement – Microprocessor Based Traffic Control.

Text Book:

1. Badri Ram, "*Fundamentals of Microprocessor and Microcontrollers*", 7th revised and Enlarge Edition,DhanpatRai Publications.

UNIT I : Chapter 1Sections 1.2 – 1.5, 1.29, 1.9.1, 1.9.2, 1.10.1 , Chapter 3 Sections 3. 1–3.3
UNIT II : Chapter 4 Sections 4.1 – 4.4, 4.6, Chapter 5 Sections 5.2, 5.5, 5.6, 5.14
UNIT III : Chapter 6 Sections 6.1 – 6.6, 6.9 – 6.18, 6.21 – 6.26, 6. 29 – 6.31, 6. 34
UNIT IV : Chapter 7 Sections 7.1 – 7.6
UNIT V : Chapter 7 Sections 7.7.1, 7.11, Chapter 8 Sections8.2, 8.12, Chapter 9 Sections 9.1 – 9.3, 9.5.1, 9.8

Reference Books:

1. RomeshS.Gaonkar,"*Microprocessor Architecture Programming and Applications with the 8085/8080A*", Wiley Eastern 1990
2. BarryB.Bray, "*The Intel Microprocessor*", 6thEdition,Published by Prentice Hall of India, 2003.

Semester V **Hours/Week: 5**
Elective Course II (U16CS10E) Computer Graphics Credit: 4

Objective:

- To understand the basics of Computer Graphics and its applications.
- To acquire knowledge in two dimensional transformation and the concept of clipping

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. Donald Hearn and M. Pauline Baker, *"Computer Graphics"*, C Version 2nd Edition, Pearson Education, 2006.

UNIT I: CHAPTER 1(Sec 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8)
CHAPTER 2(Sec 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7)
UNIT II: CHAPTER 3(Sec 3.1, 3.2, 3.5, 3.11)
UNIT III: CHAPTER 4(Sec 4.1, 4.4, 4.5, 4.6, 4.7, 4.8)
UNIT IV: CHAPTER 5(Sec 5.1, 5.2, 5.3, 5.4)
UNIT V: CHAPTER 6(Sec 6.4, 6.5, 6.6, 6.7, 6.8)

Reference Books:

1. Jeffrey J. McConnell,*"Computer Graphics: Theory into Practice"*,Jones and barlett publishers, 2006

2. Peter Shirley, Michael Ashikhmin, Steve Marschner*"Fundamentals of Computer Graphics"*,CRC Press,2009.

Semester V **Hours/Week: 4**
Core CourseXIII (U16CS13) Fundamentals of XML **Credit: 4**

Objective:

To understand the concept of XML

UNIT – I

Introducing XML: What is XML – An introduction to XML applications: XML for XML -Your first XML document – Structuring data: preparing a style sheet for document display attributes,

empty tags and XSL – Well formed XML documents#.

UNIT – II

Foreign Languages and Non Roman Text: Legacy character sets – Document typedefinitions: Document type definitions and validity – Entities and external DTD subsets – Attributedeclarations in DTDs: What is an attribute? – Attributetypes – Embedding Non-XML data.

UNIT – III

Cascading Style Sheets level 1: What is CSS? – Attaching style sheets to documents – inheritance – comments in CSS – Font, Color, background, text and box properties.

UNIT – IV

XSL transformations – Overview of XSL transformations – computing the value of a nodewith XSL:value of – processing multiple elements with XSL:for each – copying the current nodewith XSL:copy – Merging multiple style sheets.

UNIT – V

Namespaces - XML applications: The importance of reading DTDs – Designing a new XML
application: Organisation of the data.

Text Book :

1. Elliote Rusty Harold, XML Bible – IDG Books India (P) Ltd. First Edition 2000.
UNIT I: Chapter 1- 6
UNIT II: Chapter 6, 8-11
UNIT III: Chapter 12
UNIT IV: Chapter 14
UNIT V: Chapter 20 & 23

Books for Reference:

1. Heather Williamson ,XML The Complete Reference, Tata McGraw Hill 2001 Edition.

Semester V **Hours/Week: 2**

Non Major Elective Course II (U16NMCS2)

Internet and its Applications **Credit:2**

Objectives:

- To understand the fundamental concepts of Internet and its Applications.
- To attain knowledge in Web browsing, E – mail and Search engine concepts

UNIT – I

Internet – Introduction– Getting Connected: Dial–up connection – DSL – Cellular Broadband – Wireless Broadband – WWW –Web Technologies: HTML

UNIT – II

Web Browsers and Web browsing: Web Browsers – Types of Browsers – Web Browsing – Internet Addressing: IP address – Domain Name – Uniform Resource Locator (URL)

UNIT – III

E–mail:Names and Addresses – Mailing Basics – Spamming – E–mail Safety Tips – Instant Messaging: Instant Messaging from the Web – Internet Telephony – Videoconferencing

UNIT – IV

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

UNIT – V

Searching the Web: Web Index – Web Directory – Search Engine – Meta–search Engines – Anonymity, Safety and Privacy: Privacy – Cookies – Understanding Security and privacy

Text Book:

Alexis Leon and Mathews Leon, *"Internet for Everyone"*, Leon Press, 15th Anniversary Edition, 2012.

UNIT I : Chapter 1 Sections 1.1, 1.3, 1.6, Chapter 3 Sections 3.2, 3.5, 3.8,3.9, Chapter 4 Section 4.1, 4.2, 4.4, Chapter 12 Sections 12.1, 12.2

UNIT II: Chapter 5 Sections 5.1 – 5.3, Chapter 8 Chapter 8.2, 8.3, 8.5

UNIT III: Chapter 10 Sections 10.4, 10.5, 10.8, 10.11, Chapter 17 Sections 17.2 – 17.4

UNIT IV: Chapter 9 Sections 9.2– 9.7

UNIT V: Chapter 6 Sections 6.4 Chapter 7 Sections 7.2, 7.4

Reference Books:

1. Deitel and Deitel, *"Internet and World Wide Web – How to Program"*, PHI, 4th Edition, 2008.
2. ChristianCramlish,*" The Internet"*, BPB, 2nd Edition, 2004.

Semester V Business Process Outsourcing Credit: 4*

UNIT – I

Business Process Outsourcing – Basics – Benefits of BPO – Growth Drivers – BPO Models and Types of Vendors – Offshore BPO – Evolution Destinations – Challenges of Off shoring – BPO Companies in India.

UNIT – II

BPO Industry – Employment Opportunities – Employee Structure – Skill Set Required –

Compensation Levels – Contact Centre BPO – Types of Call Centres – Technology – Components and working of a Call center – Issues and Problems – Case Study – Intelenet Global.

UNIT – III

Healthcare BPO – Structure of the American Healthcare Sector – Activity Profile – Future Trends and Threats – Case Study – Cbay Systems.

UNIT – IV

Transaction Processing BPO - Elements of Back – Office Serivces – Financial Services – Insurance – Case Studies – Datamatics – Hinjuja TMT.

UNIT – V

Human Resource BPO – Reasons for outsourcing HR – Activities involved in HR BPO – HR Outsourcing Trends – Career in HR BPO – Emerging BPO Domains – Media and Entertainment BPO – Publishing BPO.

Semester VI **Hours/Week: 5**

Core Course XIV (U16CS14) **Database System** **Credit: 5**

Objective:

- To understand RDBMS and queries to design database and manipulate data in it.
- To understand the conceptual and physical design of a database and its backup and recovery

UNIT – I

Introduction: Database–System Applications– Purpose of Database Systems – View of Data –Database Languages – Relational Databases – Database Design –Object–Base and 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 – Algebra Operations Additional Relational – Algebra Operations – Extended Relational – Algebra Operations – Null Values – Modification of the Database.

UNIT – III

SQL: Data Definition – Basic Structure of SQL Queries – Set Operations – Aggregate –Functions – Null Values – Nested Sub queries – 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 Multi valued Dependencies–More Normal Forms – Database–Design Process.

Text Book:

1. Abraham Silberschatz , Henry F. Korth, S.Sudarshan, *" Database System Concepts"*, 5th Edition, McGraw–Hill, 2005.

UNIT I: CHAPTER 1(Sec 1.1,1.2,1.3,1.4,1.5,1.6,1.7,1.8,1.9,1.10,1.11,1.12,1.13)
UNIT II: CHAPTER 2(Sec 2.1, 2.2, 2.3, 2.4, 2.5, 2.6)
UNIT III: CHAPTER 3(Sec 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, 3.11)
CHAPTER 4(Sec 4.1, 4.2, 4.3, 4.4)
UNIT IV: CHAPTER 5(Sec 5.1, 5.2, 5.3)
CHAPTER 6(Sec 6.1, 6.2, 6.3, 6.4, 6.5)
UNIT V: CHAPTER 7(Sec 7.1, 7.2, 7.3, 7.4, 7.6, 7.8)

Reference Books:

1. RamezElmasri –ShamkantB.Navathe"*Fundamentals of Database Systems*" – Third Edition –Addison Wesley Longman Pvt.,Ltd – Delhi 2001.
2. Alexis leon and Matheews Leon "*Database Management Systems*" – Vikas Publishing House Pvt.,Ltd., – New Delhi – 2002.

Semester VI **Hours/Week: 6**
Core Course XV (U16CS15) **Computer Networks** **Credit: 5**

Objective:

- To inculcate knowledge on Networking concepts like Wired and Wireless Network
- To impart about routing algorithm, DNS, WWW and E – mail

UNIT – I

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 – World Wide Web

Text Book:

Andrew S. Tanenbaum"Computer Network", 4th Edition, Andrew S. Tanenbaum, Prentice Hall, 2006.

UNIT 1: CHAPTER 1(Sec 1.1, 1.2, 1.3, 1.4, 1.5, 1.6)
UNIT 2: CHAPTER 2(Sec 2.3, 2.4, 2.5)
UNIT 3: CHAPTER 3(Sec 3.1, 3.2, 3.3, 3.4)
UNIT 4: CHAPTER 5(Sec 5.1, 5.2, 5.3, 5.4, 5.5)
UNIT 5: CHAPTER 6(Sec 6.1, 6.2, 6.3, 7.1, 7.2, 7.3)

Reference Books:

1. Forouzan,*"Computer Networks"*,Tata McGraw – Hill Education, 2012

2. William Stallings, *"Data and Computer Communications"*, 6th Edition, Prentice Hall of India, 2002.

Semester VI **Hours/Week: 6**
Core Course XVIII (U16CS18) **PHP** **Credit: 5**

Objective:

- To understand PHP variables, functions, and operators in a PHP program.
- To utilize PHP in web forms and demonstrate form data validation using PHP.

UNIT – I

PHP: Server side scripting Language: Basic syntax – Types – Variables – Constants – Expressions – Operators – Control Structures

UNIT – II

PHP: Functions – Classes and Objects – HTML Basics –PHP access Specifiers.

UNIT – III

Advanced concepts in PHP– Sessions, Cookies, PHP server Variables, HTTP Header Function.

UNIT – IV

File Handling –Working with Databases and FTP.

UNIT – V

Ajax: Creating and opening XML – HTTP request object – Handling downloaded data –Passing Data to the server with GET and POST.
Advanced Ajax: Downloading Images using Ajax – Downloading java script with Ajax – Connecting to Google suggest.
Drawing Images on the Server: Drawing Lines, Drawing Rectangles, Drawing Ellipses, Drawing Arcs, Drawing Polygons – Tilling Images.

Text Books:

1.Dr.K.Meena,Dr.R.Sivakumar,A.B.KarthickAnandBabu "Web Programming using PHP and MySQL" –Himalaya Publishing House.
2. Steven Holzner "The PHP Complete Reference 5.2" – Tata McGraw – Hill Edition.
Text Book 1: UNIT I: Chapter 1(Sec 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7), Chapter 2
UNIT II: Chapter 3(Sec 3.1, 3.2, 2.3)
UNIT III: Chapter 4(Sec 4.1, 4.2, 4.3, 4.4)
Text Book 2: UNIT IV: Chapter 9, Chapter 10, Chapter 11
UNIT V: CHAPTER 12, CHAPTER 13, CHAPTER 14

Reference Books:

1. Steven Holzer "Spring into PHP5", Tata McCraw Hill Edition.
2. Steven Holzer "Ajax Bible"– , Tata McCraw Hill Edition.

Semester VI **Hours/Week: 6**
Elective Course III (U16CS16E)
Operating System **Credit: 5**

Objective:

- To make students understand the Operating Systems concepts and Information, Process and Memory Managements.

UNIT – I

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

UNIT – II

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 – III

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'sAlgorithm.

UNIT – IV

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

UNIT – V

File Management : Simple File System, General Model of a File System, Physical and Logical File System.

Text Book:

1.E. Madnick& John J.Donavan,*"Operating Systems"* Tata McGraw Hill Publishing Co.,Limited.

2.PradeepK.Sinha ,*"Distributed Operating Systems"*, Prentice – Hall of India Private Limited

UNIT I : Chapter 1, 2
UNIT II : Chapter 3
UNIT III : Chapter 4
UNIT IV : Chapter 5
UNIT V : Chapter 6

Reference Books:

D.M. Dhamdhere,"*System Programming and Operating Systems"*Tata McGraw HillPublishing Co., Limited.

Semester V **Cloud Computing** **Credit: 4***

Objective:

To impart a knowledge on cloud computing, its architecture,authentication services, interconnecting services with web server

UNIT I:

Understanding Cloud Computing: Introduction to cloud computing-surveying the Role of Cloud Computing, developing the cloud services-Advantage of Auxiliary Cloud Services- Deploying Application and Services to the Azure Cloud.

UNIT-II

Understanding Windows Azure Platform Architecture: The Lifecycle- Securing and Isolating Services and Data,-Assuring Fabric Controller Availability-Virtualizing Windows Server for Azure.

UNIT III

Minimizing Risk When Moving to the Azure Cloud Service:Bypassing the Barrier to Cloud Computing- Implementing the Secure Sockets Layers Transmission-Encryption for Web Roles-Encrypting Personal Information in Azure Storage Services.

UNIT IV

Authenticating Users with .NET Access Control Services: Creating the .NET Services Solution, Installing the .NET Services SDK and other Tools, Crating the Card Space Credentials at Federatedidentity.net, Using a Managed Card Space Credential with ACS.

UNIT V

Interconnecting the Services with the .NET Service Bus: Creating .NET ServiceSolution and Installing Prerequisites, Relaying Message with SB. Exploring .NET Service Bus Queues and Routers: Persisting Messages in Service-Bus Queues, Delivering Message with Service Bus Routers.

Text Book:

1. Roger Jennings “Cloud Computing with the Windows Azure Platform”, Wiley,2009

Reference Books:

1. Michael Miller, “Cloud Computing”, Pearson Education,2008
2. Michael Morrison. “AJAX Construction Kit: Building Plug-and-Play Ajax Applications,” 2007
3. Billy Hoffman and Bryan Sullivan, “AJAX Security”, 2007
4. Barry Wilkinson and Michael Allen “Parallel Programming”, 2004

SEMESTER – I

COURSE CODE: U16ES

PART – IV: ENVIRONMENTAL STUDIES

HOURS: 2 **CREDITS: 2**

UNIT I:

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 resoureces for sustainable lifestyles.

UNIT II:

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 III:

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-sports 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 IV:

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 arid control measures of urban and industrial wastes • Role of an individual in prevention of pollution • Pollution case studies • Diaster management floods, earthquake, cyclone and landslides.

UNIT V:

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.

TEXTBOOKS

1. Ekambaranatha Ayyar.M. and T.N. Ananthakrishnan, 1992. Manual of Zoology Vol. 1 [Invertebrata], parts I and II.S. Viswanathan (Printers and Publishers) Pvt. Ltd; Madras.
2. Agarwal, K.C. 2001 Environmental Biology, Nidi Pubi. Ltd. Bikaner.
3. Sharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad.
4. Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc.
5. Clark R.S., Marine Pollution, Clanderson Press Oxford (TB)
6. Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico PubI. House, Mumbai,
7. De A.K., Environmental Chemistry, Wiley Eastern Ltd.
8. Down to Earth, Centre for Science and Environment (R)
9. Gleick, H.P. 1993. Water in crisis, Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute Oxford Univ. Press.
10. Hawkins R.E., Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R)
11. Heywood, V.H & Waston, R.T. 1995. Global Biodiversity Assessment. Cambridge Univ. Press
12. Jadhav, H & Bhosale, V.M. 1995. Environmental Protection and Laws. Himalaya Pub. House, Delhi.
13. Mckinney, M.L. & School, R.M. 1996. Environmental Science systems & Solutions, Web enhanced edition.
14. Mhaskar A.K., Matter Hazardous, Techno-Science Publication (TB)
15. Miller T.G. Jr. Environmental Science, Wadsworth Publishing Co. (TB)
16. Odum, E.P. 1971. Fundamentals of Ecology. W.B. Saunders Co. USA.
17. Rao M N. & Datta, A.K. 1987. Waste Water treatment. Oxford & IBH Pubi. Co. Pvt. Ltd.
18. Sharma B.K., 2001. Environmental Chemistry. Geol Pubi. House, Meerut
19. Survey of the Environment, The Hindu (M)
20. Townsend C., Harper J, and Michael Begon, Essentials of Ecology, Blackwell Science (TB)

21. Trivedi R.K., Handbook of Environmental Laws, Rules Guidelines, Compliances and Standards, Vol I and II, Enviro Media (R)
22. Wanger K.D., 1998 Environmental Management. W.B. Saunders Co.Philadelphia, USA

(M) Magazine (R) Reference (TB) Textbook

SEMESTER – IV **COURSE CODE: U16VE**

PART – IV: VALUE EDUCATION

HOURS: 1 **CREDITS: 2**

UNIT I:

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 II:

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 III:

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 IV:

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 V:

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.

TEXTBOOKS

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 (for All Units)

SEMESTER – V **COURSE CODE: U16SS**

PART – IV: SOFT SKILLS

HOURS: 2 **CREDITS: 2**

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

1. 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)
2. 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

1. Developing the leader within you John C Maxwell
2. Good to Great by Jim Collins
3. The Seven habits of highly effective people Stephen Covey
4. Emotional Intelligence Daniel Goleman
5. You can Win Shive Khera

Principle centred leadership Stephen Covey

SEMESTER – VI **COURSE CODE: U16GS**

PART – V: GENDER STUDIES

HOURS: 1 **CREDITS: 1**

UNIT I:

Concepts of Gender: Sex-Gender-Biological Detertninism- 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 Xl 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 - Polities Law Domestic Violence — Sexual Harassment — State Policies and Planning

UNIT IV:

Women Development and Gender Empowerment: Initiatives International Women's Dcca4e - 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 ofSexual 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.

TEXTBOOKS

1. Bhasin Kamala, Understanding Gender: Gender Basics, New Delhi: Women Unlimited 2004
2. Bhasin Kamala, Exploring Masculinity: Gender Basics, New Delhi: Women Unlimited, 2004
3. Bhasin Kamala, What is Patriarchy? : Gender Basics, New Delhi: Women Unlimited, 1993
4. Pernau Margrit Ahmad Imtiaz, Reifeld Hermut (ed.,) Family and Gender: Changing Values in Germany and India, New Delhi: Sage Publications, 2003
5. Agarwal Bina, Humphries Jane and Robeyns Ingrid (ed.,)
6. Capabilities, Freedom, and Equality: Amartya Sen's Work from a Gender Perspective, New Delhi: Oxford University Press, 2006
7. Rajadurai.S.V, Geetha.V, Themes in Caste Gender and Religion, Tiruchirappalli: Bharathidasan University, 2007 Misra Geetanjali, Chandiramani Radhika (ed.,)
8. Sexuality, Gender and Rights: Exploring Theory and Practice in South and Southeast Asia, New Delhi: Sage Publication, 2005 Rao Anupama (ed.,)

9. Gender &Caste: Issues in Contemporary Indian Feminism, New Delhi: Kali for Women, 2003
10. Saha Chandana, Gender Equity and Gender Equality: Study of Girl Child in Rajasthan, Jaipur: Rawat Publications, 2003
11. Krishna Sumi,(ed.,) Livelihood and Gender Equity in Community Resource Management New Delhi: Sage Publication, 2004
12. Wharton .S Amy, The Sociology of Gender: An Introduction to Theory and Research, USA: Blackwell Publishing, 2005.
13. Mohanty Manoranjan (ed.,) Class, Caste, Gender: Readings in Indian Government and Politics- 5, New Delhi: Sage Publications, 2004.
14. Arya Sadhna, Women, Gender Equality and the State, New Delhi: Deep & Deep Publications, 2000.