NATIONAL COLLEGE (AUTONOMOUS), TIRUCHIRAPALLI – 1
B.Sc. (PHYSICS) –SCHEME AND SYLLABUS – CBCS SYSTEM
(Applicable to the candidates admitted from the academic year 2016-2017 onwards)

Aim	
Objective	➢ Introduce students to most major areas of physics at levels commensurate with their current knowledge and understanding, by the provision of a broad range of courses
Eligibility for Admission	

Semester	Part	Course Title	Title	Instr. Hours/ week	Credit	Exam Hours	Marks			Total
							Int	Ext		
								Oral	W	
I	I	Language Course–I (LC - I)	Tamil-I/Hindi-I/Sanskrit-I U16T1, U16H1, U16S1	6	3	3	25		75	100
	II	English Language Course–I (ELC-I)	English-I U16E1	6	3	3	25		75	100
	III	Core Course – I (CC-I)	Properties of Matter and Acoustics U16CC1	5	5	3	25		75	100
		Core Course – II (CC-II)	Physics Major Practical –I U16CC2	3	-	-	-		-	-
		First Allied Course–I (1AC-I)	Allied Mathematics I (U16IAC1)	5	3	3	25		75	100
		First Allied Course – II (1AC-II)	Allied Mathematics II (U161AC2)	3	-	-	-		-	-
	IV	Environmental Studies	Environmental Studies (U16ES)	2	2	3	25		75	100
		Total	**Papers:7**	**30**	**16**					**500**
II	I	Language Course–I (LC -I I)	Tamil-II/Hindi-II/Sanskrit-II U16T1, U16H1, U16S1	6	3	3	25		75	100
	II	English Language Course – II (ELC-II)	English-II U16E2	4	2	3	25		75	100
		Communicative English –I (CEC-I)	Communicative English –I U16CE1	2	1	3	25	5	70	100
	III	Core Course – II (CC-II)	Physics Major Practical –I U16CC2	3	6	3	25	5	70	100
		Core Course – III (CC-III)	Mechanics U16CC3	5	5	3	25		75	100
		First Allied Course – II (1AC-II)	Allied Mathematics II (U16IAC2)	3	3	3	25	5	70	100
		First Allied Course – III (1AC-III)	Allied Mathematics III (U16IAC3)	5	3	3	25		75	100
	IV	Skill Based Elective-I (SBE-I)	Office Automation U16SBE:1	2	2	3	25		75	100
		Total	**Papers: 8**	**30**	**25**					**800**

III	I	Language Course – III (LC-III)	Tamil-III/Hindi-III/Sanskrit-III U16T3, U16H3, U16S3	6	3	3	25		75	100
	II	English Language Course–IV (ELC-IV)	English-III U16E3	6	3	3	25		75	100
	III	Core Course – IV (CC-IV)	Thermal Physics U16CC4	4	4	3	25		75	100
		Core Course – V (CC-V)	Major Practicals-II U16CC5	3	-	-	-			-
		Second Allied Course–I (2AC-I)	Allied Chemistry I (U162AC1	4	3	3	25		75	100
		Second Allied Course – II (2AC-II)	Allied Chemistry Practical U162AC2	3	-	-	-			-
	IV	Skill Based Elective Course II – (SBEC-II)	Desk Top Publishing U16SBE:2	2	2	3	25		75	100
		Skill Based Elective Course III – (SBEC-III)	Office Automation & Desk Top Publishing Lab U16SBE:3P	2	2	3	25		75	100
		Total	**Papers: 8**	**30**	**17**					**600**
IV	I	Language Course – IV (LC-IV)	Tamil-IV/Hindi-IV/Sanskrit-IV U16T4, U16H4, U16S4	6	3	3	25		75	100
	II	English Language Course–IV(ELC-IV)	English-IV U16E4	4	2	3	25		75	100
		Communicative English – V (ELC-V)	Communicative English –II U16CE2	2	1	3	25	5	70	100
	III	Core Course – V (CC-V)	Major Practicals-II U16CC5	3	5	3	25		75	100
		Core Course – VI (CC-VI)	Basic Electronics U16CC6	4	4	3	25		75	100
		Second Allied Course – II (2AC-II)	Allied Chemistry Practical U162AC2	3	3	3	25	5	70	100
		Second Allied Course – III (2AC-III)	Allied Chemistry II U162AC3	5	3	3	25		75	100
	IV	Non Major Elective Course–I (NMEC-I)	U16NME:1	2	2	3	25		75	100
		Value Education Course – VEC	Value Education U16VE	1	2	3	25		75	100
		Total	**Papers: 9**	**30**	**25**					**900**
V	III	Core Course – VII (CC-VII)	Optics U16CC7	5	5	3	25		75	100
		Core Course – VIII (CC-VIII)	Electricity, Magnetism and Electromagnetism U16CC8	5	5	3	25		75	100
		Elective Course – I (EC-I)	Digital Electronics and Microprocessor U16CC9E	5	4	3	25		75	100
		Elective Course–II (EC-II)	Computer Programming – C Language U16CC10E	5	4	3	25		75	100
		Core Course – IX (CC-IX)	Major Practical – III U16CC11	3	-	-	-		-	-
		Core Course – X (CC-X)	Major Practical – IV U16CC12	3	-	-	-		-	-
	IV	Non Major Elective Course –II (NMEC-II)	U16NME:II	2	2	3	25		75	100
		Soft Skills	U16SS	2	2	3	25		75	100
		Total	**Papers: 8**	**30**	**22**					**600**

VI	III	Core Course – IX (CC-IX)	Major Practical – III U16CC11	3	5	3	25		75	100
		Core Course – X (CC-X)	Major Practical – IV **U16CC12**	3	6	3	25		75	100
		Core Course – XI (CC-XI)	Atomic and Nuclear Physics U16CC13	6	6	3	25		75	100
		Core Course – XII (CC-XII)	Elements of Theoretical Physics U16CC14	6	6	3	25		75	100
		Core Course – XIII (CC-XIII)	Solid State and Materials Science U16CC15	6	6	3	25		75	100
		Elective Course– III (EC-III)	Opto Electronics and Fiber Optic Communication U16CC16E	5	4	3	25		75	100
		Gender Studies	U16GS	1	1	3	25		75	100
		Extension Activities	EA	--	1	--	--	--	--	--
		Total	**Papers: 8**	**30**	**35**					**700**
			Total	**180**	**140**					**4100**

There will be oral test for all practical examinations and Communicative English Course. The oral test will carry 5 marks in the external component.

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

jhs: nkho;gghlk - 1 nraAs (,ffhyk)> ciueil> r;Wfij> ,yff;atuyhW U16T1

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

myF 1: ghuj;ahu - gukngh Us thojJ
ghuj;jhrd - eqfNs nrhyYqfs
ft;kz; - Nfht;y to;ghL
glLfNfhlilahu - xz zha;Uff Zk mz zhrr;
ehkffyyhu - Rjej;uk ahJ?

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

myF 3: ciueil:

1. gukgiufFzk - c.Nt.rh
2. fyt; - ahogghzk nghddkgygg;sis
3. ,yff;aKk r%fKk - v].itahGu;gg;sis
4. fiyAk fwgidAk - uh.g;.NrJgg;sis
5. Fws fhlLk new; - f;.M.ng.t;Rtehjk
6. ,awiff fhlr;fs - f;.th.[feehjd
7. rka ,yff;aqfs;y mwnew; - FdwfFb mbfshu

myF 4: r;Wfij:

1. jeijAk kfDk - fyf;
2. flTSk fejrhk;gg;sisAk - GJikgg;jjd
3. ej;gj; tffyhdhu - mzzhJiu
4. Kjyg;by - e.g;rr%ujj;
5. fhf;j cwT - R.rKjj;uk
6. kNdhghtk - tyy;fzzd
7. kd;jaej;uk - t;ejd
8. grirffdT - yh.r. uhkhk;ujk

myF 5: tyy;dk k;Fk ,lqfs> tyy;dk k;fh ,lqfs
,yff;a tuyhW (trdft;ij> GJfft;ij> ciueil> r;Wfij klLk)

ghlE}y: jk;o - KjwgUtk - Njr;affyY}u; nts;aL
,yff;atuyhW - Njr;affyY}u; nts;aL

jkpohaTjJiw› Njrpaffy Y}up (jddhlrp)› jpUrrpuhggsspfs – 1.

,uzlhk gUtk

jhs: nkhopgghlk - 2 nraAs (gfjp mw ,yffpaqfs)› Gjpdk› ,yffpa tuyhW.

U16T2

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

myF 1: jpUQhdrkgeju - jpUthidffh gjpfk - kioahu kplwhkO thSilaha..
jpUehTffuru - tplk jujj gjpfk - xdW nfhyhk mtu rpeijAautiu
ngupahothu - jpUtuqfk ghRuk 2 - kutbiaj jkgpfF
FyNrfuu - tpjJtf NfhlL mkkhid Ntzb epwwy - jUJauk....10

myF 2: tssyhu - jpUtUlgh - ngwhgNgW - Mth vdwid MlnfhzlUspf..10
jhAkhdtu - gdkhiy - gdkhiy jpuspUff...9
,NaRfhtpak - ctik topnrajp - flNyhuk xUehs VR epdwhu..
FzqFb k]jhd - epuhkaffzzp – 1-25 fzzpfs

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›fpwpjJtk› Kfkjpak kwWk Gjpdk gwwpad klLk)

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

jkohaTjJiw› Njraffy Y}u (jddhlr)› jUrruhggss – 1.

%dwhk gUtk

jhs: nkhoggh lk - 3 nraAs (fhggak)› ehlfk› ,yffatuyhW

U16T3

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

myF 1: ryggjfhuk - euggil fhij
kzNkfiy - ghjjuk ngww fhij

myF 2: fkguhkhazk - Ajj fhzlk - ,ejurjJ tijgglyk
nguaGuhzk - fz zgg ehadhu Guhzk

myF 3: Njkghtz - tsd rdjj glyk
rwhgGuhzk - khDfFg giz edw glyk
ghQrhy rgjk - #jhllr rUffk

myF 4: ehlfk: xjjif – m. ,uhkrhk (vdrgvr. ntsaL)

myF 5: ,yffa tuyhW (fhggak› Guhzk› ehlfk gwwad klLk)

ghlE}y: jko - %dwhkgUtk - Njraffy Y}u ntsaL.
xjjif – m. ,uhkrhk (vdrgvr. ntsaL)
,yffatuyhW - Njraffy Y}u ntsaL.

jkohaTjJiw› Njrhaffy Y}uh (jddhlrh)› jhUrrhuhggsshs – 1. ehdfhk gUtk

jhs: nkhohgghlk - 4 nraAs (gzila ,yffhak› ,yffhatuyhW› nkhohngaugG)

U16T4

fwghfFk fhyk: 6 kzh **jugGsshfs: 3**

myF 1:

ewwhiz: 1. Ntu ghzh ntjhujJ – ghiy - ,sqfudhu
2. rhyUk gyUk filffz - neajy - cNyhrrdhu
3. muhfhy khwha mk fz - kUjk khisffhohdeyNtlldhu
4. ,iy ,y ghltk-Kyiy - thofflNgijg ngUqfz zdhu
5. Gjytd <dw Gqfz - FwhQrh

FWenjhif :1. nfhqF Nju thofif - FwhQrh - ,iwadhu
2. ,bfFq Nfshu - FwhQrh - ntsshtjhahu
3. ahuzqFwwid flNy - neajy - mk%tdhu
4. khuh ahkgydd - neajy - Fdwhadhu
5. ckzu NrueJ fohej kUqfhd - ghiy - ngUqfLqNfh
6. Mlik GiuAk - ghiy - XNuUotdhu
7. Kshjahu ghirej - Kyiy - $lY}u fhohu
8. ,sik ghuhu - Kyiy - xf$u khrhjjhahu
9. Ntkghd igqfha - kUjk - khisffejdhu

myF 2:

mfehD}W: 1. gidjjhus mdd - FwhQrh - guzu
2. girgL grir - Kyiy - kJiu kssdhu
3. ,kik cyfjJ ,irnahLk - kUjk - nryY}ufNfhrhfd
4. jhiucoeJ mir,a - neajy - cNyhrrdhu
5. mshehiy nghwhmJ mkuha – ghiy - ngUqfLqNfh

fyhjnjhif: 1. RlujnjhB, Nfsha - FwhQrh
2. fhu Mug ngaj fb nfhs - Kyiy
3. tqF eu mthoeyk gfutu - kUjk
4. khkyu Kzlfk - neajy
5. muhjha mwndajh - ghiy

myF 3:

GwehD}W : 1. xUehl nryyyk - ghlhz - xsitahu
2. gilgGggy giljJ - nghJthay - mwhTilekgh
3. ,isNahu #lhu - nghJthay - Fltha hy fujjdhu
4. gyrhdwNu - nghJthay - euhnt&cj jiyahu
5. fhaney mWjJfftsq nfhshNd - ghlhz - ghrhuheijahu

jhUfFws: 1. mwd tyhAWjjy› 2.gzGilik› 3. xOffKilik›
4. thaik› 5. Co› 6.nrhytdik

myF 4: KyiyghlL KOikAk

myF 5: ,yffhatuyhW (gjhndz Nkwfz fF› foffz fF)› nkhohngaugG› nghJfflLiu

ghlE}y: 1. jkho - ehdfhkgUtk - Njrhaffy Y}uh ntshaL.
2. ,yffhatuyhW - Njrhaffy Y}uh ntshaL.

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:

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

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)

1. Summary of Modern Poetry
2. Summary of Medieval Poetry
3. Summary of Medieval Poetry
4. Dialogue Writing
5. 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)

1. From General Essay
2. From General Essay
3. From Letter Writing
4. From Letter writing
5. 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

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
शलादुका-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

४

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
५। अनुवाद-अभ्यासः	पाठ्य-पुस्तके दत्तानां पदानां परिचयः 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, ४००००७

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। तॄ (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

CORE COURSE – I PROPERTIES OF MATTER AND ACOUSTICS - U16PH1

Semester – I **Core Course : I**
Instruction hours/week: 5 **Credit : 5**

Objectives:

- *To study the basics of elasticity and its importance.*
- *To study concepts of bending of beams and its applications.*
- *To study the concepts of viscosity and surface tension.*
- *To study and understand some acoustical phenomena.*

Unit I: ELASTICITY

Hooke's law - Modulus of elasticity- Poisson's ratio- Work done in a strain- Relation between elastic constants and Poisson's ratio-Energy stored- Twisting couple on a cylinder- Torsional pendulum (with and without weights)- Determination of rigidity modulus and moment of inertia - q, η and σ by Searle's method.

Unit II: BENDING OF BEAMS

Bending moment- Cantilever- Depression for loaded end of a cantilever-Experiment to find the Young's modulus by cantilever depression method-Oscillations of a cantilever- Measurement of Young's modulus- Non-uniform bending (Pin and microscope method)- Uniform bending(mirror and telescope method)- Non-uniform and uniform bending of a beam-Koenig's method.

UNIT III: VISCOSITY

Newton's law- Coefficient of viscosity-Streamline flow and turbulent flow-Expression for critical velocity-Significance of Reynolds's number-Poiseuille's formula-Correction to Poiseuille's formula- Viscosity of gases- Meyer's formula-Rankine's method for determination of coefficient of viscosity of a gas.

UNIT IV: SURFACE TENSION

Molecular forces-Excess pressure inside a curved liquid surface-Experimental determination of Surface Tension by Jaegar's method- Quincke's drop- Vapour pressure over flat and curved surfaces- Drop weight for determining the surface tension of a liquid- Experiment to determine interfacial tension between water and liquid.

UNIT V: ACOUSTICS

Reverberation- Reverberation time-Sabine's formula for Reverberation time-Absorption coefficient and its measurement-Factors affecting the architectural acoustics and their remedy-Sound distribution in auditorium-Requisites for good acoustics- Noise and its measurement- Noise reduction sound insulation- Ultrasonics -production of ultrasonics (Piezoelectric Oscillator method)- Detection of ultrasonic waves- Applications of ultrasonics.

BOOKS FOR STUDY:

1. R.Murugeshan, Properties of Matter, S.Chand & Co, New Delhi(2008) (Unit I to Unit IV)
2. Brijlal, N.Subrahmanyam, Text book of Sound, Vikas Publishing Co, New Delhi-1983 (Unit V only)

Unit	Book	Sections
I	1	1.1, 1.2, 1.5, 1.7, 1.9, 1.13.
II	1	1.14, 1.15, 1.16, 1.17, 1.18, 1.21.
III	1	2.1, 2.2, 2.3, 2.4, 2.13, 2.14
IV	1	3.1, 3.2, 3.9, 3.11, 3.12, 3.17, 3.18.
V	2	10.14 to 10.17, 10.19 to10.24.3, 10.25, 10.27.

BOOKS FOR REFERENCE:

1. Brijlal and N.Subrahmanyam, Properties of Matter, S.Chand and Co. Ltd. New Delhi (1999).
2. Subramania Iyer, Jeyaraman and Rangarajan, Properties of Matter – S.Chand Publications New york-1978.

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Core Course: II - U16PH2P
Physics Major Practical –I

Semester: I and II **Core Course : II**
Instruction Hours/Week: 3 and 3 **Credit : 6**

(At the end of the second semester - Any Fifteen experiments.)

Physics Major Practical –I

1. Non-uniform bending – Pin and microscope method.
2. Uniform bending – Optic lever method.
3. Sonometer – Verification of laws of transverse vibrations.
4. Specific heat capacity of a liquid – Newton's law of cooling method.
5. Meter bridge – Specific resistance of a material of a wire.
6. Compound pendulum – Determination of acceleration due to gravity (g) and radius of gyration
7. Sonometer- Determination of A.C frequency.
8. Potentiometer-Internal resistance of a cell.
9. Thermal conductivity of a bad conductor – Lee's disc.
10. Long focus convex lens – Determination of focal length (f).
11. Long focus concave lens – Determination of focal length (f).
12. Newton's rings-Determination of radius of curvature of a convex lens(R).
13. Spectrometer – Determination of refractive index (μ) of solid prism.
14. Air wedge – Thickness of insulation of a wire.
15. P.O.Box – Determination of temperature coefficient of a wire.
16. Surface tension and interfacial tension-by drop weight method.
17. To study the variation of thermo emf across two junctions of a thermocouple with temperature.
18. To study the characteristics of junction diode.

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Core Course - III MECHANICS - U16PH3

Semester - II **Core Course : III**
Instruction hours/week: 5 **Credit : 5**

Objectives:

- *To study concepts of projectile, impulse, impact and friction.*
- *To understand the dynamics of rigid bodies.*
- *To have ideas regarding gravitation and centre of gravity.*
- *To study and understand centre of pressure and Bernouli's theorem*
- *To learn the basic concepts of statistical mechanics.*

UNIT I: PROJECTILE, IMPULSE, IMPACT AND FRICTION

Projectile – Range on an inclined plane – Impulse – Impact – Impulsive force–Collision-Coefficient of restitution- Direct impact of a smooth sphere on a smooth horizontal plane-Loss in kinetic energy due to direct impact- Oblique impact of two smooth spheres.
Friction- Laws of friction-Angle of friction.

UNIT II: DYNAMICS OF RIGID BODIES

Moment of Inertia-K.E of a rigid body-Angular momentum of a rotating body-Compound Pendulum- Centre of suspension and centre of oscillation- Centre of percussion-Kater's pendulum-Bessel's Modification-Torsion pendulum-Parallel and perpendicular axis theorem-Calculation of M.I for -Rectangular lamina about an axis perpendicular to its plane -Uniform circular disc – Sphere about a diameter.

UNIT III: GRAVITATION AND CENTRE OF GRAVITY

Gravitation potential and gravitational field due to spherical shell- Boy's method of determination of G-Centre of gravity-C.G of a right circular cone- C.G of a solid hemisphere- C.G of a hollow hemisphere- C.G of a solid tetrahedron.

UNIT IV: HYDROSTATICS AND HYDRODYNAMICS

Centre of Pressure: Definition – CP general case- CP of a rectangular lamina vertically in a liquid with one edge in the surface of the liquid- CP of triangular lamina immersed in a liquid with its vertex in the surface and base horizontal- Laws of floatation-Experimental determination of the metacentric height of a ship.

Hydrodynamics: Equation of continuity of flow- Energy of the liquid-Euler's equation for unidirectional flow -Bernouli's theorem -Torricelli's theorem-Venturimeter -Pitot tube.

UNIT V: Statistical Mechanics

Introduction-Phase space- Maxwell- Boltzmann distribution law- molecular energies in an ideal gas Ensembles- Degenerate and nondegenerate ensembles- Probability- Thermodynamic probability-Boltzmann's theorem on entropy and probability- Fundamental postulates of statistical mechanics-Quantum statistics- Electron gas

BOOKS FOR STUDY

1. R.Murugeshan, Mechanics and Mathematical Methods, S.Chand and New Delhi(2008) (for Units I, III, IV, V)
2. M.Narayanamurti, Dynamics, The National Publishing Company,(1994 and 1996) (for Unit- II)
3. M.Narayanamurti, N.Nagaratnam ,Statics, Hydrostatics and Hydrodynamics, National Publisher (for friction topics only on Unit I)
4. R. Murugesan, Kiruthiga Sivaprasath, Modern Physics, S. Chand and New Delhi (2007) (for Unit – V)

Unit	Book	Sections
I	1	2.1, 1.1, 1.2, 2.4
I	2	5.6, 5.5
II	2	9.2 to 9.4, 9.20 to 9.25, 9.21
III	1	3.1, 3.2 to 3.6
IV	1	4.3 to 4.7, 5.3, 5.4
V	4	75.1, 75.2, 75.3 75.4, 76.2, 76.10, 76.3, 76.4, 76.5, 76.6, 76.8, 76.9

BOOKS FOR REFERENCE

1. D.S.Mathur, Mechanics –S Chand and Co., Delhi (2007).
2. Gupta, Kumar and Sharma, Classical Mechanics, Pragati Prakashan Publication, Meerut-1996.

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Core Course - IV THERMAL PHYSICS - U16PH4

Semester- III **Core Course : IV**
Instruction hrs. /week : 4 **Credit : 4**

Objectives:

- *To study the fundamental laws of thermodynamics and concept of entropy.*
- *To brief out the ideas of low temperature physics, radiation laws.*
- *To outline the concept of specific heat and superconductivity.*

UNIT I: THERMODYNAMICS

Zeroth law of thermodynamics – Concept of heat- Internal energy - First law of thermodynamics – Reversible and irreversible process–Carnot's reversible engine - Carnot's engine and refrigerator –- Mean free path – Viscosity of gases – Thermal conductivity of gases – Transport of thermal energy – Self diffusion.

UNIT II: ENTROPY

Second law of thermodynamics - Concept of entropy –Change of entropy in reversible and irreversible processes – Temperature – Entropy diagram (T.S.) – Entropy of a perfect gas - Principle of increase of entropy – Third law of thermodynamics - Zero point energy-Negative temperature –Maxwell's thermo dynamical relations.

UNIT III: LOW TEMPERATURE

Joule – Thomson effect - Porous plug experiment–Theory of porous plug- Liquefaction of gases – Liquefaction of Helium-Helium I and II- Adiabatic demagnetization –Refrigeration cycle-Electrolux refrigerator –Air conditioning system-Equipments used-Classification-Summer- Air conditioning system.

UNIT IV: RADIATION

Stefan's law and its derivation- Derivation of Newton's law from Stefan's law-Stefan's constant by laboratory method- Black body radiation – Distribution of energy in black body spectrum – Planck's law –Rayleigh Jean's law – Pyrometry – Angstrom's pyroheliometer - Solar constant Temperature of the sun – Some everyday applications of solar energy

UNIT V: SPECIFIC HEAT AND BASIC IDEAS ON SUPER CONDUCTIVITY

Specific heat of solids – Dulong and Petit's law – Einstein's theory of Specific heat – Debye's theory of specific heat -Calorific value of fuels-Bomb calorimeter-Bell calorimeter- Ideas on super conductivity – Critical field and critical temperature - High temperature ceramic superconductors.

BOOK FOR STUDY

1.Brijlal, N.Subrahmanyam and P.S.Hemne, Heat, Thermodynamics and Statistical Physics, S.Chand and Co., New Delhi, (2007).

Unit	Sections
I	4.2,4.3,4.6,4.7,4.20 to 4.24,4.26,3.2,3.5,3.8 to 3.12,3.16.
II	4.28, 5.1, 5.2, 5.4 to 5.9, 5.15, 5.16, 5.17, 6.3.
III	2.20, 2.21, 2.23, 7.6, 7.11 to 7.13, 7.16, 7.21, 17.2 to 17.6.
IV	8.20, 8.21, 8.23, 8.13-8.15, 8.17, 8.25- 8.28, 8.35.
V	14.15 to 14.20, 7.19, 7.20.

BOOKS FOR REFERENCE

1. J.B Rajam and C.L. Arora, Heat and Thermodynamics S Chand and Co., New Delhi (2004).

2. Sharma JK, Sarkar KK, Thermodynamics and Statistical Physics, Himalaya Publishing House (1991).

3. Roy. S.K, Thermal Physics and Statistical Mechanics, Wiley Eastern Publishers, New Delhi Ltd.(2000).

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Core Course – V MAJOR PRACTICALS-II - U16PH5P

SEMESTER: III & IV **Core Course : V**
Instruction hrs. /week: 3+3 hrs **Credit : 5**

(At the end of the FOURTH semester-Any Fifteen experiments)

1. Static torsion – determination of rigidity modulus (n).
2. Torsional pendulum- determination of rigidity modulus (n) and moment of inertia (I).
3. Coefficient of viscosity of highly viscous liquid
4. Stoke's method – Viscosity of highly viscous liquid
5. Characteristics of junction diode.
6. Emissive power of a surface – Spherical calorimeter
7. Joule's calorimeter – specific heat capacity of liquid (Barton's correction)
8. Carey Foster's bridge-determination of resistance(R) and specific resistance (ρ).
9. Potentiometer – ammeter calibration.
10. Potentiometer – temperature coefficient (α).
11. Potentiometer – calibration of low range voltmeter
12. Figure of merit – mirror galvanometer
13. Figure of merit – table galvanometer
14. Transistor characteristics – CE – configuration
15. Spectrometer – refractive index (μ) of a liquid
16. Spectrometer – i-d curve
17. CRO – study of wave forms – Lissajou's figures – frequency determination
18. Construction of full wave rectifier
19. Zener diode characteristics.

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Core Course - VI BASIC ELECTRONICS - U16PH6

Semester- IV **Core Course : VI**
Instruction hrs. /week : 4 hrs **Credit : 4**

Objectives:

- *To bring out the ideas of semiconductors and diodes*
- *To highlight the ideas of transistors, oscillators and amplifiers.*
- *To Study the ideas of operational amplifiers.*

UNIT I: SEMICONDUCTORS AND DIODES

Intrinsic and extrinsic semiconductor-V-I characteristics of P-N junction diode-Resistance of a crystal diode-Half wave rectifier – Full wave rectifier - Zener diode characteristics-Zener diode as a voltage stabiliser.

UNIT II: TRANSISTORS

Transistor terminals-Transistor action-Transistor as amplifier-characteristic curves of transistor-CB, CE and CC mode-Comparison of transistor connections-Load line-operating point-Feedback resistor-Voltage divider method of transistor biasing.

UNIT III: AMPLIFIERS AND OSCILLATORS

Single stage CE amplifier-RC coupled transistor amplifier-Power amplifier-Classification of power amplifier-Negative voltage feedback amplifier-Essentials of transistor oscillator-Barkhausen criterion-types of transistor oscillators-Tuned collector-Hartley and Wein bridge oscillator.

UNIT IV: SPECIAL SEMICONDUCTOR DEVICES

JFET-Working and characteristics - Difference between JFET and Bipolar transistor-JFET parameters- Working and V-I characteristics of SCR, UJT and UJT as relaxation oscillator.

UNIT V: OPERATIONAL AMPLIFIERS

Symbol of Op-Amp-parameters of Op-Amp-CMRR-Slew rate-Inverting amplifier-Non inverting amplifier-Applications: Inverting adder and Non-inverting adder- Subtractor- Integrator-Differentiator.

BOOK FOR STUDY:

1. V.K.Metha, Rohit Metha, Principles of Electronics, S.Chand and company Ltd (2011 Multi Colour Edition).

Unit	Sections
I	5.8, 5.9, 5.18, 6.3, 6.8, 6.10, 6.13, 6.15, 6.25, 6.27
II	8.1,8.2,8.4,8.6,8.8 to 8.10,8.12 to 8.14,8.17,8.18,9.11,9.12.
III	10.1, 10.3, 11.5, 12.5, 12.6, 13.1, 13.2, 14.6 to14.11, 14.14
IV	19.2 to19.4,19.6,19.8,19.10,20.1,20.2,20.5,21.11,21.13,21.15.
V	25.1,25.8,25.9,25.11,25.12,25.16,25.20,25.24 to 25.26,25.32,25.34,25.35

BOOKS FOR REFERENCE:

1. B.L.Theraja, Basic Electronics Solid State, S.Chand and Company Ltd. (2005).
2. R.S.Sedha, A textbook of Applied Electronics, S.Chand and company Ltd. (2009).
3. Subramanyam.A, Applied Electronics- -National Publishing company (1999).
4. Garg, Rakesh Kumar-Basic Electronics, New Delhi (2009).
5. Muthu Subramanian. R-Basic Electronics Engineering-TMH, New Delhi, 2000.

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Core Course- VII – OPTICS - U16PH7

Semester: V **Core Course : VII**
Instruction hrs. /week: 5 **Credit : 5**

Objectives:

- *To introduce the optical concepts like interference, diffraction*
- *To highlight the various applications of geometric optics and some idea about resolving power.*

UNIT I: ABERRATIONS

Aberration-Spherical aberration in a lens-Reducing spherical aberration- Curvature of the field - distortion- Dispersion by a prism - Chromatic aberration - Achromatic lenses and condition for Achromatism when two lenses are in contact – Achromatism of a camera Lens.

UNIT II: INTERFERENCE

Colour of thin films-Air wedge-Testing the planeness of the surface- Theory of Newton's rings-Wavelength of monochromatic light using Newton's rings – Haidinger fringes-Michelson Interferometer working -Determination of wavelength and determination of neighboring wavelength using Michelson interferometer - Interference filter.

UNIT III: DIFFRACTION

Fresnel's diffraction – Diffraction at a (i) circular aperture (ii) Opaque circular disc (iii) Straight edge. Fraunhofer diffraction at a single slit –Double slit-missing orders in a doublet-Grating with theory –Oblique incidence – Overlapping of spectral lines-Absent spectra-Determination of wavelength using Grating.

UNIT IV: EYEPIECE AND RESOLVING POWER OF OPTICAL INSTRUMENTS

Field lens- Ramsden's eye piece - Huygen's eye piece and its cardinal points –Comparison between Hygen's and Ramsden Eyepiece. Resolving power – Rayleigh's criterion of resolution. Resolving power of a (i) telescope (ii) Prism (iii) Grating – Dispersive power of a Prism and grating.

UNIT V: POLARIZATION

Nicol prism – Nicol prism as an analyzer and polarizer – Huygens's explanation of Double refraction in uniaxial crystals- Quarter wave and half wave plate- Production and Detection of elliptical, circular and plane polarized light-Optical activity-Babinet's compensator- Fresnel's explanation of rotation -Specific rotation-–Laurent's half shade polarimeter.

BOOK FOR STUDY

1. Brijlal , N.Subrahmanyam, Optics, S.Chand and Co., New Delhi(2006).

Unit	Sections
I	8.1, 9.2, 9.5, 9.5.1, 9.10, 9.13, 9.16.
II	15.4, 15.5, 15.5.4, 15.6.1 to 15.6.7, 15.7.1 to15.7.7, 5.8.1, 15.8.2, 15.17, 23.1, 23.2.1, 23.2.2.
III	17.7 to17.10, 18.1, 18.2, 18.4, 18.4.2, 18.4.3, 18.7, 18.7.1 to 18.7.6
IV	10.10 to10.12, 18.7.7, 19.1, 19.2, 19.5 to19.8, 19.11, 19.12.
V	20.1, 20.6.1, 20.8.3, 20.9, 20.17.1, 20.17.2, 20.18 to 20.21,20.24.1 to 20.24.3, 20.25,20.26.

BOOKS FOR REFERENCE

1. Khanna and Gulati- Optics. R.Chand and Co. New Delhi.
2. Ajoy Chatak, Optics, Tata-Mc Graw-Hill Publications (2004).

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Core Course VIII - ELECTRICITY, MAGNETISM AND ELECTROMAGNETISM - U16PH8

Semester: V **Core Course : VIII**
Instruction hrs. /week :5 **Credit : 5**

Objectives:

- *To learn the fundamental ideas of electrostatics and current electricity.*
- *To bring out the basic ideas of electromagnetic induction, AC Circuits and magnetism.*

UNIT I: ELECTROSTATICS

Coulomb's inverse square law- Gauss theorem and its applications- Electric field due to uniformly charged sphere-Electric field due to uniform cylindrical charge-Electric field due to infinite plane sheet of charge-Coulomb's theorem-Deduction of Coulomb's law of Gauss law-Principle of a capacitor – Capacity of a spherical and cylindrical capacitors – Energy stored in a capacitor – Loss of energy due to sharing of charge.

UNIT II: CURRENT ELECTRICITY

Kirchoff's law- Wheatstone condition for bridge balance – Carey Foster's Bridge –Potentiometer principle- Calibration of ammeter and voltmeter- Seebeck effect- Law of thermo emf- Measurement of thermo emf using potentiometer-– Theory of moving coil ballistic galvanometer- Correction for: Damping–Figure of merit.

UNIT III: MAGNETISM AND MAGNETIC EFFECT

Basic definitions - Susceptibility –Properties of para, dia and ferro magnetic materials–Experiment to draw B-H curve by ballistic method–Energy loss due to hysterisis-Importance of hysterisis – Maxwell's screw rule-Fleming's left hand rule-Biot-Savart Law-Magnetic induction at a point due to a straight conductor- Magnetic induction at a point on the axis of circular coil-Force on a current carrying conductor in a magnetic field-Force between two parallel current carrying conductors.

UNIT IV: ELECTROMAGNETIC INDUCTION

Faraday's Law– Self-inductance – Self-inductance of a long solenoid –Determination of self-inductance by Rayleigh's method- Mutual inductance- Mutual inductance between two co-axial solenoids –Experimental determination of mutual inductance- Coefficient of coupling –Growth decay of current in circuit containing L and R- Charging and discharging of capacitor through R-high resistance by leakage.

UNIT V: AC CIRCUITS

EMF induced in a coil-Peak value and rms value of an AC – AC circuit containing L, C and R in series– Q factor – Series and parallel resonance circuits-Comparison – Sharpness of resonance– Power in AC circuit containing L,C,R– Wattless current-Choke coil –Skin effect.

BOOKS FOR STUDY

1. R.Murugesan, Electricity and Magnetism, S.Chand and Co. (2008).

Unit	Sections
I	1.2,2.1,2.2,2.5,2.6,2.8,2.9,2.11,2.14,4.1 to 4.4,4.9,4.11.
II	6.6, 7.1, 7.2, 8.1, 8.2, 8.3, 10.11, 10.13.
III	15.1, 15.2, 15.4 to 15.8, 15.15 to 15.17, 10.2 to 10.4, 10.7, 10.8
IV	11.2 to 11.5, 11.7 to 11.10, 12.1 to 12.4.
V	13.1 to 13.6.

BOOKS FOR REFERENCE

1. Narayanamoorthy and Nagaratnam, Electricity and Magnetism National Publishing Comp. Chennai(2005).
2. Brijlal, N.Subrahmanyam – Electricity and Magnetism, Prakati Prakasam Publications, Meerut(2004).

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Elective Course –I DIGITAL ELECTRONICS AND MICROPROCESSOR - U16PH9E

Semester-V **Elective Course: I**

Instruction hrs. /week-5 **Credit : 4**

Objective:

- *To learn the basic ideas of combination and sequential circuits.*
- *To introduce the fundamental ideas about the number system, Boolean expressions and K map.*
- *To study the architecture of microprocessor 8085 and to write simple programs using it.*

UNIT I: NUMBER SYSTEMS AND LOGIC GATES

Introduction to decimal, binary, octal, hexadecimal number systems – Inter conversions –BCD code, Excess – 3 code, Gray code – One's and two's complements – Simple binary arithmetic operations – Addition, subtraction, multiplication and division – Binary subtraction using one's and two's complements – Positive and negative logic – Basic and derived logic gates, symbols and their truth tables – AND, OR, NOT, NAND, NOR, XOR, and XNOR – Universality of NAND and NOR gates.

UNIT II: BOOLEAN ALGEBRA AND SIMPLIFICATION OF LOGIC EXPRESSIONS

Boolean algebra – Basic laws of Boolean algebra – De-Morgan's theorems reducing Boolean expressions using Boolean laws – SOP and POS forms of expressions min terms and max terms – Karnaugh map simplification.

UNIT III: COMBINATIONAL DIGITAL SYSTEMS

Half and full Adders-Half and full subtractors-four bit adder-subtraction by 1's and 2's compliment using Adder-BCD adder-Multiplexer-Demultiplexer-Decoder-2 to 4 and 3 to 8 decoder-Encoder-Octal to binary encoder.

UNIT IV: SEQUENTIAL DIGITAL SYSTEMS

Flip flop – RS – clocked RS – T and D flip flops – JK and master slave flip flops – Shift registers – SISO and SIPO shift registers - Ring counter –Johnson's counter – Four bit asynchronous counter – Mod-2 and mod-4 counter –-Synchronous counter.

UNIT V: MICROPROCESSOR (8085)

Introduction to microprocessor – Basic components of a microcomputer –Memory – ROM – RAM – Architecture of 8085 – Address bus – Data bus – Control bus– Pin configuration – Registers Arithmetic and logic unit – Flags – Instruction format –Types of instructions – Addressing modes – Assembly language programming –Programmes for addition, 8-bit subtraction.

BOOKS FOR STUDY

1. V. Vijayendran , Digital Fundamentals, S.Viswanathan, Printers and Publishers Private Ltd, Chennai, 2004. (Unit I to Unit IV).
2. B.Ram, Fundamentals of Microprocessor and Microcomputers, Dhanpat Rai Publications, New Delhi, 2008. (For Unit V only).

Unit	Sections
I	Chapters 1,2,3,4.
II	Chapters 5, 6
III	Chapters 8, 9 (sections 9.1 to 9.4)9.1 to 9.4
IV	Chapters 10, 11(sections 11.1 to 11.5)
V	Chapters 3, 4, 6 (sections 6.3, 6.4, 6.21, 6.22)

BOOKS FOR REFERENCE

1. W.H.Gothmann ,Digital Electronics, Prentice Hall of India, Pvt, New Delhi 1996.
2. Anokh Singh, A.K.Chhabra, Fundamentals of Digital Electronics and Microprocessors, S.Chand and Co., New Delhi, 2003
3. A.P. Malvino, D.P.Leach, Digital Principles and Application, IV Edition, Tata Mc Graw Hill, New Delhi, 1968.
4. V.Vijayendran, Fundamentals of Microprocessor – 8085, S.Viswanathan, Printers and Publishers Private Ltd., Chennai, 2004.

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Elective Course - II COMPUTER PROGRAMMING – C LANGUAGE - U16PH10E

Semester-V **Elective Course: II**
Instruction hours/week: 5 **Credit : 4**

Objective:

- *To introduce and facilitate the students learn and understand computer languages and some C programming concepts*
- *To write some simple programs*
- *To impart some basic idea about flow-charting and algorithms.*

UNIT I

Introduction: Importance of C – Basic structure of C programs – Programming style-Character set, Keywords and Identifiers –Constants – Variables – Primary data types – Declarations of variables – Assigning values of variables.

Operators and expressions: Arithmetic, relational, logical, assignment, increment and decrement, conditional, bitwise, comma operators – Arithmetic expressions –Procedure and associatively.

UNIT II

Input Output Operator: getchar, putchar, formatted output (printf) and formatted input (scanf).

Control Structure: Decision making with if - if else–switch – go to – The break and Continue statements – while, do- while, for statements.

UNIT III

Arrays: One – dimensional and two dimensional arrays, declaring arrays– initializing arrays-multi dimensional arrays.

Functions: Basic functions – Return values and their types – calling a function – category of functions – Recursion.

UNIT IV

Structures and Union: Structure definition and initialization – Arrays of structures – Arrays within structures –Structures and functions – Unions.

Pointers: Declaration and initialization- Accessing a variable through its pointer-Pointer expressions- Pointers and arrays – pointer and character strings.

UNIT V

Develop of algorithm, flowchart and program for the following problem.

Average of a set of numbers- Conversion of Fahrenheit to Celsius - Solving quadratic equation - Finding the factorial using recursion - Add and subtract two matrices - Find the largest element in an array - Sorting a set of numbers in ascending order - Arrange the names in alphabetical order – Check word for palindrome (Palindrome check)

BOOK FOR STUDY

1. E.Balagurusamy, Programming in ANSI C– Tata Mc Graw Hill Publications (2004) - for units I to IV.
2. For Unit V material by the Department of Physics, National College, Tiruchirappalli.

Unit	Sections
I	1.1, 1.2, 1.4, 1.5, 2.1 to 2.9, 3.1 to 3.12.
II	4.1 to 4.5, 5.1 to 5.4, 5.7, 5.9, 6.1 to 6.4.
III	7.1 to 7.5, 9.4 to 9.10, 9.13.
IV	10.2, 10.3, 10.4, 10.6, 10.7, 10.9, 10.10, 11.1 to 11.6, 11.8, 11.9.
V	Manual

BOOKS FOR REFERENCE

1. Schaum's Outline Series Theory and Problems of Programming with C – Byron S.Gottifried, Tata Mc Graw Hill, Internationals,1998.
2. Venugopal K.R and Sudeep R.P, Programming with C, Tata Mc Graw Hill, Internationals,1998.

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Core Course IX - MAJOR PRACTICAL III - U16PH11P

Semester: V and VI **Core Course : IX**
Instruction hrs /week: 3+3 **Credit : 5**

(At the end of the SIXTH Semester- Any Fifteen experiments- choosing a minimum of 6 from each section)

SECTION – A- Analog Experiments

1. Koenig's method – Uniform bending – Young's modulus(y).
2. Spectrometer i-i$'$ curve.
3. Spectrometer – small angle prism.
4. Spectrometer – Grating – Normal incidence.
5. Spectrometer – Grating minimum deviation and dispersive power.
6. Spectrometer – Cauchy's constants.
7. Spectrometer – Fraunhofer lines.
8. Field along the axis of a coil – determination of magnetic moment (m).
9. M and H – Absolute determination using deflection and vibration magnetometer.
10. Potentiometer - High range voltmeter calibration
11. Potentiometer-determination of temperature coefficient of resistance (α).
12. B.G. – Figure of merit.
13. Anderson's bridge- determination of self inductance of the coil (L).
14. De-Sauty's bridge-comparison of two condensers.

SECTION – B Digital Experiments

1. Series and parallel resonance circuits (CRO can be used).
2. Regulated power supply using Zener, percentage of regulation.
3. Hartley oscillator using transistor.
4. Colpitt's oscillator using transistor.
5. FET characteristics.
6. Logic gates – AND, OR and NOT gates using discrete components – Truth table.
7. Study of logic gates using IC's.
8. Universal gates NAND/NOR and basic gates from universal gates.
9. Half adder and full adder using logic gates.
10. Half subtractor and full subtractor using logic gates.
11. Verification of De Morgan's theorems and Boolean algebra.
12. Adder and subtractor using Op – Amp.
13. Integrator using and differentiator using Op – Amp.
14. Study of flip flops.

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Core Course X - MAJOR PRACTICAL – IV- U16PH12P

Semester: V and VI **Core Course : X**
Instruction hrs /week: 3+3 **Credit : 5**

(At the end of the SIXTH Semester- Any Fifteen experiments- choosing a minimum of 6 from each section)

SECTION – A C Programming language.

1. Average of a set of numbers.
2. Conversion of Fahrenheit to Celsius.
3. Solving quadratic equation.
4. Finding the factorial using recursion.
5. Add and subtract two matrices.
6. Find the smallest and largest element in an array.
7. Sorting a set of numbers in ascending/ descending order.
8. Arrange the names in alphabetical order.
9. Multiplication of two 3x3 matrices.
10. Fibonacci Series.

Section – B – Microprocessor 8085.

1. 8-bit addition and 8-bit subtraction.
2. 8-bit multiplication and division.
3. Conversion from decimal to hexadecimal system.
4. Conversion from hexadecimal to decimal system.
5. 16-bit addition.
6. 1’s compliment and 2’s compliment subtraction.
7. Find the smallest number in a given array.
8. Find the largest number in a given array.
9. Find the square of a given number.
10. Find the sum of series of 8-bit numbers (sum 16-bit).

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Core Course - XI ATOMIC AND NUCLEAR PHYSICS

Semester-VI **Course Code : U16PH13**
Instruction hours/week: 6 **Credit : 6**

Objectives:

- *To study the fundamental ideas of cathode rays, atom models.*
- *To bring out the basic ideas of spectral lines, nucleons, and models.*

UNIT I CATHODE RAYS AND POSITIVE RAYS

Photoelectric effect - Cathode rays – Properties – e/m of cathode rays – Millikan's oil drop method – Positive rays – Properties – e/m of positive rays: Thomson's parabola method – Aston's Bain's bridge - Determination of critical potential – Franck and Hertz's experiment.

UNIT II VECTOR ATOM MODEL

Various quantum numbers, L-S and j-j Couplings – Pauli's exclusion principle electronic configuration of elements and periodic classification - Magnetic dipole moment of electron due to orbital and spin motion – Bohr magnetron- Stern and Gerlach experiment.

UNIT III FINE STRUCTURE OF SPECTRAL LINES

Special terms and notations – Selection rules- intensity rule and internal rule – Fine structure of sodium D lines – Hyperfine structure– Zeeman effect - Larmor's theorem Debye's quantum mechanical explanation of the normal Zeeman effect – Anamolous Zeeman –Paschen Back effect- Stark effect.

UNIT IV PROPERTIES OF NUCLEUI AND INSTRUMENTS

Review of basic properties of nuclei – Mass, radius, binding energy, nuclear moments –Isotopes – Isobars – Radioactivity-Cyclotron – Betatron Geiger Muller counter – Wilson cloud chamber – Q value of nuclear reaction – Discovery of neutron, positron.

UNIT V NUCLEAR MODELS AND ELEMENTARY PARTICLES

Nuclear fission – Nuclear fusion - Liquid drop model –Neutrons in fission process– Nuclear energy – Thermo nuclear reactions – Atom bomb. Shell model – Magic numbers– Basic ideas of a nuclear reactor - Hydrogen bomb.

Basic classification of subatomic particles – Photons, leptons – Meson – Baryons.

BOOK FOR STUDY

1. Murugheshan. R., Modern Physics, S.Chand & Co. (2006).

Unit	Chapter	Sections
I	5, 6	5.1- 5.4, 6.8, 6.10
II	6	6.12 - 6.20
III	6	6.22- 6.28
IV	27, 30, 29	27.1- 27.4, 30.1 30.5 30.6, 29.3 29.6 29.7 29.8
V	27,35,38	27.5,27.7,27.8,27.10,27.11,35.3,35.5-35.7,35.9,38.1

BOOKS FOR REFERENCE

1. Arthur Beiser, Concept of Modern Physics: Mc Graw Hill, Ed.VI (1999).
2. Brijlal , N.Subrahmanyam, Nuclear and Particle Physics, S.Chand & Co, New Delhi (2005).

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Core Course - XII ELEMENTS OF THEORETICAL PHYSICS

Semester: VI **Core Code : U16PH14**

Instruction hrs /week: 6 **Credit : 6**

Objectives:

- *To learn about the fundamentals of classical formalism*
- *To learn about introduction to quantum mechanics, fundamentals of relativity and astrophysics*

UNIT – I CLASSICAL MECHANICS

Cartesian co-ordinates – Principle of virtual work – Virtual force – Generalized Co-ordinates - Generalized momentum - Generalized kinetic – energy – D'Alembert's principle (D.A.P) – Lagrangian's equation of motion from D.A.P - Application

Hamilton's principle of Lagrangian formalism to (i) Atwood's machine (ii) Simple pendulum

Hamilton as total energy operator – Hamilton's variational principle.

UNIT – II WAVE MECHANICS

De Broglie concept of matter waves – De Broglie wavelength – Wave velocity and group velocity for the De Broglie waves – G.P. Thomon's experiment for verifying De Broglie relation – Photo electric effect – Einstein's photo electric equation.

UNIT – III SCHRODINGER'S EQUATION

Operator formalism – Total energy, momentum, kinetic and potential energy Operators – Eigen function and its properties - Derivation of Schrodinger's equation – Time Dependant and independent – Particle in a box

UNIT – IV RELATIVITY

Einstein's Mass-Energy relation – Galilean transformation equation - Lorentz transformation Equation – Einstein's postulates – Length contraction – Time dilation.

UNIT – V ASTROPHYSICS

Introduction-Classification of stars-The Harvard classification system- Hertzsprung – Russel diagram- Luminosity of a star- Stellar evolution- White Dwarfs- Electrons in a White Dwarf star-Chandrasekhar limit – Neutron stars-Black holes-Supernova explosion-Photon diffusion time-Gravitational potential energy of a star.

BOOKS FOR STUDY

1. Mechanics and Mathematical Physics – R. Murugesan – S. Chand publications , Edn.2008
2. Modern Physics – R. Murugesan and Kiruthiga Sivaprasath – S. Chand Publications – Multicolor edition – 2008.

UNIT	BOOK	CHAPTER/ SECTIONS
I	1	6.1 6.2 6.3 6.6 6.7 6.10
II	1	10.1 - 10.7
III	2	11.1 11.2 11.3 11.4
IV	2	11.8, 11.10
V	2	1.14, 1.4, 1.8, 1.7, 1.9

BOOK FOR REFERENCE

1.Modern Physics – Arthur Beiser – Tata Mc Graw Hill Publications(1998).

2.Astrophysics of the Solar System- K.D.Abhyankar, University Press (India) Private Limited (2012).

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Core Course XIII - SOLID STATE AND MATERIALS SCIENCE - U16PH15

Semester: VI **Core Course : XIII**
Instruction hrs /week: 6 **Credit : 6**

Objectives:

- *To study the basic idea of crystal structure, atomic bonding and imperfections.*
- *To make the students aware of the fact that with modern technology new materials are rapidly being developed and it is possible to change the properties of materials.*

UNIT 1 – CRYSTAL STRUCTURE, BONDING INSOLIDS AND CRYSTAL IMPERFECTIONS

Crystal periodicity - Unit cell - Symmetry elements - Point group – Bravais lattice in 2D and 3D – Miller indices – Inter planar spacing – X-ray diffraction – Bragg's law – Powder method diffractometer. Atomic bonding – Ionic bond – Bond dissociation energy – Cohesive energy – Madlung constant – Covalent bond – Metallic bond – Hydrogen bond – Van der Waals bond –Crystal imperfections: point, line and surface imperfections – Colour centres.

UNIT II – CONDUCTING AND DIELECTRIC MATERIALS

Interpretation of Ohm's law – Relaxation types and electrical conductivity – Wiedmann-Franz law – Dielectrics – Definitions - Types of electric polarization – Frequency and temperature - Effects of polarization – Dielectric losses – Local field - Clausius-Mosotti relation - Determination of dielectric constants - Schering bridge – Properties of insulating materials

UNIT III – MAGNETIC MATERIALS

Different types of magnetic materials - Classical theory of dia and para magnetism – Weiss theory of paramagnetism - Molecular field theory of ferro magnetism – Domain theory of ferromagnetism – Hard and soft magnetic materials.

UNIT IV – NEW MATERIALS

Metallic glasses – Fiber reinforced plastics - Fiber reinforced metals – Bio materials – Ceramics – Cermets – High temperatures materials - Nano phase materials - Intermetallic compounds – Shape memory alloys - SMART materials.

UNIT V – SUPERCONDUCTORS

Introduction- Meissner effect – Super currents penetration depth – London equation – Type I and Type II super conductors – Josephson effects and tunneling – BCS theory – High temperature ceramic superconductors –Applications.

BOOKS FOR STUDY

1. M.Arumugam - Material Science – Anuradha publications – 2008
2. S.O. Pillai – Solid State Physics – New Age International Publications – 2009

Unit	Book	Sections
I	1	1.2, 1.3, 1.6-1.13, 8.6, 8.16
II	1	2.2-2.5, 2.8-2.11, 5.2, 5.4, 5.12
III	2	5.2, 5.3, 5.8, 6.2-6.8, 6.10
IV	2	7.2-7.6, 7.8, 7.9
V	2	11.2, 11.3, 11.6-11.9, 11.13-11.16

BOOKS FOR REFERENCE

1. Kittel - Introduction to Solid State Physics – Willey and Sons – 2010
2. P.K. Palanisamy – Material Science – Scitech Publication – 2005.
3. M.A Wahab, Solid State Physics- Narosa publications – 2006.

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Elective Course -III Opto Electronics and Fiber Optic Communication - U16PH16E

SEMESTER - VI **Elective Course -III**
Instruction hrs. /week : 5 **Credit : 4**

Objective:

- *To bring out the basic ideas of interaction of light, opto electronic devices.*
- *To introduce the basic principle of laser and production of laser*
- *To study the principle of fiber and fiber communication system*
- *To study the elementary ideas about the storage devices and hologram*

UNIT I: INTERACTION OF LIGHT WITH MATTER

Introduction-Optical constants-Basic principle-Extinction coefficient-Absorption coefficient-Reflectivity and transmissivity-Light absorption in metals, semiconductor-Excitons-Franz Keldyesh effect-Salient features of optical absorption in metals, semiconductor and insulator.

UNIT II: OPTO ELECTRONIC MATERIALS AND DEVICES

Optoelectronic materials-Characteristics-Liquid crystal display-Types of display-Light emitting diode-LED materials-LED displays.

Photo detectors: Photo conductor-Photo diode-Photo transistor-Solar cell and its applications.

UNIT III: LASERS

Introduction-Basic principle- Laser characteristics-Spontaneous emission – Stimulated absorption-stimulated emission-Einstein Coefficients – Population inversion –Pumping action –Laser applications (any four)

Nd-YAG laser-Helium – Neon –CO_2 laser – Semiconductor laser.

UNIT IV: FIBER OPTIC COMMUNICATION

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 source: Laser diode-Light detectors: Avalanche photo diode-Optic fiber communication link(block diagram)-Advantages of fiber optics communication.

UNIT V: OPTICAL DATA STORAGE

Surface storage-Phase change recording-Magneto optical data storage-Hi-tech evolved in system development-Automatic focusing-Automatic track following capacity of CD- Advantages of CD – Holographic storage- Construction and reconstruction of a hologram.

BOOKS FOR STUDY

1. S.Jayakumar, Material Science, R.K Publishers, Coimbatore, 2002.
2. P.Mani, Text Book of Engineering Physics-I, Dhanam publications (2009)-5thedition.
3. P.K.Palanisamy, Semiconductor Physics and Opto Electronics, Scitech publications, 2004.

Unit	Book
I, II	Relevant sections in Book 1
III	Relevant sections in Book 2
IV, V	Relevant sections in Book 3

SEMESTER – II **COURSE CODE:**

U16SBE1

PART – IV: COMPUTER APPLICATIONS – I - OFFICE AUTOMATION

HOURS: 2 **CREDITS: 2**

UNIT I:

MS- Word- Introduction to Computers - Hardware - Software, Operating System: Windows XP - MS-Paint, Notepad, WordPad, Introduction to MS-Word, Creating, Editing and Formatting Document - Working with Drawing objects - Text Manipulation

UNIT II:

Working with Tables – Columns – Labels - Plotting, editing and Filling drawing objectsBookmark – Header & Footer - Checking and Correcting a document - Creating Labels – Envelops – Mail Merge – Formatted output and Report generation Printing Documents, Working with Internet.

UNIT III:

Ms – Excel - Ms – Excel: Introduction – Data Entry – Cell Formatting - Plotting Graphs – Workbook Features – Library Functions

UNIT IV:

Conditional Functions and Data Sorting – Limit the data on a worksheet - Data Validation –Data consolidation - Chart creation - Checking and Correcting Data - Tracking and Managing Changes- Advanced Features

UNIT V:

MS – PowerPoint- Introduction - Creating, Editing and Formatting Presentation – Applying Transition and Animation Effects - Applying Design Templates - Viewing and Setting up a Slide Show - Navigating among Different Views - Ms Outlook: Introduction to Folder List – Address Book.

TEXTBOOKS

1. Jill Murphy, Microsoft Office Word- Comprehensive Course, Labyrinth Publications, 2003.
2. McGraw-Hill/Irwin-Deborah Hinkle, Microsoft Office 2003 PowerPoint: A Professional Approach, Comprehensive w/ Student CD, New Delhi, 2003.
3. Nellai Kannan, C., MS-Office, Nels Publications, Tamil Nadu, 2002.

SEMESTER – III **COURSE CODE: U16SBE2**

PART – IV: COMPUTER APPLICATIONS - II - DESKTOP PUBLISHING

HOURS: 2 **CREDITS: 2**

UNIT I:

Photoshop Tools : Move, Type, Marquee, Lasso, Crop, Shapes, Healing, Brush, Patch, Cloning Stamp, Eraser, Gradient, Blur, Smudge, Dodge, Pen, Eye Dropper, Patch selection and Zoom tool.

Layer: New layer, Layer set, Duplicate layer, Rasterize and Merge down

Layer Styles: Drop shadow, inner shadow, outer glow & inner glow, Bevel and Emboss, Gradient overlay, Stroke. Text formatting

UNIT II:

File: Save, File formats, Page set up.

Edit: Check spelling, Copy merged, Fill, Transform, Define pattern.

Image: Motion blur, Twirl, lens flare, Glowing edges, lighting effects, solarize, water paper, Stained glass, Mosaic Tiles.

Window: Character and Paragraph settings.

COREL DRAW:

UNIT III:

Drawing Tools: Pick, Shape, Knife, eraser, Smudge, Roughen brush, free transform, Zoom ,hand, Free hand, Bezier, Artistic, Pen, Poly line, Point, Interactive connective, Spiral tool.

Colour Tool: Paint Bucket Tool, Eye Dropper, Fill Tools. Fill Options, Stroke Options.

UNIT IV:

Special Effects: 3D effects, Add perspective, Blend, Contour, Artistic media, lens, and Power clip.

Shaping Options: Weld, trim, Intersect.

Text Effects: Format text, bullet, and fit text to path, align and straighten, spell check.

File Menu: Save, Save as, Import, Page set Up.

PAGE MAKER:

UNIT V:

Page Maker Tools: Pointer, Rotate, Line, Rectangle, Ellipse, Polygon, Hand, Text, Crop, Rectangle frame tools. Text layout, Style and Objects: Alignments, Styles, fill, frame options, Stroke, Group, Lock, unlock, mask, polygon settings character and paragraph settings.

Text Editing: Edit story: Undo, Redo, Cut, Copy, Paste, paste Special, Spelling check and Find.

File: Page set up, save, Save as.

TEXTBOOKS

1. CorelDraw IN Simple Steps – Shalini Gupta Corel DRAW Bible - DEBORAH MILLER
2. Teach Yourself Adobe Photoshop – Rose Carla Adobe Photoshop Cs Classroom in a Book by Adobe Press.
3. Using Microsoft Word - Asmita Bhatt Pagemaker In Easy Steps - Scott Basham Ctoa Material By Genesis.

SEMESTER – III **COURSE CODE: U16SBE3P**

PART – IV: COMPUTER APPLICATIONS – II PRACTICAL (DTP LAB)

HOURS: 2 **CREDITS: 2**

OFFICE AUTOMATION & DESKTOP PUBLISHING LAB

UNIT I:

Office Automation

1. MS – Word: Text Formatting, Mail Merge
2. Ms – Excel: Implement the Statistical & Mathematical Function
   (Using Min ,Max, Median, Average, Standard Deviation, Correlation, Logical 'if' Condition) for the given
   data, Prepare a Chart for a given Data using Pie diagram / Histogram

UNIT II:

Photoshop

3. Design a College Broacher / Birthday Card.
4. Cropping, rotating and Overlapping the image.
5. Create a single image from Multiple image.
6. Creating an image with multilayer's.

UNIT III:

Corel Draw

7. Design a Visiting Card \ Greeting Card using Draw & Text tools.
8. Create a logo for a Company \ College.

UNIT IV:

Page Maker

9. Type and format a letter using text tool.
10. Prepare a Invitation for College Day /Sports Day.

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 Publ. 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.