

Course Code	Title		
21U1FCH101	Part - I : French - I		
Semester : I	Credits : 4	CIA : 50 Marks	ESE : 50 Marks

Course Objective:

Equip the students with Basic French communication at Hotel Industry

Course Outcomes:

Students will be able to

CO1	Learn basics in French along with auxiliary verbs
CO2	Knows the vocabulary related to Hotel Management and learn articles.
CO3	Practice reading and learn the tenses.
CO4	Communicate simple sentences in French
CO5	Comprehend the passage and write official letters.

Offered by : French Department

Course Content

Instructional Hours/Week : 5

Unit	Description	Instructional Hours	
I	Bienvenue !	15	
		Instructional Hours	15
II	Cuisine et restaurant	15	
		Instructional Hours	15
III	Dans les règles	15	
		Instructional Hours	15
IV	La main a la pate	15	
		Instructional Hours	15
V	La mise en place	15	
		Instructional Hours	15
		Total Hours	75

Text Book :

1. En cuisine – Jérôme Cholvy

Tools for Assessment (50 Marks)

CIA I	CIA II	CIA III	Assignment	Seminar	Group Project	Total
8	8	10	8	8	8	50

Mapping

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	H	-	-	M	M	-					
CO2	-	-	H	-	L	-	-	L					
CO3	-	-	H	-	-	L	H	M					
CO4	-	-	H	-	L	L	H	M					
CO5	-	-	L	-	-	L	H	M					

H-High; M-Medium; L-Low

Course designed by	Verified by	Checked by	Approved by

Course Code	Title		
21U1FCH202	Part - I : French - II		
Semester : II	Credits : 4	CIA : 50 Marks	ESE : 50 Marks

Course Objective:

This Course enhances the usage of French at Hotels and Tourism Industry.

Course Outcomes:

Students will be able to

CO1	Know to differentiate infinitive, indicative and imperative of the verb and recall grammar.
CO2	Learn Adverbs, Pronom en, COD
CO3	Learn COI and Pronominal verbs
CO4	Acquire knowledge on French cuisine
CO5	Comprehend and write dialogues (in restaurant)

Offered by : French Department**Course Content****Instructional Hours / Week : 5**

Unit	Description	Instructional Hours
I	Aux fourneaux !	15
II	Saignant, a point ou bien cuit ?	15
III	Les produits de la mer	15
IV	Pour le dessert	15
V	A la carte	15
		Total Hours 75

Text Book:

1. En cuisine – Jérôme Cholvy

Tools for Assessment (50 Marks)

CIA I	CIA II	CIA III	Assignment	Seminar	Group Project	Total
8	8	10	8	8	8	50

Mapping

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	H	-	-	M	M	L					
CO2	-	-	H	-	M	-	-	-					
CO3	-	-	M	-	-	M	L	L					
CO4	-	-	M	-	M	-	L	H					
CO5	-	-	H	-	-	L	M	-					

H-High; M-Medium; L-Low

Course designed by	Verified by	Checked by	Approved by

Course Code	Title		
21U1HIN101	PART – I : HINDI - I		
Semester % I	Credits:4	CIA : 50 Marks	ESE : 50 Marks

(Common to all UG Programmes)

dkslZ y{; % Nk=&Nk=kvksa esa jk"V^ah; Hkkouk dk fodkl
djuk rFkk jk"V^aHkk"kk fganh ,oa mlls lacaf/kr lkfgR;
dh tkudkj iznku djuk

dkslZ ifj.kke %

CO1	lkekftd] lkaLÑfrd vkSj jktuSfrd ifjos'k ls Nk=- lkfgR; ds ek;/e ls cks/koku gksaxsA
CO2	O;kdj.k ds f'k{k.k ds ek;/e ls Nk=ksa esa 'kq) Hkk"kk esa cksyus dh {kerk dks fodflr gksxhA
CO3	varjkZ"V ^a h; Hkk"kk vaxzst+h ls jk"V ^a Hkk"kk fganh esa lkexzh dk vuqokn djds Nk= fganh dh Kku laink c<+kus esa dke;kc gksaxsA
CO4	fofo/k vuq'kkluksa esa vuqoknksa dks lqpk# cukus ds fy, ikfjHkkf"kd 'kCnkoyh dk Kku gksxkA
CO5	□□□□□□□□□□ □□□□□□ □□□ □□□□□ □□□ □□□□□□□□

Offered by : Hindi Department

□□□□□□□ □□□□□□□□□□

□□□□□□□□□□□□

□□□□ / □□□□□□□: 5

□□□□	□□□□□
I	yMkbZ&loZ'ojn;ky IDIsuk □□□□□□□□□□□□ □□□□ 20
II	,dkadh laxzg & 1- f'kokth dk IPpk Lo:i ¼lsB xksfoUnnk1½ 2- ekj ¼fo".kq izHkkdj½ 3- ?kksalys 4- jh<+ dh gM~Mh ¼txnh'kpUnz ekFkqj½ 5- □□□□□□ □□ □□□- □□□□ □□□□□ □□□□□□□□□□□□ □□□□ 20
III	O;kdj.k % laKk] loZuke] fo'ks"k.k] fØ;k] opu] fyax] dky] okP;] izR;;] milxZ] ^us* dk iz;ksx □□□□□□□□□□□□ □□□□ 15

IV	vuqokn % vaxzst+h&fganh ¼vuqokn vH;kl&3½)1-15)	□□□□□□□□□□ □□□□	10
V	ikfjHkkf”kd ‘kCnkoyh	□□□□□□□□□□ □□□□	10
□□□□			75

ikB~;iqLrd:

- 1- yMkbZ % losZ’ojn;ky IDIsuk
- 2- ,dkadh laxzg
- 3- vuqokn vH;kl&3] nf{k.k Hkkjr fganh izpkj IHkk] psUuS&17-
- 4- vkys[ku o fVli.kh

lanHkZ xzaFk %

1. MkW- ,u-bZ- fo’oukFk v,;j] vuqokn dyk] ifCy’kj] laLdj.k 2000
2. HkksykukFk frokj] vuqokn foKku] laLdj.k 2000
3. jkenso] O;kdj.k iznhiA izdk’ku % fganh Hkou] 36] VkxkSj
Vkmu] bygkckn &2
4. uwru x| laxzg] lqfe=k izdk’ku] lqfe=k fuokl] 16@4 gkfLVaXI
jksM] bygkckn &211 001- laLdj.k 2006

Tools for Assessment (50 Marks)

CIA I	CIA II	CIA III	Assignment	Seminar	Project	Total
8	8	10	8	8	8	50

Mapping

POS COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	H	-	L	M	M	-					
CO2	-	-	M	-	L	M	H	-					
CO3	-	-	M	-	M	H	L	-					

CO4	-	-	H	-	-	M	-	-					
CO5	-	-	M	-	-	-	H	-					

H-High; M-Medium; L-Low

Course Designed by	Verified by HoD	Checked by	Approved by

Course Code	Title		
21U1HIN202	PART – I : HINDI - II		
Semester : II	Credits : 4	CIA : 50 Marks	ESE : 50 Marks

(Common to all UG Programmes)

dkslZ y{; % Hkkjrh;rk dh lkfgR; ds ek;/e ls igpku djkuA dgkuh ds ek;/e ls ledkyhu le; ds lp dh igpku djkuA fganh ls vaxzst+h esa vuqokn ds ek;/e ls Hkkjrh; Kku laink dks varjkZ”V^{ah}; Lrj rd igq;pkus esa Nk= dks leFkZ cukukA nSufUnu dh ckrphr esa fganh dk fuckZ/k iz;ksx djsu esa Nk= dks l{ke cukukA

dkslZ ifj.kke %

C01	Nk=ksa esa lkfgR;d vfHk#fp ds lkFk lkekftd cks/k c<+sxkA i=kpkj ds {ks= esa os LokoyEch gks ldsaxsA
C02	Hkkjrh; Hkk”kk ds Kku dks fons’k rd igq;pkus ds {ks= esa {kerk gkfly djsaxsA
C03	jk”V ^a Hkk”kk fganh ls varjkZ”V ^{ah} ; Hkk”kk vaxzst+h esa lkexzh dk vuqokn djsu Nk= fganh dh Kku laink c<+kus esa dke;kc gksaxsA
C04	jkst+ejk thou esa fganh dks cksy ikus esa dke;kc gksaxsA
C05	□□□□ □□ □□□□ □□□□ □□ □□□□ □□□□□

Offered by : Hindi Department

□□□□□□ □□□□□□□□

□□□□□□□□□□ □□□□ /

□□□□□: 5

□□□□	□□□□□	
I	vk/kqfud dkO; % jf’ejFkh] jke/kkjhfllag fnudj	□□□□□□□□□□ □□□□ 25
II	dgkuh & 1- iwl dh jkr ¼izsepUn½] 2- vkdk’knh ¼t;’kadj izlkn½ 3- vdsyh ¼eUuw HkaMkj½] 4- [ksy ¼tSusUnz dqekj½ 4- lp cksyus dh Hkwy ¼;’kiky½ 5- ph+Q dh nkor ¼Hkh”e lkguh½ 6- vkjksk.k ¼latho½ 7-(□□□ □□□□□□□□)	□□□□□□□□□□ □□□□ 20
III	i= ys[ku % ¼ljdkjh i=] futh i=] laiknd dks i=] Kkiu] ifji=½	□□□□□□□□□□ □□□□ 10
IV	vuqokn % fganh ls vaxzst+h	□□□□□□□□□□ □□□□ 10

v	cksypky fganh & 1- lk{kkRdkj 2- v/;kid&fo kFkhZ 3- xzkgd&nwdkunkj 4- MkWDVj&ejht 5- eq kfQj&;k=h	□□□□□□□□□□ □□□□ 10 □□□ □□□□ 75
---	---	---

ikB~;iqLrd %

- 1- jke/kkjhf|ag fnudj] jf'ejFkhA
- 2- **dgkuh**
- 3- **vuqokn vH;kl&3]** ¼nf{k.k Hkkjr fganh izpkj IHkk½
- 4- vkn'kZ i= ys[ku
- 5- O;kdj.k

lanHkZ xzaFk %

- 1- izksQ- uhjt ,e-] **izkekf.kd vkys[ku vkSj fVli.kh]** jktiky ,aM IUI]
 dk'ehj xsV] ubZ fnYyhA
- 2- uhye diwj] **iz;kstuewyd fganh]** Jh uVjkt izdk'ku] lkmFk xkjMh] ubZ
 fnYyh&2
- 3- MkW- e/kq/kou] **uohu ,dkadh laxzg]** lqfe=k izdk'ku] v'kksd uxj]
 vygkckn&1

Tools for Assessment (50 Marks)

CIA I	CIA II	CIA III	Assignment	Seminar	Project	Total
8	8	10	8	8	8	50

Mapping

POS COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	M	-	L	H	M	-					
CO2	-	-	L	-	L	M	H	-					
CO3	-	-	H	-	M	H	M	-					

CO4	-	-	H	-	-	M	-	-					
CO5	-	-	M	-	L	-	L	-					

H-High; M-Medium; L-Low

Course Designed by	Verified by HoD	Checked by	Approved by

Course Code	Title		
21U1TAM101	Part I – Tamil - I		
Semester : I	Credits : 4	CIA : 50 Marks	ESE : 50 Marks

(Common to all UG Programmes)

Course Objective : nkhop ,yf;fpaq;jpd; thapyhf mwk; rhh; gz;G kw;Wk; MSik kpf;f khzth;fis cUthf;Fjy;

Course Outcomes :

CO1	jkpo; ,yf;fpaq;fs; thapyhf r%fr; rPh;jpUj;jr; rpe;jidfs; ngwg;gLk;.
CO2	mw ,yf;fpaq;fspd; top jkpoHfspd; tho;tpay; gz;Gfisf; fw;W mwpjy;.
CO3	ngz;zpaf; ftpQHfspd; gilg;Gj; jpwid khztHfSf;F czHj;Jjy;
CO4	rpWfijfspd; top r%f fUj;Jfis khztHfSf;F mwpTWj;jy;
CO5	jkpo; ,yf;fpa tuyhw;Wj; jpwid tsHj;jy;

Offered by : jkpo;;j;Jiw

Course Content

Instructional Hours / Week : 5

Unit	Description	Instructional Hours
I	rq;f ,yf;fpak; 1. lq;FE}W – fps;isg;gj;J (281-290) ghly;fs; 2. gjpw;Wg;gj;J – ,uz;lhk; gj;J (11 -15 le;J ghly;fs;) 3. gj;Jg;ghl;L – Ky;iyg;ghl;L - Ky;iyg;ghl;L KOtJk; (1-103 thpfs;) 4. rpWghzhw;Wg;gil – Nruehl;bd; tsik	15
	mw ,yf;fpak; - ePjpE}y;fs; 1. mwd; typAWj;jy; - (31-40 Fwl;ghf;fs;) 2. Gfo; - (231 - 240 Fwl;ghf;fs;) 3. tha;ik - (291 - 300 Fwl;ghf;fs;) 4. ehybahH - nghUl;ghy; 11 MtJ mjpfhuk; (\$lh el;G 1 - 10) 5. ehd;kzpf;fbif - Kjy; le;J ghly;fs;	
II	ngz;zpak; 1. ér;rp tho;f;if – Mz;lhs; gpupaju;rdp (Rak; NgRk; fpp) 2. njhl;br;nrb – ftpQu; ,sk;gpiw 3. mk;kh – Rfpu;juhzp 4. ePupy; miyAk; Kfk; - m.ntz;zpyh	15
	rpWfijfs; 1. Fl;b Nutjp – epiwa miwfs; cs;s tPL 2. n[aNkhfd; - ahid lhf;lh; 3. r.jkpo;r;nry;td; - ntapNyhL Ngha; 4. tz;zepytd; - v];jh; 5. ckh kNf];thp - kug;ghr;rp	
III	jkpo; - ,yf;fpa tuyhW 1. GJf;ftpjapd; Njhw;wKk; tsHr;rpAk;; 2. rpWfijapd; Njhw;wKk; tsHr;rpAk; 3. gbkk; FwpaPL gw;wpa – tpsf;fk;	15
	Instructional Hours	

ghlj;njhFg;G

,sq;fiy Kjyhk; Mz;L jkpo; khztHfSf;Fhpa ghIE}y;“**,se;jspH”**
 njhFg;G: jkpo;;Jiw >NeU fiy kw;Wk; mwptpay; fy;Y}hp> Nfhak;Gj;J}H

ghh;it E}y;fs;

1. Iq;FE}W - ciuhrphpah; Xsit Jiurhkpg;gps;is> gjpg;ghrphpah;fs; KJKidth; ,uh.,sq;Fkudhh;> Kidth;.gp.jkpodf; jkpo; kz; mwf;fl;lis> nrd;id.17
2. jpUts;StH – jpUf;Fws; ghpNkyofH ciu> rhujh gjpg;gfk;> Ip – 4 rhe;jp mLf;ffk;> = fpU~;zhGuk; njU> ,uhag;Ngl;il> nrd;id– 014
3. Mz;lhs; gphpajH~pdp – Rak; NgRk; fsp ftpijj; njhFg;G> uhfNte;jpuh ntspaPL 163 2 nghd;tpoh mr;rfk;> nghd;dp ntspaPL> ghf;Fl;lrhiy> mz;zhefH> nrd;id.
4. ftpQH ,sk;gpiw – njhl;br;nrb> nghd;dp ntspaPL> nrd;id - 91
5. RfpHjuhzp – jPz;lg;glhjKj;jk;> fhyr;RtL gjpg;gfk;> ehfHNfhapy;.
6. m.ntz;zpyh – ePhpy; miyAk; Kfk; Kjy; ftpijj; njhFg;G – 2000
7. jkpoz;zy; - GjpaNehf;fpy; jkpo; ,yf;fpa tuyhW> kPdhl;rp Gj;jf epiyak;> kJiu –625 001.
8. epiwa miwfs; cs;stPL - Fl;bNutjp vOj;J gpuRuk; 11khly; efh; 10 tJ tPjp> nrd;id.
9. ahid lhf;lh; - n[aNkhfd; tk;rp gjpg;gfk; epA nrQ;Rhp Gf;fT]; nrd;id.
- 10.ntapNyhL Ngha; - r.jkpo;r;nry;td; rpWfijfs; njhFg;G ghujp Gj;jfhyak; 7 ,sq;Nfh rhiy Rg;guhad; efh; nrd;id
- 11.v;]jh; - tz;zepytd; rpWfijfs;> ew;wpizg; gjpg;gfk;> 172> Mh;fl; NuhL> fd;dpdhGuk; tlgodp – 2
- 12.kug;ghr;rp – ckh kNf];thp> jkpopdp gjpg;gfk;> 342 b.b.Nf rhiy> nrd;id.14

Tools for Assessment (50 Marks)

CIA I	CIA II	CIA III	Seminar	Assignment	Group Project	Total
8	8	10	8	8	8	50

Mapping

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	H	-	H	H	M	H					
CO2	-	-	M	-	H	L	H	H					
CO3	-	-	L	-	M	M	H	H					
CO4	-	-	H	-	H	M	M	L					
CO5	-	-	H	-	H	L	H	H					

H-High; M-Medium; L-Low;

Course Designed by	Verified by	Checked by	Approved by

Course Code	Title		
21UITAM202	PART – I TAMIL – II		
Semester : II	Credits : 4	CIA : 50 Marks	ESE : 50 Marks

(Common to all UG Programmes)

Course Objective: nkhop ,yf;fpaj;jpd; thapyhf mwk;rh; gz;G kw;Wk; MSikkpf;f khzth;fis cUthf;Fjy;

Course Outcomes:

CO1	gf;jp ,yf;fpaq;fs; top tho;tpay; newpfis khztHfSf;F vLj;Jiu;j;jy;
CO2	rpw;wpyf;fpaq;fspd; %yk; jkpoHfspd; tho;f;if \$Wfis vLj;Jiu;j;jy;
CO3	jkpo; ehty;fspd; top rKjhar; rpe;jidfis; \$Wjy;
CO4	,yf;fz mwpit tsHj;jy;
CO5	jkpo; ,yf;fpa tuyhw;Wj; jpwid Nkk;ghL milar; nra;jy;

Offered by : jkpo;;j;Jiw

Course Content

Instructional Hours / Week : 5

Description	Instructional Hours / Week : 5
Unit I gf;jp ,yf;fpaq;fs;	
1. jpUke;jpuk; - %d;whk; je;jpuk; (mjpfhuk; 2) m~;lkhrpj;jpfs;	
2. ehyhapuj; jpt;ag;gpuge;jk; - nghpaho;thh; - jpUg;gy;yhz;L	
3. khzpf;fthrfh; - vl;lhk; jpUKiw - mr;Nrhg;gjpfk;	
4. jpUehTf;furh; - jpUtuq;fkhiy – ehd;fhk; jpUKiw - Njthuk;	
	Instructional Hours :15
Unit II rpw;wpyf;fpaq;fs;	
1. fyk;gfk; - ee;jpf;fyk;gfk; (91 -100 ghly;fs;)	
2. gs;S – Kf;\$lw;gs;S (350 – 360)	
3. FwtQ;rp – jpUf;Fw;whyf;FwtQ;rp (1-10)	
4. gps;isj;jkpo; - kPdhl;rpak;ik (1 -10)	
5. gl;bdj;jhH ghly;fs; (358 – 367)	
	Instructional Hours: 15
Unit III ehty;;	
1. nry;yhjgzk; - ,ikak; (nt.mz;zhkiy)	
	Instructional Hours :15
Unit IV ,yf;fzk;;	
1. ty;ypdk; kpFk; ,lq;fs;	
2. ty;ypdk; kpfh ,lq;fs;	
3. njhil tiffs;	
	Instructional Hours :15
Unit V ,yf;fpa tuyhW ghly;jpl;l;ijj; jOtpaJ	
1. rpw;wpyf;fpak; - mwpKfk;	
2. Gjpdj;jpd; Njhw;wKk; tsHr;rpAk;	
3. tpz;zg;gq;fs;> kly;fs;> vOjr; nra;jy;.	
	Instructional Hours : 15
	Total Hours :75

ghlj;njhFg;G

,sq;fiy Kjyhk; Mz;L jkpo; khztHfSf;Fhpa ghLE}y;“,se;jspH”
 njhFg;G: jkpo;j;Jiw>NeU fiy kw;Wk; mwptpay; fy;Y}hp> Nfhak;Gj;J}H.

ghHit E}y;fs;:

1. jpUke;jpuk; - khzpf;fthrfH mUsPa jpUthrfk; - rpj;jhe;j gz;bjH jpU.g.,uhkehj gps;is tpsf;f ciuAld; fof ntspaPL> jpUney;Ntyp> njd;dpe;jpa irt rpj;jhe;j E}w;gjpg;Gf; fofk; ypkpnll;> 522 b.b.Nfrhiy> nrd;id- 600 018
2. GytHj.jpUNtq;fl ,uhkD[jhrd; - ehyhapujpt;ag; gpuge;jk; Kjy; Mapuk; %yKk;; ciuAk;> ckhgjpg;gfk;> 171>Gjpa vz;.18 gtsf; fhuj;njU> kz;zb> nrd;id- 001
3. jhAkhdtH ,aw;wpa guhguf;fz;zp -=kj; Rthkp rpj;gthde;jH tphpTiuAld; = uhk fpU-;z jNghtdk;> jpUg;guha;j;Jiw - 639115 jpUr;rp khtl;lk;
4. ee;jpf;fyk;gfk; - kzpthrfH gjpg;gfk;> uh[tPjp> NfhaKj;J}H - 641 001
5. KidtH.fjPHKUF-Kf;\$lw;gs;S %yKk; ciuAk;> rhujh gjpg;gfk;> nrd;id.
6. Gypa+Hf;Nfrpfd; njspTiu-jpUf;Fw;whyf;FwtQ;rp> nry;yg;gh gjpg;gfk;> nrd;id.
7. rhe;jypq;fRthkpfs; - rhe;jypq;f mbfshH> jpUklk; ntspaPL> Ng&H> Nfhit- 10
8. m.khzpf;fk; ciuhrphpah; - gl;bdj;jhH ghly;fs; %yKk; ciuAk;> tHj;jkhdd; gjpg;gfk;> 40> rNuhlpdp njU> jpahfuaefH> nrd;id -17.
9. jkpoz;zy; - Gjpa Nehf;fpy; jkpo; ,yf;fpa tuyhW> kPdhl;rp Gj;jf epiyak;> kJiu
10. ey;yjkpo; vOj Ntz;Lkh? -m.fp. gue;jhkdhH> my;yp epiyak;> nrd;id- 007
11. KidtH.ghf;fpaNkhp-jkpo; ,yf;fpa tuyhW-vd;.rp.gp.vr;. ntspaPL. Nfhit- 600098
12. jpUtUL;gh-mUs; tpsf;fk;> kzpthrfH gjpg;gfk;> nrd;id.
13. K.t. jkpo; ,yf;fpa tuyhW rhfpj;a mfhnjkp> GJjpy;yp - 110 001.
14. nry;yhjgzk; -,ikak; fphpah gg;spNfrd;];> nrd;id.

Tools for Assessment (50 Marks)

CIA I	CIA II	CIA III	Seminar	Assignment	Group project	Total
8	8	10	8	8	8	50

Mapping

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	M	-	H	H	M	H					
CO2	-	-	H	-	M	M	L	H					
CO3	-	-	H	-	M	H	H	M					
CO4	-	-	H	-	H	M	L	H					
CO5	-	-	H	-	M	L	M	H					

H-High; M-Medium; L-Low;

Course Designed by	Verified by HOD	Checked by	Approved by

Course Code	Title		
21U2ENG101	Part II - English I		
Semester : I	Credits : 4	CIA : 50 Marks	ESE : 50 Marks

(Common to All UG Programmes)

Course Objective:

To help students to imbibe, develop, practice and use the LSRW skills and fine tune their productive skills.

Course Outcomes:

CO1	Recognize listening, and reading proficiency through the prose discourses.
CO2	Use and interpret imaginative, and creative skills through the poetic genre.
CO3	Enhance the students to use English effectively through short story.
CO4	Execute and exercise grammatical skills in academics and career.
CO5	Evaluate the LSRW skills through literature.

Offered by : English department

Course Content

Instructional Hours / Week : 5

Unit	Description	Text Book	Chapter
I	Prose Leigh Hunt – Getting Up On Cold Morning Rajagopalachari – Tree Speaks Swami Vivekananda – The Secret of Work	1	1-3
Instructional Hours			15
II	Poetry D.G Rossetti – The Blessed Damozel Maya Angelou -Phenomenal Women A. K. Ramanujan – A River	1	4-6
Instructional Hours			15
III	Short Stories O. Henry – The Last Leaf R. K. Narayan – The Missing Mail Oscar Wilde - The Happy Prince	1	7-9
Instructional Hours			15
IV	Grammar and Vocabulary Parts of Speech Tenses – Present, Past, Vocabulary of the specific domain, Punctuations, Kinds of Sentences.	1	10-13
Instructional Hours			15

V	Oral & Written Communication Listening : (UNIT I – IV) Listening – Comprehension practice from Poetry, Prose, Short-stories, observing / viewing E-content (with subtitles), Guest / Invited Lectures, Conference / Seminar Presentations & Tests and DD National News Live, BBC, CNN, VOA etc Speaking – In a Group Discussion Forum, speak about Tongue Twisters, Critical Thinking, and Seminar Presentations on Classroom-Assignments, and Peer-Team interactions. Reading – Pronunciation practice and enhancement from Poetry, Prose, Short-stories, Magazines, News Paper etc Writing – Asking & Giving Directions/Instructions, Developing Hints, and Filling Forms.	1	14-17
	Instructional Hours		15
	Total Hours		75

Books for study:

Unit I – V : Compiled by the PG & Research Department of English

Books for Reference:

1. CLIL (Content & Language Integrated Learning) – Module by TANSCHENOTE: (Text: Prescribed chapters or pages will be given to the students by the department and the college)

Tools for Assessment (50 Marks)

CIA I	CIA II	CIA III	Assignment	Speaking	Reading	Total
8	8	10	8	8	8	50

Mapping

COS POS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	-	H	H	M	M	H	H					
CO2	H	-	H	H	M	H	H	H					
CO3	H	-	H	M	H	H	H	H					
CO4	H	L	H	M	H	H	H	H					
CO5	H	L	H	H	H	H	H	H					

H-High; M-Medium; L-Low

Course Designed by	Verified by HoD	Checked by	Approved by

Course Code	Title		
21U2ENG202	Part II - English II		
Semester : II	Credits : 4	CIA : 50 Marks	ESE : 50 Marks

(Common to All UG Programmes)

Course Objective:

To equip the students with the language skills and its functional usage. Facilitate the insight and taste of Literature.

Course Outcomes:

CO1	Mastering life skills through prose discourse.
CO2	Acquire ethics and values through poetic genre.
CO3	Recognise the nuances of English language through short stories.
CO4	Enhance fluency over language with self-confidence.
CO5	Examine how the language is used in literature and develop LSRW Skills

Offered by : English department

Course Content

Instructional Hours / Week : 5

Unit	Description	Text Book	Chapter
I	Prose Sachin Tendulkar - Learning the Game Mahatma Gandhi - Women Not the Weaker Sex Issac Asimov - The Fun They had	2	
Instructional Hours			15
II	Poetry Robert Frost - Stopping by Woods on a Snowy Evening William Blake - A Poison Tree Oliver Goldsmith - The Village School Master	2	
Instructional Hours			15
III	Short Stories Mark Twain - The Cat and the Painkiller Japanese Folk Tale - The Envious Neighbour Khushwant Singh – Karma	1	
Instructional Hours			15
IV	Grammar Active and Passive Voices Direct and Indirect Speech Sentence Connectors and Linkers	1	
Instructional Hours			15

V	<p>Oral & Written Communication (Unit I –IV) Listening – Comprehension practice from Poetry, Prose, Online Voice Practice, observing/viewing E-content (with subtitles), Guest/Invited Lectures, Conference/Seminar Presentations & Tests, and DD National News Live, BBC, CNN, VOA etc Speaking – In Group Discussion Forum, participate in the Turn Taking, and Conversation Management, Debating, Defending/Mock Viva-Voice, Seminar Presentations on Classroom-Assignments, and Peer-Team-interactions. Reading – Different Reading Strategies in Poetry, Prose, Novel, Newspaper etc Writing– Dialogue/Conversation Writing, Advertisement Writing, and Creative Writing (autobiography, article etc.) for publication in Mass Media.</p>	2
	Instructional Hours	15
Total Hours		75

Books for study:

Unit I – V : Compiled by the PG & Research Department of English

Books for Reference:

1. CLIL (Content & Language Integrated Learning) – Module by TANSCHÉ

NOTE: (Text: Prescribed chapters or pages will be given to the students by the department and the college)

Tools for Assessment (50 Marks)

CIA I	CIA II	CIA III	Assignment	Seminar	Quiz	Total
8	8	10	8	8	8	50

Mapping

COS POS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	H	H	M	M	H	H	-	-	-	-	M
CO2	H	M	H	H	M	H	H	H	-	-	-	-	-
CO3	H	M	H	M	H	H	H	H	-	-	-	-	L
CO4	H	H	H	M	H	H	H	H	-	-	-	-	M
CO5	H	M	H	H	H	H	H	H	-	-	-	-	M

H-High; M-Medium; L-Low

Course Designed by	Verified by HoD	Checked by	Approved by

Course Code		Title	
21U3AMC202	Core Paper V Artificial Intelligence and Machine Learning Fundamentals		
Semester : II	Credits: 4	CIA: 50Marks	ESE: 50Marks

Course Objective:

To make the students understand the concept of intelligent agents which receives percepts from environment and performs actions, leading to the knowledge of AI

Course Outcomes (CO):

CO1	Understand the basic concepts of AI and Intelligent Agents.
CO2	Apply various searching techniques for problem solving.
CO3	Understand the various supervised learning algorithms to solve real world problems.
CO4	Develop simple applications using Parametric and Multivariate Methods.
CO5	Illustrate the concepts of Dimensionality Reduction, Clustering and Nonparametric Methods.

Offered by: Artificial Intelligence and Machine Learning

Course Content

Instructional Hours / Week: 4

Unit	Description	Text Book	Chapter
I	Introduction: AI Problems - AI techniques - Criteria for success. Problems, Problem Spaces, Search: State space search - Production Systems	1	1,2,
Instructional Hours			12
II	Problem Solving –Searching-Breadth-First Search, Depth-First Search. Informed search –A*-Heuristic Search-Local search algorithms-hill climbing-genetic algorithm.	1	3,4
Instructional Hours			12
III	Introduction: What is Machine Learning-Examples of Machine Learning Applications. Supervised Learning: Learning a Class from Examples-Vapnik-Chervonenkis Dimension - Probably Approximately Correct Learning- Noise – Learning Multiple Classes-Regression-Model Selection and Generalization-Dimensions of Supervised Machine Learning Algorithm	2	1,2
Instructional Hours			12
IV	Bayesian Decision Theory: Introduction-Classification-Losses and Risks- Discriminant Functions-Association Rules. Parametric Methods: Introduction-Maximum Likelihood Estimation-The Bayes Estimation-Parameter Classification. Multivariate Methods: Multivariate Data- Parameter	2	3,4,5

Estimation-Estimation of Missing Values-Multivariate Classification.			
Instructional Hours			12
V	Dimensionality Reduction: Introduction- Subset Selection- Principal Component Analysis Feature Embedding-Factor Analysis. Clustering: Introduction-Mixture Densities-K-means Clustering- Supervised Learning after Clustering-Spectral Clustering-Hierarchical clustering. Nonparametric Method: Introduction-Nonparametric Density Estimation-Generalization to multivariate Data.		2 4 6,7,8
	Instructional Hours		
Total Hours			60

Text Book(s):

1. Artificial Intelligence, Tata McGraw Hill, 2nd Edition, by Elaine Rich and Kevin Knight.
2. Introduction to Machine Learning, MIT Press, 3rd Edition, by EthemAlpaydin.

Reference Book(s) :

1. George F Luger, **Artificial Intelligence**, 4th Edition, Pearson Education Publications, 2002.
2. D. A. W. Patterson, **Introduction to Artificial Intelligence and Expert Systems**, Prentice Hall of India.
3. Foundations of Artificial Intelligence and Expert System, Macmillan India Limited, V S Janakiraman, K Sarukesi and P Gopalakrishnan.

Tools for Assessment (50 Marks)

CIA I	CIA II	CIA III	Class Participation	Assignment	Seminar	Total
8	8	10	8	8	8	50

Mapping

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	H	-	M	-	-	M	H	H	M	L	H	H
CO2	M	M	-	M	-	-	M	H	M	M	M	H	M
CO3	H	H	-	M	-	-	M	H	H	H	L	H	H
CO4	H	H	-	M	-	-	M	H	M	M	L	H	M
CO5	H	M	-	M	-	-	M	H	H	H	L	H	H

S- Strong; H-High; M-Medium; L-Low

Course Designed by	Verified by HoD	Checked by	Approved by

Course Code	Title		
21U3AMC405	Core Paper X Artificial Intelligence and Knowledge Representation		
Semester: IV	Credits: 3	CIA : 30 Marks	ESE: 45 Marks

Course Objective:

To expose the student to the fundamental concepts of Artificial Intelligence and its applications.

Course Outcomes:

CO1	Understanding the Fundamental of the history of Artificial Intelligence.
CO2	Understanding the basic concepts about problem solving methods.
CO3	Demonstrating Knowledge Representation and Reasoning Systems.
CO4	Explore Software Agents.
CO5	Identify various AI Applications and Natural Language Processing.

Department offered: Artificial Intelligence & Machine Learning

Course Content

Instructional Hours/Week: 5

Unit	Description	Text Book	Chapter
I	Introduction – Definition – Future of Artificial Intelligence – Characteristics of Intelligent Agents – Typical Intelligent Agents – Problem Solving Approach to Typical AI Problems.	I	1,2
Instructional Hours			15
II	Problem Solving Methods – Search Strategies – Uninformed – Informed – Heuristics – Local Search Algorithms and Optimization Problems – Searching with Partial Observations – Constraint Satisfaction Problems – Constraint Propagation – Backtracking Search – Game Playing – Optimal Decisions in Games – Alpha – Beta Pruning – Stochastic Games.	I	2,3
Instructional Hours			15
III	Knowledge Representation – First Order Predicate Logic – Prolog Programming – Unification – Forward Chaining – Backward Chaining – Resolution – Knowledge Representation – Ontological Engineering – Categories and Objects – Events – Mental Events and Mental Objects – Reasoning Systems for Categories – Reasoning with Default Information.	I	4,5
Instructional Hours			15
IV	Software Agents – Architecture for Intelligent Agents – Agent Communication – Negotiation and Bargaining – Argumentation among Agents – Trust and Reputation in Multi-agent Systems.	II	2,3
Instructional Hours			15

V	AI Applications – Language Models – Information Retrieval – Information Extraction – Natural Language Processing – Machine Translation – Speech Recognition – Robot – Hardware – Perception – Planning - Moving.	II	5,6
Instructional Hours			15
Total Hours			75

Text Book(s):

1. S. Russell and P. Norvig, –**Artificial Intelligence: A Modern Approach**ll, Prentice Hall, Third Edition, 2009
2. I. Bratko, - Prolog: **Programming for Artificial Intelligence**, Fourth Edition, Addison-Wesley Educational Publishers Inc., 2011.

Unit I : Sections: 1.1 to 1.3, .1.4 to 2.1(Chapter 1 and 2)

Unit II : Sections: 2.3 to 2.5, 3.1 to 3.3 (Chapter 2 and 3)

Unit III : Sections: 4.3 to 4.4, 4.6 to 5.5 (Chapter 4 and 5)

Unit IV : Sections: 6.2 to 6.5, 7.1 to 7.5 (Chapter 2 and 3)

Unit V : Sections 8.2 to 8.3, 9.1 to 9.4 (Chapter 5 and 6)

Reference Book(s):

1. M. Tim Jones, - **Artificial Intelligence: A Systems Approach** (Computer Science), Jones and Bartlett Publishers Inc.; First Edition, 2008.
2. Nils J. Nilsson, - **The Quest for Artificial Intelligence**, Cambridge University Press, 2009.

Tools for Assessment (30 Marks)

CIA I	CIA II	CIA III	Group Discussion	Assignment	Seminar	Total
4	4	7	5	5	5	30

Mapping CO and PO

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	-	M	L	-	L	H	M	H	M	H	L
CO2	M	M	-	L	M	-	M	H	M	M	H	M	M
CO3	H	H	-	M	M	-	M	H	H	H	M	M	H
CO4	H	H	-	L	M	-	M	H	L	M	M	S	H
CO5	H	H	-	L	M	-	H	H	H	H	H	H	M

Course Designed by	Verified by	Checked by	Approved by

Course Code	Title		
21U3AMC406	Core Paper XI Machine Learning Techniques		
Semester: IV	Credits: 3	CIA : 30 Marks	ESE: 45 Marks

Course Objective:

To introduce students the concepts and techniques of Machine Learning.

Course Outcomes

CO1	Understand the basic concepts and techniques of Machine Learning.
CO2	Explain the regression methods, classification methods, clustering methods.
CO3	Understand the. Tree and Probabilistic Models
CO4	Demonstrate Dimensionality reduction Techniques
CO5	Apply the Graphical models for the various Markov methods and hidden Markov model.

Department offered: Artificial Intelligence & Machine Learning

Course Content**Instructional Hours/Week: 5**

Unit	Description	Text Book	Chapter
I	Introduction – Types of Machine Learning – Supervised Learning – The Brain and the Neuron – Design a Learning System – Perspectives and Issues in Machine Learning – Concept Learning Task – Concept Learning as Search- Finding a Maximally Specific Hypothesis – Version Spaces and the Candidate Elimination Algorithm – Linear Discriminants – Perceptron – Linear Separability – Linear Regression.	1	1,2
Instructional Hours			15
II	Linear Models – Multi-Layer Perceptron – Going Forwards – Going Backwards: Back Propagation Error – Multi-Layer Perceptron in Practice – Examples of using the MLP – Overview – Deriving Back - Propagation – Radial Basis Functions and Splines – Concepts – RBF Network – Curse of Dimensionality – Interpolations and Basis Functions – Support Vector Machines.	1	2,3
Instructional Hours			15
III	Tree and Probabilistic Models – Learning with Trees – Decision Trees – Constructing Decision Trees – Classification and Regression Trees – Ensemble Learning – Boosting – Bagging – Different ways to Combine Classifiers - Probability and Learning – Data into Probabilities – Basic Statistics – Gaussian Mixture Models – Nearest Neighbor Methods – Unsupervised Learning – K means Algorithms – Vector Quantization – Self Organizing Feature Map.	1	4,5
Instructional Hours			15
IV	Dimensionality Reduction and Evolutionary Models - Dimensionality Reduction – Linear Discriminant Analysis – Locally Linear Embedding – Isomap – Least Squares Optimization – Evolutionary Learning – Genetic Algorithms – Genetic Offspring – Genetic Operators – Using	1	6,7

	Genetic Algorithms – Reinforcements Learning – Overview – Getting Lost Example–Markov Decision Process.		
		Instructional Hours	15
V	Graphical Models – Markov Chain Monte Carlo Methods – Sampling – Proposal Distribution – Markov Chain Monte Carlo – Graphical Models – Bayesian Networks – Markov Random Fields – Hidden Markov Models – Tracking Methods.	1	8,9
		Instructional Hours	15
		Total Hours	75

Text Book(s):

1. Ethem Alpaydin, - introduction to Machine Learning 3e (Adaptive Computation and Machine Learning Series), Third Edition, MIT Press, 2014.

Unit I : Sections: 1.1 to 1.3, 1.4 to 2.1 (Chapter 1 and 2)

Unit II : Sections: 2.2 to 2.3, 3.1 to 3.3 (Chapter 2 and 3)

Unit III : Sections: 4.2 to 4.4, 4.6 to 5.5 (Chapter 4 and 5)

Unit IV : Sections: 6.1 to 6.3, 7.1 to 7.5 (Chapter 6 and 7)

Unit V : Sections 8.1 to 8.3, 9.1 to 9.4 (Chapter 8 and 9)

Reference Book(s):

1. Jason Bell, - Machine Learning – Hands on for Developers and Technical professionals, First Edition, Wiley, 2014.
2. Peter Flach, - Machine Learning: The Art and Science of Algorithms that Make Sense of Data, First Edition, Cambridge University Press, 2012.

Tools for Assessment (30 Marks)

CIA I	CIA II	CIA III	Group Discussion	Assignment	Seminar	Total
4	4	7	5	5	5	30

Mapping CO and PO

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	-	-	-	-	M	H	M	M	M	H	M
CO2	L	M	-	M	L	-	M	H	M	H	H	M	H
CO3	M	M	-	M	L	-	M	H	L	M	H	H	H
CO4	H	H	-	L	M	-	M	H	H	H	M	M	M
CO5	H	H	-	L	M	-	M	H	H	M	M	M	M

Course Designed by	Verified by	Checked by	Approved by

Course Code	Title		
21U3AMC407	Core Paper XII: Introduction to Data Science		
Semester: IV	Credits: 3	CIA : 30 Marks	ESE: 45 Marks

Course Objective:

To expose the student to the fundamental concepts of Artificial Intelligence and its applications.

Course Outcomes:

CO1	Understanding the Fundamental of Data Science.
CO2	Illustrate the basic concepts Data Collection and Data Pre-Processing.
CO3	Demonstrating Exploratory Data Analytics.
CO4	Explore Modern development in Data Science.
CO5	Identify various Evaluation process in Data Science.

Department offered: Artificial Intelligence & Machine Learning

Course Content**Instructional Hours/Week: 4**

Unit	Description	Text Book	Chapter
I	Introduction to Data Science – Evolution of Data Science – Data Science Roles – Stages in a Data Science Project – Applications of Data Science in various fields – Data Security Issues.	I	1,2
Instructional Hours			12
II	Data Collection and Data Pre-Processing Data Collection Strategies – Data Pre-Processing Overview – Data Cleaning – Data Integration and Transformation – Data Reduction – Data Discretization.	I	2,3
Instructional Hours			12
III	Exploratory Data Analytics Descriptive Statistics – Mean, Standard Deviation, Skewness and Kurtosis – Box Plots – Pivot Table – Heat Map – Correlation Statistics – ANOVA.	I	4,5
Instructional Hours			12
IV	Model Development Simple and Multiple Regression – Model Evaluation using Visualization – Residual Plot – Distribution Plot – Polynomial Regression and Pipelines – Measures for In-sample Evaluation – Prediction and Decision Making.	II	2,3
Instructional Hours			12
V	Model Evaluation Generalization Error – Out-of-Sample Evaluation Metrics – Cross Validation – Overfitting – Under Fitting and Model Selection – Prediction by using Ridge Regression – Testing Multiple Parameters by using Grid Search.	II	5,6
Instructional Hours			12
Total Hours			60

Text Book(s):

1. Jojo Moolayil, “Smarter Decisions : The Intersection of IoT and Data Science”, PACKT, 2016

Unit I : Sections: 1.1 to 1.3, .1.4 to 2.1(Chapter 1 and 2)

Unit II : Sections: 2.3 to 2.5, 3.1 to 3.3 (Chapter 2 and 3)

Unit III : Sections: 4.3 to 4.4, 4.6 to 5.5 (Chapter 4 and 5)

Unit IV : Sections: 6.2 to 6.5, 7.1 to 7.5 (Chapter 2 and 3)

Unit V : Sections 8.2 to 8.3, 9.1 to 9.4 (Chapter 5 and 6)

Reference Book(s):

1. Cathy O’Neil and Rachel Schutt , “Doing Data Science”, O’Reilly, 2015.

2. David Dietrich, Barry Heller, Beibei Yang, “Data Science and Big data Analytics”, EMC 2013

3.Raj, Pethuru, “Handbook of Research on Cloud Infrastructures for Big Data Analytics”, IGI Global.

Tools for Assessment (30 Marks)

CIA I	CIA II	CIA III	Group Discussion	Assignment	Seminar	Total
4	4	7	5	5	5	30

Mapping CO and PO

PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO													
CO1	M	M	-	L	L	-	L	L	M	H	M	H	L
CO2	M	M	-	M	L	-	M	H	M	M	H	M	M
CO3	H	M	-	M	M	-	M	H	H	H	M	M	H
CO4	H	H	-	H	M	-	M	H	L	M	M	S	H
CO5	H	H	-	H	M	-	M	H	H	H	H	H	M

Course Designed by	Verified by	Checked by	Approved by

Course Code	Title		
21U3AMC509	Core Paper XIV : Natural Language Processing		
Semester: V	Credits:3	CIA : 30 Marks	ESE: 45 Marks

Course Objective:

To introduce the fundamental concepts and techniques of natural language processing (NLP)

Course Outcomes:

CO1	Understand the fundamental concepts and techniques of natural language processing(NLP)
CO2	Understand the lexical models and algorithms in the field of NLP.
CO3	Demonstrate the computational properties of natural languages and the commonly used algorithms for processing linguistic information.
CO4	Understand semantics and pragmatics of languages for processing
CO5	Understand Machine Translation of languages for processing

Offered by: Artificial Intelligence and Machine Learning

Course Content**Instructional Hours/Week: 5**

Unit	Description	Text Book	Chapter
I	Introduction to NLP: Introduction: application of NLP techniques and key issues- MT grammar checkers-dictation-document generation-NL interfaces-Natural language processing key issues-the different analysis level used for NLP: morpho-lexical-syntactic-semantic-pragmatic-markup (TEI, UNICODE)-finite state automata- Recursive and augmented transition networks- open problems	I	1-2
Instructional Hours			15
II	Lexical Level: Error tolerant lexical processing (spelling error correction)-transducers for the design of morphologic analyzers features-towards syntax: part-of-speech tagging (BRILL,HMM)- efficient representations for linguistic resources(lexical, grammars,...) tries and finite state automata.	I	5,11
Instructional Hours			15
III	Syntactic Level: grammars (eg. formal/Chomsky hierarchy, DCSGs, systematic case, unification, stochastic)- parsing (top-down, bottom up), char(early algorithm), CYK algorithm- automated estimation of probabilistic model parameters(inside-outside algorithm)- data oriented parsing grammar formalisms and treebanks- efficient parsing for context-free grammars(CFGs)- statistical parsing and probabilistic CFGs(PCFGs)- lexicalized PCFGse.	I	12-14
Instructional Hours			15

IV	Semantic Level: logical forms- ambiguity resolution- semantic network and parsers- procedural semantics- montague semantics- vector space approaches- distributional semantics-lexical semantics and word sense disambiguation-compositional semantics semantic role labeling and semantic parsing	I	17-20
Instructional Hours			15
V	Pragmatic Level: knowledge representation- reasoning- plan/goal recognition –speech acts/intentions – belief models- discourse- reference. Natural language generation: content determination – sentence planning-surface realization, subjectivity and sentiment analysis: information extraction – automatic summarization- information retrieval and question answering – named entity recognition and relation extraction.	I	21-23,25
Instructional Hours			15
Total Hours			75

Text Book(s):

1. Daniel J and James H. Martin, **Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics & Speech Recognition**, Prentice Hall,2009.

UNIT I: Chapter 1-2

UNIT II: Chapter 5,11

UNIT III: Chapter 12-14

UNIT IV: Chapter 17-20

UNIT V: Chapter 21-23,25

Reference Book(s):

1. Ela Kumar, **Natural Language Processing**, I K International Publishing House Pvt. Ltd, 2013

Tools for Assessment (50 Marks)

CIA I	CIA II	CIA III	Group Discussion	Assignment	Seminar	Total
8	8	10	8	8	8	50

Mapping CO and PO

CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	L	-	-	L	-	-	H	M	M	M	M	M
CO2	M	M	-	-	M	-	M	H	H	M	M	M	H
CO3	H	H	-	L	M	-	M	H	M	M	M	M	M
CO4	H	H	-	L	M	-	M	H	M	L	H	M	M
CO5	H	H	-	L	M	-	M	H	H	H	M	H	H

Course Designed by	Verified by	Checked by	Approved by

Course Code	Title		
21U3AMC510	Core Paper XV : R Programming		
Semester: V	Credits:2	CIA :25 Marks	ESE:25 Marks

Course Objective:

To expose the student to the fundamental concepts of R Programming

Course Outcomes:

CO1	Understand the basics in R programming in terms of constructs, control statements, string functions
CO2	Understand the use of R for Big Data analytics
CO3	Apply R programming for Text processing
CO4	Appreciate and apply the R programming from a statistical perspective
CO5	Analyze R Programming for interfacing to other languages

Offered by: Artificial Intelligence and Machine Learning

Course Content**Instructional Hours/Week: 4**

Unit	Description	Text Book	Chapter
I	Introduction to R Introducing to R – R Data Structures – Help Functions in R – Vectors – Scalars – Declarations – Recycling – Common Vector Operations – Using all and any – Vectorized operations – NA and NULL values – Filtering – Vectorized if-then else – Vector Element names. (9).	I	1-2
Instructional Hours			12
II	Matrices Creating matrices – Matrix Operations – Applying Functions to Matrix Rows and Columns – Adding and deleting rows and columns - Vector/Matrix Distinction – Avoiding Dimension Reduction – Higher Dimensional arrays – lists – Creating lists – General list operations – Accessing list components and values – applying functions to lists – recursive lists	I	3-4
Instructional Hours			12
III	Data Frames and Simulation Creating Data Frames – Matrix-like operations in frames – merging Data frames – Applying functions to Data Frames – Factors and Tables – Factors and levels – Common Functions used with factors – Working with tables – Other factors and table related functions –R programming structures–Replacement functions – Tools for Composing function code – Math and Simulation in R.	I	5-8
Instructional Hours			12
IV	Classes S3 Classes – S4 Classes – Managing your objects – Input/output – accessing keyboard and monitor – reading and writing files – accessing the internet – String Manipulation – Graphics – Creating Graphs –	I	9-12

Customizing Graphs – Saving Graphs to files – Creating Three-Dimensional plots.			
Instructional Hours			12
V	Interfacing R		
	Interfacing R to other languages – Parallel R – Basic Statistics – Linear Model – Generalized Linear models – Non-linear Models – Time Series and Auto-Correlation – Clustering.		II 15-17 20-22
Instructional Hours			12
Total Hours			60

Text Book(s):

1. Norman Matloff, **The Art of R Programming: A Tour of Statistical Software Design**, No Starch Press, 2011.
UNIT I: Chapter 1-2
UNIT II: Chapter 3-4
UNIT III: Chapter 5-8
UNIT IV: Chapter 9-12
UNIT V: Chapter 15-17, 20-22
2. Jared P. Lander, **R for Everyone: Advanced Analytics and Graphics**, Addison-Wesley Data & Analytics Series, 2013.

Reference Book(s):

1. Mark Gardner, **Beginning R – The Statistical Programming Language**, Wiley, 2013.
2. Robert Knell, **Introductory R: A Beginner's Guide to Data Visualisation, Statistical Analysis and programming in R**, Amazon Digital South Asia Services Inc, 2013.

Tools for Assessment (25 Marks)

CIA I	CIA II	CIA III	Class Participation	Assignment	Seminar	Total
4	4	5	4	4	4	25

Mapping CO and PO

CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	L	-	-	M	-	-	H	M	M	M	M	M
CO2	M	M	-	L	M	-	L	H	H	M	H	M	H
CO3	H	H	-	L	M	-	L	H	M	H	M	M	M
CO4	H	H	-	L	M	-	L	H	L	M	M	M	M
CO5	H	H	-	L	M	-	L	H	H	H	H	H	H

Course Designed by	Verified by	Checked by	Approved by

Course Code	Title		
21U3AMC512	Core Paper XVI: Cloud Computing		
Semester : V	Credits: 3	CIA:30 Marks	ESE:45 Marks

Course Objective:

To enable the students to learn the concepts of Cloud Computing.

Course Outcomes (CO):

CO1	Analyze the evolution and services delivered of cloud computing.
CO2	Identify the building of cloud networks.
CO3	Evaluate security mechanisms using various approaches.
CO4	Compare the end user access and mobile internet service.
CO5	Analyze the Collaboration Applications for Mobile Platforms 1

Offered by: Artificial Intelligence and Machine Learning

Course Content

Instructional Hours / Week: 5

Unit	Description	Text Book	Chapter
I	The Evolution of Cloud Computing : Overview, Hardware Evolution-First-Generation Computers - Second-Generation Computers-Third-Generation Computers, Fourth-Generation Computers, Internet Software Evolution -Establishing a Common Protocol for the Internet-Evolution of Ipv6-Finding a Common Method to Communicate Using the Internet Protocol-Building a Common Interface to the Internet-The Appearance of Cloud Formations—From One Computer to a Grid of Many, Server Virtualization-Parallel Processing, Vector Processing, Symmetric Multiprocessing Systems, Massively Parallel Processing Systems	1	1
		Instructional Hours	15
II	Web Services Delivered from the Cloud: Overview - Communication-as-a-Service(CaaS)- Advantages of CaaS -Fully Integrated, Enterprise-Class-Unified Communications, Infrastructure-as-a-Service (IaaS)-Modern On-Demand Computing-Amazon’s Elastic Cloud- Amazon EC2 Service Characteristics- Mosso(Rackspace), Monitoring-as-a-Service (MaaS)-Protection Against Internal and External Threats-Delivering Business Value Real-Time Log Monitoring-Enables Compliance, Platform-as-a-Service (PaaS)-The Traditional On-Premises Model-The New Cloud Model-Key Characteristics of PaaS-Software-as-a-Service(SaaS)-SaaS Implementation Issues-Key Characteristics of SaaS-Benefits of	1	2

the SaaS Model		
Instructional Hours		15
III	Building Cloud Networks: Overview-The Evolution from the MSP Model to Cloud-Computing and Software-as-a-Service-From Single-Purpose Architectures to Multipurpose Architectures-Data Center Virtualization, The Cloud Data Center, Collaboration-Why Collaboration?-Service-Oriented Architectures as a Step Toward Cloud Computing, Basic Approach to a Data Center-Based SOA-Planning for Capacity-Planning for Availability-Planning for SOA Security, The Role of Open Source Software in Data Centers, Where Open Source Software Is Used-Web Presence-Database Tier-Application Tier-Systems and Network Management Tier	1 3
Instructional Hours		15
IV	Security in the Cloud: Overview, Cloud Security Challenges, Software-as-a-Service Security, Is Security-as-a-Service the New MSSP? Common Standards in Cloud Computing: Overview, The Open Cloud Consortium, The Distributed Management Task Force, Standards for Application Developers, Standards for Messaging, Standards for Security	1 6,7
Instructional Hours		15
V	End-User Access to Cloud Computing : Overview, YouTube, YouTube API Overview, Zimbra, Facebook, Zoho, DimDim Collaboration Mobile Internet Devices and the Cloud: Overview, What Is a Smartphone?, Mobile Operating Systems for Smartphone's, Mobile Platform Virtualization, Collaboration Applications for Mobile Platforms	1 8,9
Instructional Hours		15
Total Hours		75

Text Book(s):

- John W. Rittinghouse, James F. Ransome, **Cloud Computing Implementation, Management and Security**, CRC Press, 2010.
Unit I: Chapter 1 - Sections:- 1.1 to 1.4
Unit II: Chapter 2 - Sections: - 2.1 to 2.6
Unit III: Chapter 3 - 3.1 to 3.8
Unit IV: Chapter 6 - Sections:- 6.1 to 6.4, Chapter 7 - Sections:- 7.1 to 7.6
Unit V: Chapter 20- Sections:- 20.1 to 20.6

Reference Book(s):

- Bloor R., Kanfman M., Halper F. Judith Hurwitz , **Cloud Computing Implementation, Management and Security**, (Wiley India Edition), 2010

2. John Rittinghouse & James Ransome, “Cloud Computing Implementation Management and Strategy”, CRC Press, 2010.

Tools for Assessment (30)

CIA I	CIA II	CIA III	Group Discussion	Assignment	Seminar	Total
4	4	7	5	5	5	30

Mapping CO and PO

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	H	-	L	M	-	L	H	M	M	M	H	M
CO2	M	M	-	L	M	-	-	H	M	M	M	M	H
CO3	H	H	-	L	M	-	M	H	L	M	M	H	M
CO4	H	H	-	L	M	-	M	H	H	H	M	M	H
CO5	H	M	-	L	M	-	M	H	H	M	H	H	M

Course Designed by	Verified by HoD	Checked by	Approved by

Course Code	Title		
21U3AMC614	Core Paper XVIII : Deep Learning		
Semester: VI	Credits:2	CIA :25 Marks	ESE: 25 Marks

Course Objective:

To introduce the basic concepts and techniques of deep Learning.

Course Outcomes:

CO1	Understand the basic concepts and techniques of Deep Learning.
CO2	Implementing Neural Networks in TensorFlow
CO3	Understand and apply Convolution Neural Networks.
CO4	Analyze the Memory Augmented Neural Networks and Differentiable Neural Computers
CO5	Explore Deep Reinforcement Learning.

Department offered: Artificial Intelligence and Machine Learning

Course Content**Instructional Hours/Week:4**

Unit	Description	Text Book	Chapter
I	Neural Network.: Building Intelligent Machines-The Limits of Traditional-Computer Programs- The Mechanics of Machine Learning-The Neuro Expressing Linear Perceptrons as Neurons- Feed-Forward Neural Networks- Linear Neurons and Their Limitations- Sigmoid, Tanh, and ReLU Neurons-Softmax Output Layers. Training Feed-Forward Neural Networks: The Fast-Food Problem-Gradient Descent-The Delta Rule and Learning Rates-Gradient Descent with Sigmoidal Neurons-The Backpropagation Algorithm-Stochastic and Minibatch Gradient Descent-Test Sets, Validation Sets, and Overfitting-Preventing Overfitting in Deep Neural Networks.	1	1,2
Instructional Hours			12
II	Implementing Neural Networks in TensorFlow: What Is TensorFlow?-How Does TensorFlow Compare to Alternatives?-Installing TensorFlow-Creating and Manipulating TensorFlow Variables-TensorFlow Operations - Placeholder Tensors-Sessions in TensorFlow-Navigating Variable Scopes and Sharing Variables -Managing Models over the CPU and GPU-Specifying the Logistic Regression Model in TensorFlow- Logging and Training the Logistic Regression Model-Leveraging TensorBoard to Visualize Computation Graphs and Learning-Building a Multilayer Model for MNIST in TensorFlow	1	3
Instructional Hours			12
III	Convolutional Neural Networks: Neurons in Human Vision-The Shortcomings of Feature Selection-Vanilla Deep Neural Networks Don't Scale-Filters and Feature Maps-Full Description of the Convolutional Layer-Max Pooling-Full Architectural Description of Convolution	1	5

	Networks-Closing the Loop on MNIST with Convolutional Networks-Image Preprocessing Pipelines Enable More Robust Models-Accelerating Training with Batch Normalization-Building a Convolutional Network for CIFAR-10-Visualizing Learning in Convolutional Networks-Leveraging Convolutional Filters to Replicate Artistic Styles-Learning Convolutional Filters for Other Problem Domains		
	Instructional Hours		12
IV	Memory Augmented Neural Networks: Neural Turing Machines-Attention-Based Memory Access-NTM Memory Addressing Mechanisms-Differentiable Neural Computers-Interference-Free Writing in DNCs-DNC Memory Reuse-Temporal Linking of DNC Writes-Understanding the DNC Read Head-The DNC Controller Network-Visualizing the DNC in Action-Implementing the DNC in TensorFlow-Teaching a DNC to Read and Comprehend	1	8
	Instructional Hours		12
V	Deep Reinforcement Learning: Deep Reinforcement Learning Masters Atari Games-What Is Reinforcement Learning?-Markov Decision Processes (MDP)- Explore Versus Exploit-Policy Versus Value Learning-Pole-Cart with Policy Gradients- Q-Learning and Deep Q-Networks-Improving and Moving Beyond DQN	1	9
	Instructional Hours		12
	Total Hours		60

Text Book(s):

1. Nikhil Buduma, Nicholas Locascio, “**Fundamentals of Deep Learning: Designing Next-Generation Machine Intelligence Algorithms**”, O'ReillyMedia, 2017.

Unit I : Text Book 1, Chapters 1,2

Unit II: Text Book 1, Chapter 3

Unit III: Text Book 1, Chapter 5

Unit IV: Text Book 1, Chapter 8

Unit V: Text Book 1, Chapter 9

Reference Book(s):

1. Keras Navin Kumar Manaswi , “**Deep Learning with Applications Using Python: Chatbots and Face, Object, and Speech Recognition with Tensorflow and Keras**”, Apress, 2018
2. Ian Goodfellow, YoshuaBengio, Aaron Courville, “**Deep Learning (Adaptive computation and Machine Learning series)**”, MIT Press, 2017.

Tools for Assessment (30 Marks)

CIA I	CIA II	CIA III	Group Discussion	Assignment	Seminar	Total
4	4	7	5	5	5	30

Mapping

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	-	-	L	-	L	H	M	M	H	M	M
CO2	M	M	-	L	L	-	M	H	M	H	M	M	H
CO3	H	H	-	L	L	-	M	H	L	M	H	H	M
CO4	H	H	-	L	L	-	M	H	H	H	M	H	H
CO5	H	H	-	L	L	-	M	H	H	M	H	M	M

Course Designed by	Verified by	Checked by	Approved by

Course Code	Title		
21U3AMC615	Core Paper XIX : Internet of Things		
Semester: VI	Credits: 3	CIA: 30 Marks	ESE:45 Marks

Course Objective:

To understand the Data and Knowledge Management and the use of Devices in IoT Technology. Also to make the students familiar with IIoT.

Course Outcomes (CO)

CO1	Understand the vision of IoT from a global context.
CO2	Understand the Market perspective of IoT.
CO3	Understand Use of Devices, Gateways and Data Management in IoT.
CO4	Familiar with Basic features of the Industry 4.0 and Industrial Internet of Things
CO5	Gain knowledge of the various aspects of IIoT

Offered by: Electronics**Course Content****Instructional Hours / Week: 4**

Unit	Description	Text Book	Chapter
I	M2M to IoT -The Vision-Introduction, From M2M to IoT, M2M towards IoT-the global context, A use case example, Differing Characteristics.	1	2
Instructional Hours			12
II	M2M to IoT – A Market Perspective – Introduction, Some Definitions, M2M Value Chains, IoT Value Chains, An emerging industrial structure for IoT, The international driven global value chain and global information monopolies. M2M to IoT-An Architectural Overview – Building an architecture, Main design principles and needed capabilities, An IoT architecture outline, standards considerations.	1	3-4
Instructional Hours			12
III	M2M and IoT Technology Fundamentals - Devices and gateways, Local and wide area networking, Data management.	1	5
Instructional Hours			12
IV	Overview of Industry 4.0 Introduction - Evolution of Industry 4.0 - Environmental impacts - Industrial Internet - Applications of Industry4.0 - Prerequisites of IIoT - Basics of CPS - CPS and IIoT	2	2
Instructional Hours			12
V	IIoT Introduction - IIC - Industrial Internet Systems : Design , Impact, Benefits - Industrial sensing - Industrial Processes : Features - Industrial plant - Viewpoint - Digital Enterprise - Applications	2	4
Instructional Hours			12
Total Hours			60

Text Books:

1. Jan Holler, VlasiosTsiatsis, Catherine Mulligan, Stefan Avesand, StamatisKarnouskos, David Boyle, “**From Machine-to-Machine to the Internet of Things: Introduction to a New Age of Intelligence**”, Academic Press, 2014.
2. S. Misra, C. Roy, and A. Mukherjee, **Introduction to Industrial Internet of Things and Industry 4.0** CRC Press, 2020

Unit I : Text Book 1, Chapter 2

Unit II : Text Book 1, Chapter 3,4

Unit III: Text Book 1, Chapter 5

Unit IV: Text Book 2, Chapter 2

Unit V : Text Book 2, Chapter 4

Reference Books:

1. Vijay Madiseti and ArshdeepBahga, “**Internet of Things (A Hands-on-Approach)**”, VPT, 2014.
2. Francis daCosta, “**Rethinking the Internet of Things: A Scalable Approach to Connecting Everything**”, Apress Publications, 2013

Tools for Assessment (30 Marks)

CIA I	CIA II (Online)	CIA III	Assignment	Seminar	Group Project	Total
4	4	7	5	5	5	30

Mapping

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	-	M	L	-	M	H	L	L	H	H	M
CO2	M	M	-	M	L	-	M	H	M	M	M	M	M
CO3	H	H	-	M	L	-	M	H	H	H	M	H	H
CO4	H	H	-	M	L	-	M	H	M	M	H	M	H
CO5	H	M	-	M	L	-	M	H	M	M	M	M	H

S - Strong; H-High; M-Medium; L-Low.

Course Designed by	Verified by HOD	Checked by	Approved by
Dr. S. Kannan	Dr. M. Sathishkumar		

Course Code	Title		
21U3AMP616	Core Paper XX : Practical in Internet of Things		
Semester: VI	Credits: 3	CIA: 30 Marks	ESE:45 Marks

Course Objective:

On the successful completion of the course the students will able to design IoT applications

Course Outcomes (CO)

CO1	Familiar with Arduino board working
CO2	Implement the design of digital meter
CO3	Interfacing with various sensors
CO4	Design with Tinkercad
CO5	Implementing IoT applications

Offered by: Electronics

Course Content

Instructional Hours / Week:4

S.No.	Experiments
Internet of Things Practical (Any 8 Experiments)	
1.	Demonstrate the working of Arduino
2.	Blinking LED
3.	Design of digital dc voltmeter
4.	Measure the air humidity using sensor
5.	Measure the temperature using sensor
6.	Simulate motor control on Tinkercad
7.	Measure the distance of an object using sensor
8.	Smart Home Automation system
9.	Sense the available network
10.	Sense the finger print when it is placed on board
11.	Patient health monitoring system
12.	Traffic light control system
Total Hours : 60	

Tools for Assessment (30 Marks)

Laboratory Performance I	Laboratory Performance II	Laboratory Performance III	Test I During Mid Semester	Test II As model test at end of the semester	Observation Note book	Total
5	5	5	6	6	3	30

Mapping CO AND PO

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	H	-	L	M	-	M	H	L	M	M	M	H
CO2	M	M	-	L	M	-	M	H	M	M	M	M	H
CO3	H	H	-	L	M	-	M	H	M	M	H	M	H
CO4	H	H	-	L	M	-	M	H	M	M	M	M	H
CO5	H	M	-	L	M	-	M	H	M	M	H	M	H

S - Strong; H-High; M-Medium; L-Low.

Prepared by	Verified by HOD	Checked by	Approved by
Dr. M. Sathishkumar	Dr. M. Sathishkumar		

Course Code	Title		
21U3AMP101	Core Paper III Practical in Python Programming		
Semester: I	Credits:4	CIA:50 Marks	ESE: 50 Marks

Course Objective:

To introduce the concepts of python programming constructs.

Course Outcomes:

CO1	Develop simple Python programs.
CO2	Understand and apply the concept of control statements.
CO3	Apply the concept of looping constructs and functions for Solving basic programs.
CO4	Develop the program for sorting of Strings, Lists, Tuples and File handler.
CO5	Create a program for Linear and Binary Search Techniques

Department offered: Artificial Intelligence and Machine Learning

Course Content

Instructional Hours/Week: 4

1. Write a python program that displays the following information: Your name, Full Address Mobile, number, College name, Course subjects.
2. Write a python program to find the largest three integers using if-else and conditional operator.
3. Write a python program that asks the user to enter a series of positive numbers (The user should enter a negative number to signal the end of the series) and the program should display the numbers in order and their sum.
4. Write a python program to find the product of two matrices.
5. Write recursive functions for GCD of two integers.
6. Write recursive functions for the factorial of positive integer.
7. Write recursive functions for Fibonacci Sequence up to given number n.
8. Write recursive functions to display prime number from 2 to n.
9. Write a python program that writes a series of random numbers to a file from 1 to n and display.
10. Write a python program to sort a given sequence: String, List and Tuple.
11. Write a python program to make a simple calculator.
12. Write a python program for Linear Search and Binary Search.
13. Write python program in which a function (with single string parameter) is defined and calling that function prints the string parameters given to function.
14. Write python program in which a class is define, then create object of that class and call

Simple print function defines in class.	
Total Hours	60

Tools for Assessment (50 Marks)

Application of Logic	Program Creativity	Program Debugging	Test 1	Test 2	Observation Note Book	Total
8	8	8	10	10	6	50

Mapping

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5	PSO1
CO1	M	H	L	L	M	L	M	H	M	H	M	L	M	M
CO2	M	M	L	M	L	L	M	H	M	M	M	M	H	M
CO3	H	H	L	M	M	L	M	H	H	L	H	H	M	H
CO4	H	H	L	M	M	L	M	H	H	H	L	M	L	H
CO5	H	M	L	M	M	L	M	H	M	M	H	H	H	M

H-High; M-Medium; L-Low.

Course Designed by	Verified by HoD	Checked by	Approved by

Course Code	Title		
21U3AMP203	Core Paper VI Practical in Java Programming		
Semester: II	Credits: 4	CIA : 50 Marks	ESE: 50 Marks

Course Objective:

To enable the students to develop problem solving skills and programming ability in Java Language

Course Outcomes (CO):

CO1	Develop programs to implement the string, array and multiple inheritance concepts.
CO2	Implement the multithreading, exception handling concepts to solve real world problems
CO3	Apply the concept of package to illustrate reusability.
CO4	Develop the programs for the concepts of Applets and AWT.
CO5	Create application for file handling.

Offered by: Artificial Intelligence and Machine Learning

Course Content

Instructional Hours / Week: 4

S. No.	List of Practical
1	Write a Java Applications to extract a portion of a character string and print the extracted string.
2	Write a Java program to insert an element (specific position) into an array.
3	Write a Java Program to implement the concept of Interfaces.
4	Write Java program to implement overloading of methods.
5	Write a program to implement the concept of Exception Handling.
6	Write java program to demonstrate runtime polymorphism using overriding.
7	Write Java program to add two matrices.
8	Write a Java Program to implement the concept of multithreading with the use of any three multiplication tables and assign three different priorities to them.
9	Write a Java program to import classes from user defined package and creating package.
10	Write Java program to process text file.
11	Write a Java Applet to draw several shapes in the created windows.
12	Write a JavaApplet to add two numbers.
Total Hours : 60	

Tools for Assessment (50 Marks)

Application of Logic	e- Program Creativity	e- Program Debugging	Test 1	Test 2	Observation Note Book	Total
8	8	8	10	10	6	50

Mapping

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	-	M	M	L	-	H	M	H	H	M	M
CO2	M	H	-	M	M	L	M	H	M	H	M	H	M
CO3	M	H	-	M	M	L	-	H	H	M	M	M	H
CO4	H	H	-	M	M	L	-	H	M	H	H	H	M
CO5	H	H	-	M	M	L	-	H	H	M	H	M	H

H-High; M-Medium; L-Low.

Course Designed by	Verified by HoD	Checked by	Approved by

Course Code	Title		
21U3AMP304	Core Paper IX : Practical in Computer Networks		
Semester: III	Credits: 4	CIA: 50 Marks	ESE:50 Marks

Course Objective:

To learn, Implement and Analyze various network protocols .

Course Outcomes:

CO1	Implement various protocols using TCP and UDP.
CO2	Compare the performance of different transport layer protocols.
CO3	Use simulation tools to analyze the performance of various network protocols.
CO4	Analyze various routing algorithms
CO5	Implement error correction codes.

Offered by: Artificial Intelligence and Machine Learning

Course Content

Instructional Hours/Week: 6

S. No.	List of Program
1	Learn to use commands like tcpdump, netstat, ifconfig, nslookup and traceroute. Capture ping and traceroute PDUs using a network protocol analyzer and examine
2	Write a HTTP web client program to download a web page using TCP sockets
3	Applications using TCP sockets like: <ul style="list-style-type: none"> • Echo client and echo server • Chat • File Transfer
4	Simulation of DNS using UDP sockets.
5	Write a code simulating ARP /RARP protocols.
6	Study of Network simulator (NS) and Simulation of Congestion Control Algorithms using NS
7	Study of TCP/UDP performance using Simulation tool.
8	Simulation of Distance Vector/ Link State Routing algorithm.
9	Performance evaluation of Routing protocols using Simulation tool.
10	Simulation of error correction code (like CRC)
Total Hours	
90	

Tools for Assessment (50 Marks)

Aim & Pre-Lab discussion	Conduction and Execution	Output & Result	Test 1	Test 2	Observation Note Book	Total
8	8	8	10	10	6	50

Mapping

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	H	-	-	L	-	L	M	M	M	H	M	M
CO2	M	M	-	L	M	-	M	H	M	H	M	M	M
CO3	H	H	-	L	M	-	M	H	L	M	M	M	M
CO4	H	H	-	L	M	-	M	H	H	H	M	H	H
CO5	H	M	-	L	M	-	M	M	H	M	H	M	M

S- Strong; H-High; M-Medium; L-Low

Course Designed by	Verified by HoD	Checked by	Approved by

Course Code	Title		
21U3AMP408	Core Paper XIII : Practical in Machine Learning		
Semester: IV	Credits: 3	CIA: 30 Marks	ESE:45 Marks

Course Objective:

To introduce students to the concepts and techniques of Machine Learning.

Course Outcomes:

CO1	Understand the basic concepts and techniques of Machine Learning .
CO2	Explain the regression methods, classification methods, clustering methods.
CO3	Understand the interface and learning and algorithms for the hidden Markov model.
CO4	Demonstrate dimensionality reduction Techniques
CO5	Appreciate the underlying mathematical relationships within and across Machine Learning algorithms and the paradigms of supervised and un-supervised learning

Offered by: Artificial Intelligence and Machine Learning

Course Content

Instructional Hours/Week: 5

S. No.	List of Program
1	Implement and demonstrate the FIND-S algorithm for finding the most specific hypothesis based on given set of training data samples. Read the training data from a .CSV file
2	For a given set of training data example stored in a .CSV file, implement and demonstrate the Candidate-Elimination algorithm to output description of the set of all hypothesis consistent with the training examples
3	Write a program to demonstrate the working of the decision tree based ID3 algorithm. use an appropriate data set for building the decision tree and apply this knowledge to classify a new sample
4	Build an Artificial Neural Network by implementing the Back propagation algorithm and test the same using appropriate data sets
5	Write a program to implement the naïve Bayesial classifier for a sample training data set stored as a .CSV file. Compute the accuracy of the classifier, considering few test data sets
6	Assuming a set of documents that need to be classified, use the naïve Bayesial Classifier model to perform this task. Built-in Java classes/API can be used to write the program. Calculate the accuracy, precision, and recall for your data set.
7	Write a program to construct a Bayesian network considering medical data. Use this model to demonstrate the diagnosis of heart patients using standard Heart Disease Data Set. You can use Java/Python ML library classes/API
8	Apply EM algorithm to cluster a set of data stored in a .CSV file. Use the same data set for clustering using k-Means algorithm. Compare the results of these two algorithm and comment on the quality of clustering. You can add Java/Python ML library classes/API in the program.

9	Write a program to implement k-Nearest Neighbor algorithm to classify the iris data set. Print both correct and wrong predictions. Java/Python ML library classes can be used for this problem.
10	Implement the non-parametric Locally Weighted Regression algorithm in order to fit data points. Select appropriate data set for your experiment and draw graph
Total Hours	
75	

Tools for Assessment (30 Marks)

Aim & Pre-Lab discussion	Conductio n and Execution	Output & Result	Test 1	Test 2	Observation Note Book	Total
5	5	5	6	6	3	30

Mapping CO and PO

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	H	-	-	L	-	M	H	M	M	H	M	M
CO2	M	M	-	L	-	-	M	H	M	H	M	M	H
CO3	H	H	-	L	-	-	M	H	L	M	H	H	M
CO4	H	H	-	L	L	-	M	H	H	H	M	H	H
CO5	H	M	-	L	L	-	M	H	H	M	H	M	M

S- Strong; H-High; M-Medium; L-Low

Course Designed by	Verified by HoD	Checked by	Approved by

Course Code	Title		
21U3AMP510	Core Paper XVII: Practical in Natural Language Processing		
Semester: V	Credits:4	CIA :50 Marks	ESE:50 Marks

Course Objective:

To introduce the fundamental concepts and techniques of natural language processing (NLP)

Course Outcomes:

CO1	Understand the fundamental concepts and techniques of natural language processing (NLP)
CO2	Understanding of the models and algorithms in the field of NLP.
CO3	Demonstrate the computational properties of natural languages and the commonly used algorithms for processing linguistic information.
CO4	Understanding semantics and pragmatics of languages for processing
CO5	Understanding Machine Translation of languages for processing

Department offered: Artificial Intelligence & Machine Learning

Course Content

Instructional Hours/Week:5

LIST OF PROGRAMS	
1. Implementing word similarity	
2. Implementing simple problems related to word disambiguation	
3. Simple demonstration of part of speech tagging.	
4. Lexical analyzer.	
5. Semantic Analyzer.	
6. Sentiment Analysis	
Total Hours	75

1. Implementing word similarity
2. Implementing simple problems related to word disambiguation
3. Simple demonstration of part of speech tagging.
4. Lexical analyzer.
5. Semantic Analyzer.
6. Sentiment Analysis

Text Book(s):

1. Daniel J and James H. Martin,||speech and language processing|| an introduction to natural language processing, computational linguistics& speech recognition||prentice hall,2009

Reference Book(s):

1. Lan H Written and Elbef,MarkA.Hall,||data mining: practical machine learning tools and techniques||,Morgan Kaufmann,2013

Tools for Assessment (50 Marks)

Laboratory Performance- Application of Logic	Laboratory Performance- Program Creativity	Laboratory Performance - Program Debugging	Test 1	Test 2	Observation Note Book	Total
50	8	8	10	10	6	50

Mapping CO and PO

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	-	L	M	-	L	H	M	H	H	M	M
CO2	M	M	-	L	M	-	-	H	M	H	M	H	H
CO3	H	H	-	L	M	-	-	H	H	H	M	M	M
CO4	H	H	-	L	M	-	L	H	H	H	M	H	H
CO5	H	H	-	L	M	-	L	H	H	M	H	H	M

Course Designed by	Verified by	Checked by	Approved by

Course Code	Title	
21U3AMVALC	In-plant Training	
Semester: V	Credits: 2	ESE:50 Marks

Objective:

To give optimum exposure on the practical side of industrial society

Guidelines:

1. Duration of the internship training is **20 days** during the summer vacation which falls at the **end of the 4th semester.**
2. The departments concerned will prepare on exhaustive panel of institutions, industries and practitioners.
3. The individual student has to identify the institution / industry / practitioners of their choice and inform the same to the HOD / staff-in-charge.
4. The students hereafter will be called as trainees should maintain a work diary in which the daily work done should be entered and the same should be attested by the section in-charge.
5. The departments should prepare an outline of the job to be done, sections in which they have to be attached both in the office as well as in the field.
6. The trainees should strictly adhere to the rules and regulations and office timings of the institutions to which they are attached.
7. The trainees have to obtain a certificate on successful completion of the internship from the chief executive of the organization.
8. Monitoring and inspection by staff on a regular basis.
9. Report writing manual and format should be prepared by the respective departments.
10. All model forms are to be attached wherever it is necessary.
11. Report evaluation: Internal viva-voce examination will be conducted and the maximum mark awarded is 50.
12. In-Plant Training has to be carried out only in the approved industries by the department/College
13. Report should be submitted in the 5th semester at end of the September

Course Code	Title		
21U3AMV617	Core Paper XXI : Project & Viva-Voce		
Semester: VI	Credits: 4	CIA :30 Marks	ESE:45 Marks

Project Guidelines

1. ARRANGEMENT OF CONTENTS:

The sequence in which the project report material should be arranged and bound is as follows:

1. Cover Page & Title Page
2. Bonafide Certificate
3. Abstract
4. Table of Contents
5. List of Tables
6. List of Figures
7. List of Symbols, Abbreviations
8. Chapters
9. Appendices
10. References

The table and figures shall be introduced in the appropriate places.

2. PAGE DIMENSION AND SIZE OF THE PROJECT REPORT:

(a) The size of the project report for undergraduate and post graduate degree should contain a minimum of 40 and 60 pages of content respectively. The pages will be counted from the first page of Chapter I. The dimension of the project report should be in A4 size.

(b) The project report should be bound using flexible cover of thick art paper. The cover should be **printed in black letters** and the text for printing should be identical.

(c) Page Numbering

All page numbers (**whether it is in Roman or Arabic numbers**) should be typed without punctuation on the central bottom of each page. The preliminary pages of the reports (such as Title page, Acknowledgement, Table of Contents, etc.) should be numbered in lower case Roman numerals. The title page will be numbered as (i) but this should not be typed. The page immediately following the title page shall be numbered as (ii) and it should appear at the top right hand corner as already specified. Pages of main text, starting with Chapter 1 should be consecutively numbered using Arabic numerals.

3. PREPARATION FORMAT:

Cover Page & Title Page – A specimen copy of the Cover page & Title page of the project report are given in **Appendix 1**.

Bonafide Certificate – The Bonafide Certificate shall be in **double line spacing using Font Style Times New Roman and Font Size 14**, as per the format in **Appendix 2**.

The certificate shall carry the supervisor’s signature and shall be followed by the supervisor’s name, academic designation (not any other responsibilities of administrative nature) and Department where the supervisor has guided the student. The term „**SUPERVISOR**“ must be typed in capital letters between the supervisor’s name and academic designation.

Abstract – Abstract should be one page synopsis of the project report typed **double line spacing, Font Style Times New Roman and Font Size 13**.

Table of Contents – The table of contents should list all material following it as well as the Abstract which precedes it. The Title page and Bonafide Certificate will not find a place among the items listed in the Table of Contents. **One and a half** spacing should be adopted for typing the matter under this head.

List of Tables – The list should use exactly the same captions as they appear above the tables in the text. **One and a half** spacing should be adopted for typing the matter under this head.

List of Figures – The list should use exactly the same captions as they appear below the figures in the text. **One and a half** spacing should be adopted for typing the matter under this head.

3.7. Table and figures - By the word Table, is meant tabulated numerical data in the body of the project report as well as in the appendices. All other non- verbal materials used in the body of the project work and appendices such as charts, graphs, maps, photographs and diagrams may be designated as figures.

List of Symbols, Abbreviations– One and a half spacing should be adopted for typing the matter under this head. Standard symbols, abbreviations etc. should be

used.

Chapters – The chapters may be broadly divided into 3 parts
Introductory chapter,

- (i) Chapters developing the main theme of the project work
- (ii) Conclusions and scope

The introductory chapter will have sections covering a general introduction and importance of the research project.

The main text will be divided into several chapters and each chapter may be further divided into several divisions and sub-divisions.

- ❖ Each chapter should be given an appropriate title.
- ❖ Tables and figures in a chapter should be placed in the immediate vicinity of the reference where they are cited.

Appendices – Appendices are provided to give supplementary information, which if included in the main text may serve as a distraction.

- Appendices should be numbered using Arabic numerals, e.g. Appendix 1, Appendix 2, etc.
- Appendices, Tables and References appearing in appendices should be numbered and referred at appropriate places just as in the case of Chapters.
- Appendices shall carry the title of the work reported and the same title shall be made in the contents page also.

List of References –The listing of references should be typed 4 spaces below the heading “REFERENCES” in alphabetical order in single spacing left – justified. The reference material should be listed in the alphabetical order of the first author. The name of the author / authors should be immediately followed by the year and other details.

(i) If more than one paper by the same first author and same year of publications, the year of citation will be followed by a, b etc to differentiate them.

(ii) While citing the paper in the text, the name of the first author and year alone must be cited. e.g Samson (2004) or Jeyaraj (2007a). The reference numbers should not be used in the text of the paper

(iii) A paper, a monograph or a book may be designated by the name of the first author

followed by the year of publication, placed inside brackets at the appropriate places in the Thesis.

4. TYPING INSTRUCTIONS:

The impression on the typed copies should be black in colour.

One and a half spacing should be used for typing the general text. The general text shall be typed in the **Font style „Times New Roman“ and Font size 13.**

APPENDIX 1

TITLE <1.5 line spacing>

a project report submitted by

 <Italic>

NAME OF THE STUDENT (REGISTER NUMBER)

in partial fulfillment for the award of the degree

 <Italic> <1.5 line spacing>

in

NAME OF THE PROGRAMME

under the supervision of <Italic>

NAME OF THE SUPERVISOR



NAME OF THE DEPARTMENT

NEHRU ARTS AND SCIENCE COLLEGE

(An Autonomous Institution affiliated to Bharathiar University) (Reaccredited with “A” Grade by NAAC, ISO 9001:2015 & 14001:2004 Certified)

Recognized by UGC with 2(f) &12(B), Under Star College Scheme by DBT, Govt. of India) Nehru Gardens, Thirumalayampalayam, Coimbatore - 641 105, Tamil Nadu.

MONTH & YEAR

APPENDIX 2

(A typical specimen of Bonafide Certificate)

BONAFIDE CERTIFICATE

This is to certify that the project report entitled “.....**TITLE OF THE PROJECT.....**” is the bonafide work of “.....**NAME OF THE CANDIDATE(S) WITH REGISTER NUMBER.....**” who carried

out the project work under my supervision.

<<Signature of the Head of the Department>>

<<Signature of the Supervisor>>

SIGNATURE

SIGNATURE

<<Name>> <<size -16>

<<Name>> <<size -16>

HEAD OF THE DEPARTMENT

SUPERVISOR

<<Academic Designation>>

<<Academic Designation>>

<<Department>>

<<Department>>

Submitted for the Viva Voce held on

Internal Examiner

External Examiner

EVALUATION PROCESS

Review – I has to be conducted during the Last week of December
Review – II has to be conducted during the Last week of January
Review – III has to be conducted during the Last week of February

Document, Preparation and Implementation has to be done during the First week of March

Viva-Voce examination will be conducted at the end of the semester by both Internal (Respective Guides) and External Examiners, after duly verifying the Project Report available in the College.

Course Code	Title		
21U3AMZ604	Skill Based Paper IV : Practical in Deep Learning		
Semester: V1	Credits:3	CIA : 30 Marks	ESE:45 Marks

Course Objective:

To implement neural networks using computational tools for variety of problems.

Course Outcomes:

CO1	Develop algorithms simulating human brain.
CO2	Implement Neural Networks in Tensor Flow for solving problems.
CO3	Explore the essentials of Deep Learning and Deep Network architectures.
CO4	Define, train and use a Deep Neural Network for solving real world problems that require artificial Intelligence based solutions.
CO5	Implement deep learning in various applications

Department offered: Artificial Intelligence and Machine Learning

Course Content

Instructional Hours/Week:4

S. No.	List of Practical
1	Write a program to implement AND OR gates using Perceptron.
2	Implement Classification using pattern
3	Write a program to implement Classification using Back propagation.
4	Write a program to implement classification of linearly separable Data with a perceptron.
5	Write a program to study Long Short Term Memory for Time Series Prediction
6	Write a program to study Convolutional Neural Network
7	Write a program to study Recurrent Neural Network
8	Write a program to use deep neural networks to design agents that can learn to take actions in a simulated environment.
9	Write a program to implement Markov Decision Process
10	Write a program to study the use of Long Short Term Memory / Gated Recurrent Units to predict the stock prices based on historic data
	Total Hours : 60

Text Book(s):

1. Nikhil Buduma, Nicholas Locascio, “**Fundamentals of Deep Learning: Designing Next-Generation Machine Intelligence Algorithms**”, O'ReillyMedia, 2017.

Reference Book(s):

1. Keras Navin Kumar Manaswi , “**Deep Learning with Applications Using Python: Chatbots and Face, Object, and Speech Recognition with Tensorflow and Keras**”, Apress, 2018
2. Ian Goodfellow, YoshuaBengio, Aaron Courville, “**Deep Learning (Adaptive computation and Machine Learning series)**”, MIT Press, 2017.

Tools for Assessment (30 Marks)

Aim & Pre-Lab discussion	Conduction and Execution	Output & Result	Test 1	Test 2	Observation Note Book	Total
5	5	5	6	6	3	30

Mapping CO and PO

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	-	L	M	-	-	H	M	H	M	M	M
CO2	L	M	-	L	M	-	-	H	H	M	M	M	M
CO3	M	H	-	L	M	-	-	H	M	M	M	M	M
CO4	M	H	-	L	M	-	-	H	H	M	H	M	M
CO5	M	H	-	L	M	-	-	H	M	H	M	H	M

Course Designed by	Verified by	Checked by	Approved by

Course Code	Title		
21U3CJC102	Core Paper II Data Structures		
Semester: I	Credits: 4	CIA: 50 Marks	ESE:50 Marks

Common to (B. Sc. AIML/DS)

Course Objective:

To enable the students to understand about the various techniques such as Linked list, Searching and Sorting, apply them to solve complex programs.

Course Outcomes:

CO1	Understand the representation of Arrays, Stacks and Queues.
CO2	Solve the problems using Queues and List.
CO3	Demonstrate different types of Tree representation and Graph.
CO4	Design Algorithm to perform different types of Sorting.
CO5	Illustrate Symbol, hash and File organization and apply to solve real world problem using appropriate Data Structure.

Offered by: Artificial Intelligence & Machine Learning

Course Content

Instructional Hours/Week: 4

Unit	Description	Text Book	Chapter
I	Introduction: Overview - create Programs - Analyze Programs. Arrays: Axiomatization - Sparse Matrices - Representation of Arrays. Stacks & Queues: Fundamentals - Evaluation of Expressions - Multiple Stacks and Queues.	1	1,2,3
Instructional Hours		12	
II	Recursion: Recursive definition and process - recursion in C - Writing Recursive program - simulating Recursion - efficiency of recursion. Queues and List: The queue and its sequential representation - Linked list - List in C - An example Simulation using linked list - other list structure.	2	3,4
Instructional Hours		12	
III	Trees: Binary Tree - Binary Tree representation - the Huffman algorithm - representing list as Binary - Trees and their applications - Game trees. Graphs: A Flow problem - The linked representation of Graph - Graph traversal and spanning forests	2	5,8
Instructional Hours		12	
IV	Internal Sorting: Insertion Sort - Quick Sort - 2-Way Merge Sort - Heap Sort - Shell Sort. External Sorting: Storage Devices - K-Way Merging. Sorting With Tapes: Balanced Merge Sorts - Polyphase Merge.	1	7,8
Instructional Hours		12	
V	Symbol Table: Static Tree Tables - Dynamic Tree Tables . Hash Tables: Hashing Functions- Overflow Handling. Files: Files, Queries and Sequential Organizations- Index Techniques - File Organization: Sequential Organization- Random Organization- Linked Organization.	1	9, 10

Instructional Hours	12
Total	60

Text Book(s):

1. Ellis Horowitz & Sartaj Sahni, **Fundamentals of Data Structures**, Galgotia Publication.
2. Aaron M. Tenenbaum, Yedidyah Langsam, Moshe J. Augenstein, **Data Structure using C**, Pearson Education, 2009.

Unit I: Sections: 1.1 to 1.4, 2.1 to 2.4 and 3.1 to 3.4 (Text Book 1: Chapter 1, 2 and 3)

Unit II: Sections: 3.1 to 3.4, 4.1 to 4.5 (Text Book 2: Chapter 3 and 4)

Unit III: Sections: 5.1 to 5.6 (Text Book 2: Chapter 5)

Unit IV: Section: 7.1 to 7.8, 8.1 to 8.3 (Text Book 1: Chapter 7 and 8)

Unit V: Section: 9.1 to 9.3, 10.1, 10.3 (Text Book 1: Chapter 9 and 10)

Reference Book(s):

1. Ellis Horowitz, Sartaj Sahni & Sanguthevar Rajasekaran, **Fundamentals of Computer Algorithms**, Galgotia Publications Pvt Ltd, 1999.
2. Jean-Paul Tremblay and Paul G. Sorenson, **An Introduction to Data Structures with Applications**, Second Edition, Tata McGraw Hill, 2008.
3. Mark Allen Weiss, **Data Structures and Algorithm Analysis in C**, Florida International University, Pearson Education, Second Edition, 1997.

Tools for Assessment (50 Marks)

CIA I	CIA II	CIA III	Quiz	Assignment	Seminar	Total
8	8	10	8	8	8	50

Mapping

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	H	L	M	L	L	M	M	M	M	M	M	M
CO2	M	M	L	M	M	L	M	H	M	L	H	M	H
CO3	H	H	L	M	M	L	M	H	L	M	H	M	M
CO4	H	H	L	M	M	L	M	H	H	H	M	M	H
CO5	H	M	L	M	M	L	M	H	M	M	M	H	M

Course Designed by	Verified by	Checked by	Approved by

Course Code	Title		
21U3CKC101	Core Paper I Python Programming		
Semester: I	Credits: 4	CIA:50 Marks	ESE: 50 Marks

Common to (B. Sc CS/AIML/DS/IT/DCFS/BCA)

Course Objective:

To develop algorithmic solutions to simple computational problems using Python

Course Outcome:

CO1	Understand the basics of Python and write simple Python program.
CO2	Develop Python programs using control statement and list method.
CO3	Apply tuples, Functions, Set iterators to develop simple applications.
CO4	Apply Python Strings, multithreading and exceptions for problem solving
CO5	Manipulate Files and perform Event Handling.

Offered by: Information Technology

Course Content

Instructional Hours / Week:4

Unit	Description	Text Book	Chapter
I	Fundamentals of Python Programming: Introduction – Features – Applications – Installation-Sample Program-Python Virtual Machine-Memory management in Python-Comparison between C, Java and Python- Keywords, Identifiers, Statements, Indentation. Syntax and Styles: Data Types – Literals – Variables-Operators and Expressions-Evaluation of Expression-Sample Programs.	1	1,2
		Instructional Hours	12
II	Control Flow: If – While – For – Break – Continue-Pass-Entry Controlled Loop - Exit Controlled Loop – Counter Controlled Loop - Condition Controlled Loop - Nested Loop - Sample Programs. Arrays-Sequences - Python Lists: Read a List type from a Keyboard- Accessing Elements of a List- Modifying Elements of a List - Basic Operations-Built-in Functions – Python List Methods.	1 2	3,4,5 9
		Instructional Hours	12
III	Tuples-Need of a Tuple-Sequence of Unpacking – Methods –Sample programs. Dictionaries: Making a Dictionary-Basic Operations-Dictionary Operations – Sets-Iterators and Generators- Sample Programs Functions: Defining Functions-Calling Functions-Passing Arguments-Keyword Arguments-Default Arguments-Required Arguments-Variable Length Arguments-Return Statements-Nesting of Passing Arguments- Anonymous Functions-Recursive Functions- Scope of Local and Global Variables.	1	6,7,8
		Instructional Hours	12

IV	Strings in Python: Reading – Accessing – Modifying – Finding- Iterating through a String-Build-in String Functions.	2	8
	Errors and Exceptions-Multithreading	1	14,15
Instructional Hours		12	
V	Files and Directory Access: Files and Streams-Opening a File-Reading/Writing Operations in a File-Other operations in a File- Iterating through a File-Splitting Words-Serialization and Deserialization.		
	Events:Event Objects-Binding callbacks to events-Event names- Keyboard events-Mouse Events-Sample Programs	1	13,17
Instructional Hours		12	
Total Hours		60	

Text Books

1. Ch. Satyanaryana, M. Radhika Mani, B. N. Jagadesh, Python Programming, University Press Pvt. Ltd.2018.
2. Dr. S. A. Kulkarni, Problem Solving and Python Programming, 2nd Edition, Yesdee Publishing,2018

Reference Books

1. Allen B. Downey, **Think Python: How to Think Like a Computer Scientist**, 2nd edition, Updated for Python 3, Shroff/O'Reilly Publishers,2016
2. Guido van Rossum and Fred L. Drake Jr, **An Introduction to Python – Revised and updated for Python 3.2**, Network Theory Ltd., 2011.

Tools for Assessment (50 Marks)

CIA I	CIA II	CIA III	Quiz	Assignment	Seminar	Total
8	8	10	8	8	8	50

Mapping

H-High; M-Medium; L-Low.

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	H	L	M	M	L	M	H	M	H	M	M	M
CO2	M	M	L	M	M	L	M	H	M	M	M	M	H
CO3	H	H	L	M	M	L	M	H	H	L	H	H	M
CO4	H	H	L	M	M	L	M	H	H	H	L	M	L
CO5	H	M	L	M	M	L	M	H	M	M	H	H	H

Course Designed by	Verified by HoD	Checked by	Approved by

Course Code	Title		
21U3CKC203	Core Paper IV Java Programming		
Semester: II	Credits: 4	CIA : 50 Marks	ESE: 50 Marks

Common to (CS/AIML/IT/BCA)

Course Objective:

To gain knowledge about basic Java language syntax and semantics to write java programs and understand the principles of classes, methods, inheritance, polymorphism and packages.

Course Outcomes :

CO1	Remember the fundamental concepts of Object-oriented Programming
CO2	Develop simple Java programs with Control statements and arrays.
CO3	Apply the principles of packages and interfaces.
CO4	Design Java application using the concepts of Exception Handling and Multithreading.
CO5	Develop applications using IO Streams and AWT.

Offered by: Computer Science

Course Content

Instructional Hours / Week: 4

Unit	Description	Text Book	Chapter
I	Fundamentals of Object-Oriented Programming: Object-Oriented Paradigm – Basic Concepts of Object-Oriented Programming – Benefits of Object-Oriented Programming – Application of Object-Oriented Programming. Java Evolution: History – Features – How Java differs from C and C++ – Java and Internet – Java and www – Web Browsers. Overview of Java: simple Java program – Structure – Java Tokens – Statements – Java Virtual Machine-Command Line Arguments.	1	1,2,3
		Instructional Hours	12
II	Constants, Variables, Data Types, Operators and Expressions, Decision Making and Branching: if, if...else, nested if, switch, ? : Operator, Decision Making and Looping: while, do, for – Jumps in Loops - Labelled Loops, Classes, Objects and Methods. Arrays: One Dimensional Array-Creating an Array- Two Dimensional Array.	1	4,5,6,7 & 8
		Instructional Hours	12
III	Interfaces: Multiple Interface- Introduction-Defining Interface-Extending Interface-Implementing Interface-Accessing Interface Variables. Packages: Introduction-Java API Packages-Using System Packages-Naming Conventions-Creating Packages-Accessing a Package-Using a Package-Adding a Class to a Package-Hiding Classes-Static Import.	1	10,11 & 12
		Instructional Hours	12
IV	Exception Handling: Fundamentals-Hierarchy of the Exception Classes- Types of Exception –Exception Class-Uncaught Exceptions-Handling Exception-User Defined Exception. Multithreaded Programming: The Java Thread Model-Concept of Thread-Runnable Interface-Thread Class-Thread Creation-Thread's Life Cycle-Thread Scheduling-Synchronization and	2	10 & 11

Deadlock-Inter Thread Communication-Joining Threads-Suspending, Resuming and Stopping Threads-IDBC.		
	Instructional Hours	12
V Input/Output Classes: Input and Output Operations-Hierarchy of Classes in java.io Package-File Class-InputStream and OutputStream Classes-FileInputStream and FileOutputStream Classes-Reader and Writer Classes-RandomAccessFile Class-Stream Tokenizer. Applets: Applet Basics-Applet Life Cycle-Running Applets-Methods of the Applet Class-Graphics Class-Color Class-Font Class-Limitations of Applets. Abstract Window Toolkit: AWT-AWT Classes-Hierarchy of Classes in Java.awt Package-Control Fundamentals-Component Class-Basic Component Classes-Container Class.-Various Container Class.	2	16,18&19
	Instructional Hours	12
	Total Hours	60

Text Book(s):

1. E. Balagurusamy, **Programming with Java – A Primer**, Tata McGraw Hill Publication, 3rd Edition, 2007
2. ISRD Group, **Introduction To Object Oriented Programming Through Java**, Tata McGraw Hill Publication, Forth Reprint 2008.

Reference Book(s):

1. Patrick Naughton& Hebert Schildt, **The Complete Reference Java 2**, Tata McGraw Hill Publication, 3rd Edition , 2002
2. John R. Hubbard, **Programming with Java**, Tata McGraw Hill Publication, 2nd Edition, 2009

Tools for Assessment (50 Marks)

CIA I	CIA II	CIA III	Class Participation	Assignment	Seminar	Total
8	8	10	8	8	8	50

Mapping

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	H	-	M	M	-	M	H	M	H	M	M	H
CO2	M	M	-	M	M	-	M	H	H	M	M	H	M
CO3	H	H	-	M	M	-	M	H	M	H	H	M	H
CO4	H	H	-	M	M	-	M	H	M	H	M	M	H
CO5	H	M	-	M	M	-	M	H	H	M	H	M	M

H-High; M-Medium; L-Low.

Course Designed by	Verified by HoD	Checked by	Approved by

Course Code	Title		
21U3CKC305	Core Paper VII: Operating Systems		
Semester: III	Credits: 4	CIA:50 Marks	ESE: 50 Marks

(Common to B. Sc. CS / CT / IT / BCA)

Course Objective:

To understand the importance of Operating Systems, its functionalities to manage resources of Computer and Peripherals.

Course Outcomes:

CO1	Recognize the basic concepts of Operating system
CO2	Understand the concepts of processes and scheduling of process.
CO3	Explain the techniques of managing the deadlock and memory
CO4	Illustrate the Segmentation of Paging and Page Replacement policies.
CO5	Apply various file system implementation

Offered by: Computer Applications**Course Content****Instructional Hours / Week: 5**

Unit	Description	Text Book	Chapter
I	Introduction: Abstract views of an OS – Goals of an OS – OS and the Computer System – Classes of Operating System: Batch Processing systems – Multiprogramming systems – Time sharing systems – Real Time Operating System – Distributed Operating System – Modern Operating systems	1	1,2
Instructional Hours			15
II	Processes and Programs – Programmer View of Process – OS view of Process – Controlling Processes – Process State Transitions – Process Control Block – Process Scheduling: Scheduling Concepts and Terminology – Fundamental Techniques of scheduling – Non Preemptive scheduling policies - Preemptive scheduling policies.	1	3,4
Instructional Hours			15
III	Deadlock: Definition – Deadlocks in Resource Allocation – Handling deadlocks – Deadlock Detection and Resolution - Deadlock Prevention – Deadlock Avoidance. Memory Management: Static and dynamic Memory Allocation – The Memory Allocation Model – reuse of Memory – Contiguous Memory allocation – Non Contiguous Memory Allocation.	1	11
Instructional Hours			15
IV	Paging – Segmentation – Segmentation with Paging. Virtual Memory: Basics – Demand Paging – Overview of Paging – Demand Paging preliminaries – Page replacement policies – Virtual Memory using segmentation	1	5
Instructional Hours			15

V	Layers of the Input Output Control System (IOCS) – Overview of I/O Organization – Disk Scheduling. File systems: File System and IOCS – Files and File Operations – Fundamental File organizations – directory Structures – Case study on LINUX OS ,UNIX OS, Android OS (Self Study)	1	7
Instructional Hours			15
Total Hours			75

Text Book:

1. D M Dhamdhare, “Operating Systems-A concept – Based Approach”, 2nd Edition,2006.

Reference Books”

1. William Stallings , “Operating Systems Internals and Design Principles”, Seventh Edition,Pearson Education Inc.2012.
2. Abraham Silberchatz, Peter Baer Galvin,Greg Gagne, “Operating System Concepts”, Seventh Edition, Pearson 2009.

Tools for Assessment (50 Marks)

CIA I	CIA II	CIA III	Case Study Analysis	Assignment	Seminar	Total
8	8	10	8	8	8	50

CO-PO-PSO Mapping

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	H	M	M	M	L	M	H	H	H	H	M	M
CO2	H	H	M	M	M	L	M	H	H	H	H	M	M
CO3	H	H	M	M	M	L	M	H	H	H	H	H	H
CO4	H	H	M	M	M	L	M	H	H	H	H	H	H
CO5	H	H	M	M	M	L	M	H	H	H	H	H	H

H-High; M-Medium; L-Low

Course Designed by	Verified by	Checked by	Approved by

Course Code	Title		
21U3CKC306	Core Paper VIII: Computer Networks		
Semester: III	Credits: 4	CIA: 50 Marks	ESE:50 Marks

Course Objective:

To make the students understand the concepts of Computer Networks.

Course Outcomes (CO):

CO1	Describe the uses of networks.
CO2	Illustrate the transmission technologies of networks
CO3	Analyze the services and the features of the various layers of data networks
CO4	Determine the network layer and understand how to control the congestion in the network.
CO5	Apply the concept of presentation and network security.

Offered by: Artificial Intelligence and Machine Learning

Course Content

Instructional Hours/Week: 5

Unit	Description	Text Book	Chapter
I	Introduction: The Uses of Computer Networks - Network Hardware - Network Software - Reference Model	1	1
Instructional Hours			15
II	The Physical Layer: Guided Transmission Media - Communication Satellites - The Public Switched Telephone Network - Structure of the telephone system - The Local Loops -S Modems - Wireless Local loops	1	3
Instructional Hours			15
III	The Data Link Layer: Data Link Layer Design Issues- Error Detection & Correction. The medium access control sub layer - The channel allocation problem. Bluetooth: Bluetooth architecture - Applications. Data Link Layer Switching: Repeaters, Hubs, Bridges, Switches, routers, and gateways	1	5
Instructional Hours			15
IV	The Network Layer: Network Layer Design issues - Routing algorithms - The Optimality principle shortest path routing – flooding - distance vector routing - routing for mobile hosts. The Transport layer: The transport services - service provided to the upper layers, transport service primitives.	1	7
Instructional Hours			15

V	The Presentation Layer: DNS - The Domain Name System - Electronic Mail. Architecture and service the user agent.	1	10
	Network Security: Cryptography-Symmetric Key algorithms, DES - Public-key algorithms - Digital signature - symmetric key signature - public key signatures		
Instructional Hours			15
Total Hours			75

Text Books:

1. Andrew S Tenenbaum, **Computer Networks**, Pearson Education publication, 4th Edition, 2012

Reference Books:

1. Behrouz A. Forouzan, Sophia Chung Fegan, **Data Communications and Networking**, McGraw-Hill Higher Education, 3rd Edition, 2003.
2. V.S. Bagad, I.A. Dhotre, **Data Communication & Networking**, Technical Publication, 1st Edition, 2010.
3. Achyut S Godbole, Atul Kahate, **Computer Communication Networks**, Tata McGraw Hill, 4th Edition, 2006. FS

Tools for Assessment (50 Marks)

CIA I	CIA II	CIA III	Group Discussion	Assignment	Seminar	Total
8	8	10	8	8	8	50

Mapping

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	-	M	M	-	L	M	H	M	M	H	H
CO2	M	M	-	M	M	L	L	M	H	M	M	H	H
CO3	M	H	-	L	M	-	M	H	M	L	H	L	M
CO4	H	H	-	M	M	-	M	H	H	H	M	H	H
CO5	H	M	-	L	M	-	M	H	M	M	H	M	M

S- Strong; H-High; M-Medium; L-Low

Course Designed by	Verified by HoD	Checked by	Approved by

Course Code	Title		
21U3MIA202	Allied Paper II : Discrete Mathematics		
Semester: II	Credits : 4	CIA: 50 Marks	ESE: 50 Marks

(Common To CS/AIIML/DS/IT/DCFS/BCA)

Course Objective:

To learn about the discrete structures for Computer based applications.

Course Outcome: The Students should be able to

CO1	Learn the basic concepts of Set theory
CO2	Implement the basic ideas of Mathematical Logic in Computer Science
CO3	Classify different types of Relations and Functions
CO4	Understand the concepts of Grammar and Automata theory.
CO5	Know the concepts of Graph theory

Offered by: Mathematics**Course Content****Instructional Hours / Week: 5**

Unit	Description	Text Book	Chapter
I	Set Theory: Introduction-Set & its Elements-Set Description-Types of sets -Venn-Euler Diagrams-Set operations & Laws of set theory.	1	1
	Fundamental products - Partitions of sets – Minsets - Algebra of sets and Duality-Inclusion and Exclusion principle.	1	1
Instructional Hours			15
II	Mathematical Logic: Introduction- propositional calculus – Basic logical operations- Tautologies- Contradiction – Argument - Method of proof - Predicate calculus.	1	12
	Instructional Hours		
III	Relations: Binary Relations – Set operation on relations-Types of Relations – Partial order relation – Equivalence relation – Composition of relations.	1	3
	Functions – Types of functions – Invertible functions – Composition of functions.	1	4
Instructional Hours			15
IV	Languages: Operations on languages – Regular Expressions and regular languages.	1	15
	Grammar: Types of grammars – Finite state machine – Finite -State automata.	1	15
Instructional Hours			15
V	Graph Theory: Basic terminology – paths, cycle & Connectivity – Sub graphs – Types of graphs.	1	9

Trees – Properties of trees – Binary trees – traversing Binary trees – Computer Representation of general trees.	1	10
Instructional Hours		15
Total Hours		75

Text Books:

1. J.K. Sharma, **Discrete Mathematics**, Macmillan India Ltd, 2nd edition, 2005.

Unit I : Chapter 1, Section: 1.1-1.7, 1.9, 1.10, 1.12, 1.14

Unit II: Chapter 12, Section: 12.1 – 12.3 & 12.8, 12.9, 12.11, 12.12 & 12.14

Unit III: Chapter 3, Section: 3.3 - 3.7, 3.11

Chapter 4, Section: 4.1 – 4.5

Unit IV: Chapter 15, Section: 15.1-15.7

Unit V: Chapter 9, Section: 9.1 – 9.5

Chapter 10, Section: 10.1-10.3, 10.6, 10.8

Reference Books:

1. J. P. Tremblay, R Manohar, **Discrete Mathematics Structures with Applications to Computer Science**, McGraw Hill International Edition, 2005

2. T.Veerarajan, **Discrete Mathematics with Graph Theory and Combinatorics**, McGraw Hill International Edition, 2008

Tools for Assessment (50 Marks)

CIA I	CIA II	CIA III	Seminar	Class Participation	Periodical Quizzes	Total
8	8	10	8	8	8	50

Mapping PO and CO

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	H	-	M	L	-	M	M	L	L	L	L	-
CO2	H	H	-	M	-	-	M	H	L	M	M	M	-
CO3	H	H	-	M	-	-	M	H		M	M	M	-
CO4	H	H	-	M	M	-	M	M	M	M	M	M	-
CO5	H	H	-	H	M	-	M	H		M	M	M	-

H-High; M-Medium; L-Low.

Course Designed by	Verified by HOD	Checked by	Approved by

Course Code		Title	
21U3MIA303	Allied Paper III : Operations Research		
Semester: III	Credit : 4	CIA: 50 Marks	ESE: 50 Marks

(Common to CS/AI ML/IT/BCA)

Course Objective:

To enable the students to learn various mathematical applications in industries, decision making for real time environment.

Course Outcome:

CO1	To gain knowledge about the basic concepts of the optimal solutions.
CO2	To understand the concepts of Transportation And Assignment Problem.
CO3	To apply the concepts of various Strategies in Game Theory.
CO4	To analyze the concepts of Queuing Theory.
CO5	To find the Critical Path and expected duration for a project.

Offered by: Mathematics

Course Content**Instructional Hours / Week: 5**

Unit	Description	Text Book	Chapter
I	Linear Programming: Mathematical Model assumption of linear Programming	1	2
	Graphical method - Principles of Simplex method, Big-M Method, Duality.	1	3, 4, 5
Instructional Hours			15
II	Transportation And Assignment Problem: Assignment and Traveling Salesman Problem.	1	10, 11
	Instructional Hours		
III	Game Theory: Concept of Pure and Mixed Strategies – Solving 2 x 2 matrix with and without saddle point - n x 2 - 2 x m games, Dominance property	1	17
	Replacement models : Elementary replacement models - Present value - Rate of return - Depreciation - Individual replacement – Group replacement.	1	18
Instructional Hours			15
IV	Queuing Theory (Derivations not included): Definition of waiting line model - Queue discipline - Traffic intensity - Poison arrival – Birth death process - Problem from single server: finite and infinite population model .	1	20
	Instructional Hours		
V	PERT & CPM: Network representation - backward pass - Forward pass - computation - Pert Network.	1	21, 22
	Instructional Hours		

Total Hours

75

Text Book(s):

1. Kanti Swarup, P.K. Gupta, Man Mohan, **Operations Research**, S. Chand & Sons, 1997.

Unit 1: Chapter 2, 3, 4, Section: 4.1, 4.3, 4.4 (Big-M Method only)

Chapter 5, Section: 5.1, 5.2, 5.3, 5.4, 5.7

Unit II: Chapter 10 Section: 10.1, 10.2, 10.3, 10.5, 10.6 10.8, 10.9, 10.10, Chapter 11

Unit III: Chapter 17, Section: 17.1 – 17.7, Chapter 18, Section: 18.1 – 18.3.

Unit IV: Chapter 20, Section: 20.1 – 20.4, 20.6, 20.7, 20.8 (Model I, III, V, VI)

Unit V : Chapter 21, Chapter 22, Section: 22.1, 22.2, 22.3.

Reference Book(s):

1. Hamdy A Taha, **Operations Research – An introduction**, Prentice Hall of India PVT.LTD, 8th edition, 2008.
2. J. K. Sharma, **Operations Research Theory and Applications**, MacMillan India Ltd,2008.

Tools for Assessment (50 Marks)

CIA I	CIA II	CIA III	Class Participation	Assignment	Seminar	Total
8	8	10	8	8	8	50

Mapping CO and PO

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	L	-	M	L	-	M	H	L	L	M	L	L
CO2	M	M	-	M	M	-	M	H	L	M	M	L	M
CO3	M	M	-	M	M	-	M	H	M	M	M	L	M
CO4	M	M	-	M	M	-	M	H	M	M	M	L	M
CO5	M	M	-	M	M	-	M	H	M	M	M	L	M

Course Designed by	Verified by HOD	Checked by	Approved by

Course Code	Title		
21U3MIA404	Allied Paper IV : Mathematics for Machine Learning		
Semester: IV	Credits: 3	CIA: 30 Marks	ESE: 45 Marks

Course Objective:

This course is aimed to develop Logical thinking and to build an intuitive understanding of Mathematics and its application relating to Machine Learning.

Course Outcome:

CO1	To know the basic concepts of Vector spaces.
CO2	To gain knowledge about Matrix Decomposition.
CO3	To Understand the conditions for Extreme values.
CO4	To learn Probability Distributions and Co variance.
CO5	To learn Optimization Algorithms in Machine Learning.

Offered by: Mathematics

Course Content

Instructional Hours / Week: 5

Unit	Description	Text Book	Chapter
I	Linear Algebra: Vectors-Vector spaces – Definition and examples- Linear dependence and independence of vectors-Basics, dimensions and Rank. Vector subspaces: Examples and properties.	1	2
Instructional Hours			15
II	Matrix Decompositions: Linear mappings - Matrix representation - Determinant and Trace - Least Square approximation.	1	2,4
	Decomposition – Cholesky Decomposition-Eigen Decomposition and Diagonalisation- Singular value decomposition – Matrix Approximation.	1	4
Instructional Hours			15
III	Calculus: Differentiation of univariate function –Partial Differentiation-Gradients-Useful identities for Computing Gradients-Back Propagation and Automatic Differentiation- Higher Order Derivatives-Linearization and Multivariate Taylor series.	1	5
Instructional Hours			15
IV	Probability: Basics of probability – Chain rule – Conditional probability - Baye’s theorem. Random variables – Expectation and variance, Probability distributions, Joint probability distributions and Co variance.	1	6

		Instructional Hours	15
V	Numerical optimization in machine learning- Continuous Optimization- Gradient Descent and other optimization algorithms in machine learning. Lagrangian multiplier method-Convex Optimization- Dual problems	1	7
		Instructional Hours	15
		Total Hours	75

Text Book:

1. Marc Peter Deisenroth, A.Aldo Faisal and Cheng soon ong , **Mathematics for Machine Learning**, Cambridge university Press, 2020.

Unit – I : Chapter 2 , Sections- 2.4-2.6

Unit – II : Chapter 2 , Sections – 2.7

Chapter 4, Sections -4.1-4.6

Unit –III : Chapter 5 , Sections – 5.1-5.8

Unit- IV : Chapter 6 , Sections – 6.1-6.4

Unit –V : Chapter 7 , Sections – 7.1-7.4

Tools for Assessment (30 Marks)

CIA I	CIA II	CIA III	Class Participation	Assignment	Seminar	Total
4	4	7	5	5	5	30

Mapping

PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	H	-	L	M	-	M	H	-	L	L	M	M
CO2	M	M	-	L	M	-	M	H	-	L	M	H	M
CO3	H	H	-	L	M	-	M	H	-	L	H	M	M
CO4	H	H	-	L	M	-	M	H	-	L	M	L	L
CO5	H	M	-	L	M	-	M	H	-	L	H	H	H

Course Designed by	Verified by HOD	Checked by	Approved by

Course Code	Title		
21U3MKA101	Allied Paper : I Statistics for Computer Science		
Semester: I	Credits: 4	CIA:50 Marks	ESE:50 Marks

Common to (B.Sc AIML/DS)

Course Objective:

To enable the students to learn and visualize the fundamental ideas of statistical methods.

Course Outcome: The Students should be able to

CO1	Implement the basic concepts of measures of central tendency and dispersion
CO2	Understand the concepts of Correlation and Regression
CO3	Calculate probability using Baye's theorem
CO4	Know various techniques about Random variables
CO5	Analyse the properties of MGF and CGF

Offered by : Mathematics

Course Content

Instructional Hours / Week: 5hrs

Unit	Description	Text Book	Chapter
I	Statistics – Introduction – frequency distribution- Diagrammatic and Graphical Presentation of data- Measures of Central tendency-Arithmetic mean- Median-Mode.	1	2
	Measures of dispersion – Range-Standard deviation –Quartile deviation- Coefficient of variation.	1	2
Instructional Hours			15
II	Correlation: Definition –Scatter diagram-Karl Pearson's correlation co-efficient-Rank correlation co- efficient –Properties.	1	10
	Regression : Introduction –Construction of regression equations –Properties.	1	11
Instructional Hours			15
III	Probability: Introduction- Axioms of probability- Conditional probability- Addition theorem- Multiplication theorem- Independent event.	1	3
	Baye's theorem	1	4
Instructional Hours			15
IV	Random variables – Discrete random variables- probability mass function- Continuous random variables – probability density function	1	5
	Mathematical Expectation –Addition and Multiplication theorems-variance – Co-variance.	1	6
Instructional Hours			15
V	Generating Functions- Moment generating and cumulants - Characteristic functions and their	1	7

properties-Chebychev's inequality-Weak law of large numbers.		
Central limit theorem	1	9
Instructional Hours		15
Total Hours		75

Text Book:

1. S.C.Guptha and V.K. Kapoor , **Fundamentals of Mathematical Statistics**, S.Chand and Sons, Reprint, 2009.

Reference Book:

1. P.R.Vittal , **Mathematical statistics**, Margham Publications, Chennai .

Tools for Assessment (50 Marks)

CIA I	CIA II	CIA III	Seminar	Class Participation	Periodical Quizzes	Total
8	8	10	8	8	8	50

Mapping

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	H	L	H	H	H	H	H	L	L	L	L	L
CO2	H	H	L	H	H	H	H	H	M	-	M	-	L
CO3	H	M	L	M	M	H	M	H	L	-	L	-	M
CO4	H	H	L	H	H	H	H	H	M	M	M	L	M
CO5	H	M	L	M	M	H	M	H	M	M	M	L	M

H-High; M-Medium; L-Low.

Course Designed by	Verified by HOD	Checked by	Approved by

Course Code	Title	
21U4AMVALC	In-plant Training	
Semester: IV	Credits: Grade	ESE:50 Marks

Objective:

To give optimum exposure on the practical side of industrial society

Guidelines:

1. Duration of the internship training is **20 days** during the summer vacation which falls at the **end of the 4th semester.**
2. The departments concerned will prepare on exhaustive panel of institutions, industries and practitioners.
3. The individual student has to identify the institution / industry / practitioners of their choice and inform the same to the HOD / staff-in-charge.
4. The students hereafter will be called as trainees should maintain a work diary in which the daily work done should be entered and the same should be attested by the section in-charge.
5. The departments should prepare an outline of the job to be done, sections in which they have to be attached both in the office as well as in the field.
6. The trainees should strictly adhere to the rules and regulations and office timings of the institutions to which they are attached.
7. The trainees have to obtain a certificate on successful completion of the internship from the chief executive of the organization.
8. Monitoring and inspection by staff on a regular basis.
9. Report writing manual and format should be prepared by the respective departments.
10. All model forms are to be attached wherever it is necessary.
11. Report evaluation: Internal viva-voce examination will be conducted and the maximum mark awarded is 50.
12. In-Plant Training has to be carried out only in the approved industries by the department/College
13. Report should be submitted in the 5th semester at the end of the September

Course Code	Title		
21U4AMZ301	Skill Based Paper II - Capstone Project Work I		
Semester: IV	Credits: 3	CIA : 30 Marks	ESE: 45 Marks

Course Objective:

- To understand and select the task based on their core skills.
- To get the knowledge about analytical skill for solving the selected task.
- To get confidence for implementing the task and solving the real time problems.

Course Outcomes:

CO1	Illustrate a real world problem and identify the list of project requirements
CO2	Compare existing system with the proposed system and extract the innovative ideas
CO3	Apply the features of the project including forms, databases and reports
CO4	Demonstrate the Project work
CO5	Creating the underlying software packages and programming concepts.

Department offered: Artificial Intelligence and Machine Learning

Course Content

Instructional Hours/Week: 4

Aim of the project work
<p>1. The aim of the project work is to acquire practical knowledge on the implementation of the programming concepts studied.</p> <p>2. Each student should carry out individually one project work and it may be a work using the software packages that they have learned or the implementation of concepts from the papers studied or implementation of any innovative idea focusing on application oriented concepts.</p> <p>3. The project work should be compulsorily done in the college only under the supervision of the department staff concerned.</p> <p>Viva Voce</p> <p>1. Viva-Voce will be conducted at the end of the year by both Internal (Respective Guides) and External Examiners, after duly verifying the Annexure Report available in the College, for a total of 75 marks at the last day of the practical session.</p> <p>2. Out of 75 marks, 45 marks for project report and 30 Marks for Viva Voce.</p>
Total Hours 60

Tools for Assessment (30 Marks)

Demonstration	Program Execution	TEST I	TEST II	Observation	Attendance	Total
5	5	5	6	6	3	30

Mapping

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	H	L	L	M	-	-	H	M	H	H	M	M
CO2	M	M	L	L	M	-	-	H	M	H	M	M	H
CO3	H	H	-	L	M	-	-	H	L	M	M	H	M
CO4	H	H	-	L	M	-	-	H	H	H	M	H	H
CO5	H	M	-	L	M	-	-	H	H	H	H	M	H

S - Strong; H-High; M-Medium; L-Low.

Course Designed by	Verified by HoD	Checked by	Approved by

Course Code	Title		
21U4AMZ402	Skill Based Paper II : Capstone Project Work II		
Semester: IV	Credits: 3	CIA : 30 Marks	ESE: 45 Marks

Course Objective:

- To understand and select the task based on their core skills.
- To get the knowledge about analytical skill for solving the selected task.
- To get confidence for implementing the task and solving the real time problems.

Course Outcomes:

CO1	Illustrate a real world problem and identify the list of project requirements
CO2	Compare existing system with the proposed system and extract the innovative ideas
CO3	Judge the features of the project including forms, databases and reports
CO4	Demonstrate the Project work
CO5	Appreciate the underlying software packages and programming concepts.

Department offered: Artificial Intelligence and Machine Learning

Course Content

Instructional Hours/Week: 3

Aim of the project work
<p>1. The aim of the project work is to acquire practical knowledge on the implementation of the programming concepts studied.</p> <p>2. Each student should carry out individually one project work and it may be a work using the software packages that they have learned or the implementation of concepts from the papers studied or implementation of any innovative idea focusing on application oriented concepts.</p> <p>3. The project work should be compulsorily done in the college only under the supervision of the department staff concerned.</p> <p>Viva Voce</p> <p>1. Viva-Voce will be conducted at the end of the year by both Internal (Respective Guides) and External Examiners, after duly verifying the Annexure Report available in the College, for a total of 75 marks at the last day of the practical session.</p> <p>2. Out of 75 marks, 45 marks for project report and 30 Marks for Viva Voce.</p>
Total Hours 45

Tools for Assessment (30 Marks)

Demonstration	Program Execution	TEST I	TEST II	Observation	Attendance	Total
5	5	5	6	6	3	30

Mapping

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	H	L	L	M	-	-	H	M	H	H	M	M
CO2	M	M	L	L	M	-	-	H	M	H	M	M	H
CO3	H	H	-	L	M	-	-	H	L	M	M	H	M
CO4	H	H	-	L	M	-	-	H	H	H	M	H	H
CO5	H	M	-	L	M	-	-	H	H	H	H	M	H

S - Strong; H-High; M-Medium; L-Low.

Course Designed by	Verified by HoD	Checked by	Approved by

Course Code	Title		
21U4AMZ503	Skill Based Paper III : Practical in R Programming		
Semester: V	Credits:3	CIA :30 Marks	ESE:45 Marks

Course Objective:

To expose the student to the fundamental concepts of R Programming

CO1	Understand the basics in R programming in terms of constructs, control statements, string functions
CO2	Understand the use of R for Big Data analytics
CO3	Apply R programming for Text processing
CO4	Appreciate and apply the R programming from a statistical perspective
CO5	Analyze R Programming for interfacing to other languages

Department offered: Artificial Intelligence and Machine Learning

Course Content**Instructional Hours/Week: 5**

S.NO	LIST OF PROGRAMS	
1	R Expressions and Data Structures	
2	Manipulation of vectors and matrix	
3	Operators on Factors in R	
4	Data Frames in R	
5	Lists and Operators	
6	Working with looping statements.	
7	Graphs in R	
8	3D plots in R	
Total Hours		75

Text Book(s):

1. Norman Matloff, **The Art of R Programming: A Tour of Statistical Software Design**, No Starch Press, 2011.

Reference Book(s):

- 1 Mark Gardner, **Beginning R – The Statistical Programming Language**, Wiley, 2013.
2. Robert Knell, **Introductory R: A Beginner's Guide to Data Visualisation, Statistical Analysis and programming in R**, Amazon Digital South Asia Services Inc, 2013.

Tools for Assessment (30 Marks)

Laboratory Performance-Application of Logic	Laboratory Performance- Program Creativity	Laboratory Performance-Program Debugging	Test 1	Test 2	Observation Note Book	Total
5	5	5	6	6	3	30

Mapping CO and PO

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	-	-	L	-	L	H	M	M	H	M	M
CO2	M	M	-	-	M	-	L	H	M	M	M	M	H
CO3	M	H	-	L	M	-	L	H	M	L	M	H	M
CO4	H	H	-	L	M	-	M	H	L	H	H	H	H
CO5	H	M	-	L	M	-	M	H	H	M	M	H	M

Course Designed by	Verified by	Checked by	Approved by

Course Code	Title	
21U4ENV101	Ability Enhancement Compulsory Course - Environmental Studies	
Semester : I	Credits : 2	CIA : 50 Marks

(Common to all UG Programmes)

Course Objective:

This course enables the students to recognize the interconnectedness of multiple factors in environmental challenges and communicate clearly and competently matters of environment concern.

Course Outcomes:

On completion of course the students will be able to

CO 1	Understand key concepts from economic, political, and social analysis as they pertain to the design and evaluation of environmental policies and institutions.
CO 2	Understand concepts and methods from ecological and physical sciences and their application in environmental problem solving.
CO 3	Solve the ethical, cross-cultural, and historical context of environmental issues and the links between human and natural systems.
CO 4	Reflect critically about their roles and identities as citizens, consumers and environmental actors in a complex, interconnected world.
CO 5	Apply systems concepts and methodologies to analyse and understand interactions between social and environmental processes.

Course Content**Instructional Hours / Week : 2**

Unit	Description	Text Book	Chapter
I	Natural Resources: Forest resources, Water resources, Mineral resources, Food resources, Energy resources and Land resources.	1	2
Instructional Hours			6
II	Ecosystems: Concept of an ecosystem, Structure and function; Introduction, types, characteristic features, structure and function of ecosystem - Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries). Activity: Prepare an album on types of Ecosystem.	1	3
Instructional Hours			6
III	Environmental Pollution: Definition Causes, effects and control measures of Air pollution, Water pollution, Soil pollution, Marine pollution and Noise pollution, Solid waste management. Activity: Discuss the solutions for water pollution	1	5
Instructional Hours			6
IV	Social Issues and the Environment: Water conservation, rain water harvesting, watershed management, Environmental ethics - Issue summits' and possible solutions and Public awareness. Activity: Identify and analyse a Social Issue and an Environment issue in your locality.	1	6
Instructional Hours			6

V	Disaster Management: Floods, Earthquakes, Cyclones, Landslides: From management to mitigation of disasters: The main elements of a mitigation and measures of strategy: Floods, Earthquakes, Cyclones and Landslides	2	16
Instructional Hours			6
Field Work: Visit to local area to document Environmental assets (River / Forest / Grass land / Mountain), Visit to local polluted site (Urban / Rural / industrial / Agricultural), Study of common plants, insects, birds, Study of simple ecosystem: Pond, River, Hill slopes.			
Total Hours			30

Text Book(s):

1. Shashi Chawla. A Text Book of Environmental Studies, Tata McGraw-Hill, 2012.
2. From UGC website: <https://www.ugc.ac.in/oldpdf/modelcurriculum/env.pdf>

Reference Book(s):

1. Agarwal, K.C. 2001 Environmental Biology, Nidi Public Ltd., Bikaner.
2. Jadhav, H & Bhosale, V.M. 1995 Environmental Protection and Laws Himalaya Pub. House, Delhi 284 p.
3. Mckinney, M.L. & Schoch R.M. 1996. Environmental Science systems & Solutions
4. Odum, E.P. 1971 Fundamentals of Ecology. W.B. Saunders Co. USA. 574 p
5. Rao MN & Datta, A.K. 1987 Waste Water treatment, Oxford & IBH Publication Co. Pvt. Ltd., 345 p.

Tools for Assessment (50 Marks)

Ecosystem Album Preparation	Field visit and report submission	Group discussions about issues related to their locality / about Disaster Management	CIA	Total
10	10	5	25	50

Mapping

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	-	L	H	H	H	H	L	-	-	-	-	-
CO2	L	-	L	H	H	H	H	L	-	-	-	-	M
CO3	L	-	L	H	H	H	H	L	-	-	-	-	M
CO4	L	-	L	H	H	H	H	L	-	-	-	-	M
CO5	L	-	L	H	H	H	H	L	-	-	-	-	M

H-High; M-Medium; L-Low

Course designed by	Verified by	Checked by	Approved by

Course Code	Title	
21U4HRC202	Ability Enhancement Compulsory Course - Human Rights and Constitution of India	
Semester : II	Credits : 2	CIA : 50 Marks

(Common to all UG Programmes)

Course Objective:

Understand the concept of human rights and the importance of Indian Constitution.

Course Outcomes:

CO1	Understand the principal aspects of human rights and duties in a broad sweep.
CO2	Acquire the knowledge about the Fundamental Duties and Rights of Indian Citizen
CO3	To know the rights of women and Children in India
CO4	Understand the structure and importance of Indian Constitution
CO5	Know the functions of Government and Election Commission of India

Course Content**Instructional Hours / Week : 2**

Unit	Description	Instructional Hours	6
I	An Introduction to Human Rights :Values – Dignity, Liberty, Equality, Justice, Unity in Diversity - Human Rights – Meaning and features; Significance of the study - Classification of Human Rights - Rights and Duties – Correlation		
		Instructional Hours	6
II	Human Rights and Fundamental Rights - Fundamental Rights and Fundamental Duties- Directive Principles - Role of Judiciary in the protection of Human Rights- National Human Rights Commission <i>Activity : Case Study related to Human Rights</i>		
		Instructional Hours	6
III	Human Rights of Women and Children- Social Practice and Constitutional Safeguards – Female foeticide and infanticide-Physical assault and Harassment- Domestic violence- Conditions of Working Women <i>Activity : Conduct a Group Discussion on the above topics</i>		
		Instructional Hours	6
IV	Constitution – Structure and Principles - Meaning and importance of Constitution - Making of Indian Constitution –Sources - Salient features of Indian Constitution- Government of Union- Government of State-Features of judicial system in India		
		Instructional Hours	6
V	Federalism in India – Features - Local Government -Panchayat –Powers and functions -Election Commission –Organisation and functions-Citizen oriented measures – RTI – Provisions and significance <i>Activity : Seminar/ Role play related to Indian Constitution</i>		
		Instructional Hours	6
		Total Hours	30

Text Book:

1. **“Human Rights and Constitution of India”**, Compiled by Curriculum Development Cell, Nehru Arts and Science College.

Tools for Assessment (50 Marks)

Case Study and Report submission	Seminar / Role play	Group Discussion	Comprehensive test for 5×5 = 25 marks	Total
10	10	5	25	50

Mapping

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	-	L	H	H	H	H	-	-	-	-	H
CO2	-	-	-	L	H	H	H	H	-	-	-	-	H
CO3	-	-	-	L	H	H	H	H	-	-	-	-	H
CO4	-	-	-	L	H	H	H	H	-	-	-	-	H
CO5	-	-	-	L	H	H	H	H	-	-	-	-	H

H-High; M-Medium; L-Low

Course Designed by	Verified by	Checked by	Approved by

Course Code	Title	
21U4HVY201	Value Education : Human Values and Yoga Practice I	
Semesters : I & II	Credits : 2	CIA : 50 Marks

(Common to all UG Programmes)

Course Objective:

- To help the students appreciate the essential complementarity between 'values' and 'skills' to ensure sustained happiness and prosperity, which are the core aspirations of all human beings.
- To prepare and distribute standardized Yoga teaching and training material with reference to institute health.

Course Outcomes:

CO1	To know the importance of Ethics to be followed in the Human life.
CO2	To inculcate a sense of respect towards harnessing values of life and spirit of fulfilling social responsibilities.
CO3	To gain knowledge about the values that develop life skills.
CO4	To understand and Practice Meditation & Surya Namaskar.
CO5	To understand and apply the knowledge for physical health and well being through Simple exercises.

Course Content

Instructional Hours / Week : 1 (For Semesters I and II)

Unit	Description	Instructional Hours
I	Human Values – Introduction - Definition of Ethics and Values - Character and Conduct - Nature and Scope of Ethics.	6
II	Individual and Society - Theories of Society - Social Relationships and Society - Empathy: Compassion towards other being - Environmental Ethics and Nature.	6
III	Cultural Education - Purity India - Patriotism - Time management. Greatness of Womanhood - Food is medicine- Individual peace -World Peace.	6
IV	Power of Meditation - Development of mind in stages - Mental Frequencies Methods for Concentration. Meditation Practices - Surya Namaskar.	6
V	Simplified Physical Exercises – Kayakalpa Practices - Training for Potentialising the Mind.	6
Total Hours		30

Text book:

- “Value Education I ”, compiled by Curriculum Development cell, Nehru Arts and Science College.

Tools for Assessment

25 marks	25 marks
Comprehensive test in Units I to III for 25 marks during CIA III of Sem. II	Perform 02 Yoga postures for Practical exam to be conducted during the mid. of Sem. II

Mapping

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	-	H	L	M	H	H					
CO2	-	-	-	L	M	H	M	H					
CO3	-	-	-	L	M	H	S	H					
CO4	-	-	-	L	L	H	M	H					
CO5	-	-	-	L	L	H	M	H					

H-High; M-Medium; L-Low

Course Designed by	Verified by HOD	Checked by	Approved by

Course Code	Title	
21U4HVY201	Value Education : Human Values and Yoga Practice I	
Semesters : I & II	Credits : 2	CIA : 50 Marks

(Common to all UG Programmes)

Course Objective:

- To help the students appreciate the essential complementarity between 'values' and 'skills' to ensure sustained happiness and prosperity, which are the core aspirations of all human beings.
- To prepare and distribute standardized Yoga teaching and training material with reference to institute health.

Course Outcomes:

CO1	To know the importance of Ethics to be followed in the Human life.
CO2	To inculcate a sense of respect towards harnessing values of life and spirit of fulfilling social responsibilities.
CO3	To gain knowledge about the values that develop life skills.
CO4	To understand and Practice Meditation & Surya Namaskar.
CO5	To understand and apply the knowledge for physical health and well being through Simple exercises.

Course Content

Instructional Hours / Week : 1 (For Semesters I and II)

Unit	Description	Instructional Hours
I	Human Values – Introduction - Definition of Ethics and Values - Character and Conduct - Nature and Scope of Ethics.	6
II	Individual and Society - Theories of Society - Social Relationships and Society - Empathy: Compassion towards other being - Environmental Ethics and Nature.	6
III	Cultural Education - Purity India - Patriotism - Time management. Greatness of Womanhood - Food is medicine- Individual peace -World Peace.	6
IV	Power of Meditation - Development of mind in stages - Mental Frequencies Methods for Concentration. Meditation Practices - Surya Namaskar.	6
V	Simplified Physical Exercises – Kayakalpa Practices - Training for Potentialising the Mind.	6
Total Hours		30

Text book:

- “Value Education I ”, compiled by Curriculum Development cell, Nehru Arts and Science College.

Tools for Assessment

25 marks	25 marks
Comprehensive test in Units I to III for 25 marks during CIA III of Sem. II	Perform 02 Yoga postures for Practical exam to be conducted during the mid. of Sem. II

Mapping

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	-	H	L	M	H	H	-	-	-	-	M
CO2	-	-	-	L	M	H	M	H	-	-	-	-	-
CO3	-	-	-	L	M	H	S	H	-	-	-	-	M
CO4	-	-	-	L	L	H	M	H	-	-	-	-	M
CO5	-	-	-	L	L	H	M	H	-	-	-	-	M

H-High; M-Medium; L-Low

Course Designed by	Verified by HOD	Checked by	Approved by

Course Code	Title	
21U4HVY402	Value Education : Human Values and Yoga Practice II	
Semesters : III & IV	Credits : 2	CIA : 50 Marks

(Common to all UG Programmes)

Course Objective:

To help the students appreciate the essential complementarity between 'values' and 'skills' to ensure sustained happiness and prosperity, which are the core aspirations of all human beings. To prepare and distribute standardized Yoga teaching and training material with reference to institute health.

Course Outcomes:

CO1	To understand the values of Self realization and Harmony
CO2	To transform as a positive personality and understand the importance of healthy mind
CO3	To know the ways for eradication of worries.
CO4	To learn and practice Asanas in day to day life.
CO5	To understand the benefits of Yogasanas for physical and mental well being.

Course Content

Instructional Hours/Week : 1

Unit	Description	Chapter
I	Self-realization and Human Values -Self-realization and Harmony-Rules and Regulations-Rights and Duties-Good and Obligation-Integrity and Conscience. Obligation to Family -Trust and Respect-Codes of Conduct-Citizens Charter-Emotional Intelligence.	
	Instructional Hours	6
II	Character Formation Towards Positive Personality: Truthfulness, Constructivity, Sacrifice, Sincerity, Self Control, Altruism, Tolerance,	
	Instructional Hours	6
III	Eradication of worries - Maintaining youthfulness – Greatness of friendship– Refinement of worries-Neutralization of anger-Intelligent quotient(IQ),Emotional quotient(EQ),Spiritual Quotient (SQ)	
	Instructional Hours	6
IV	Standing Posture: Tadasana, Padahastasana, Virabhadrasana; Sitting posture: Ustrasana, Ardha Matsyendrasana, Paschimottanasana.	
	Instructional Hours	6
V	Supine posture: Sarvangasana, Halasana, Chakrasana. Prone posture: Bhujangasana, shalabhasana; Dhanurasana; Balancing postures: Vrikshasana, Natarajasana, Utkatasana; Pranayama: Bhastrika, Bhramari, NadiShodhan.	
	Instructional Hours	6
	Total Hours	30

Textbook:

1. "Value Education II ", compiled by Curriculum Development cell, Nehru Arts and Science College.

Tools for Assessment

25 marks	25 marks
Comprehensive test in Units I to III for 25 marks during CIA III of Sem. II	Perform 02 Yoga postures for Practical exam to be conducted during the mid of Sem. II

Mapping

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	-	H	L	M	H	H					
CO2	-	-	-	L	M	H	M	H					
CO3	-	-	-	L	M	H	H	H					
CO4	-	-	-	L	L	H	M	H					
CO5	-	-	-	L	L	H	M	H					

H-High; M-Medium; L-Low;

Course Designed by	Verified by HOD	Checked by	Approved by

Course Code	Title	
21U4HVY402	Value Education : Human Values and Yoga Practice II	
Semesters : III & IV	Credits : 2	CIA : 50 Marks

(Common to all UG Programmes)

Course Objective:

To help the students appreciate the essential complementarity between ‘values’ and ‘skills’ to ensure sustained happiness and prosperity, which are the core aspirations of all human beings. To prepare and distribute standardized Yoga teaching and training material with reference to institute health.

Course Outcomes:

CO1	To understand the values of Self realization and Harmony
CO2	To transform as a positive personality and understand the importance of healthy mind
CO3	To know the ways for eradication of worries.
CO4	To learn and practice Asanas in day to day life.
CO5	To understand the benefits of Yogasanas for physical and mental well being.

Course Content

Instructional Hours/Week : 1

Unit	Description	Chapter
I	Self-realization and Human Values -Self-realization and Harmony-Rules and Regulations-Rights and Duties-Good and Obligation-Integrity and Conscience. Obligation to Family -Trust and Respect-Codes of Conduct-Citizens Charter-Emotional Intelligence.	
	Instructional Hours	6
II	Character Formation Towards Positive Personality: Truthfulness, Constructivity, Sacrifice, Sincerity, Self Control, Altruism, Tolerance,	
	Instructional Hours	6
III	Eradication of worries - Maintaining youthfulness – Greatness of friendship– Refinement of worries-Neutralization of anger-Intelligent quotient(IQ),Emotional quotient(EQ),Spiritual Quotient (SQ)	
	Instructional Hours	6
IV	Standing Posture: Tadasana, Padahastasana, Virabhadrasana; Sitting posture: Ustrasana, Ardha Matsyendrasana, Paschimottanasana.	
	Instructional Hours	6
V	Supine posture: Sarvangasana, Halasana, Chakrasana. Prone posture: Bhujangasana, shalabhasana; Dhanurasana; Balancing postures: Vrikshasana, Natarajasana, Utkatasana; Pranayama: Bhastrika, Bhramari, NadiShodhan.	
	Instructional Hours	6
	Total Hours	30

Textbook:

1. “Value Education II ”, compiled by Curriculum Development cell, Nehru Arts and Science College.

Tools for Assessment

25 marks	25 marks
Comprehensive test in Units I to III for 25 marks during CIA III of Sem. II	Perform 02 Yoga postures for Practical exam to be conducted during the mid of Sem. II

Mapping

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	-	H	L	M	H	H	-	-	-	-	-
CO2	-	-	-	L	M	H	M	H	-	-	-	-	-
CO3	-	-	-	L	M	H	H	H	-	-	-	-	-
CO4	-	-	-	L	L	H	M	H	-	-	-	-	-
CO5	-	-	-	L	L	H	M	H	-	-	-	-	-

H-High; M-Medium; L-Low;

Course Designed by	Verified by HOD	Checked by	Approved by

Course Code	Title	
21U4NM3AT1	Part IV – Advanced Tamil - I	
Semester : III	Credits : 2	ESE : 50 Marks

(Common to all UG Programmes)

Course Objective : GJf;ftpij cUthf;Fk; jpwd; tsHj;jy;- nkhopj;jpwd; Nkk;gLj;jy;

Course Outcomes :

CO1	GJffftpij cUthf;Fk; jpwd; tsHj;jy;
CO2	njhIH kw;Wk; gj;jpfspy; gpiopd;wp vOjr; nra;jy;
CO3	nkhopiag; gpiopd;wpg; Ngr> vOJk; jpwd;ngwr; nra;jy;
CO4	fbjk; vOJjy; kw;Wk; nkhopawpitg; ngWjy;.
CO5	gilg;ghf;fj;jpwd; mwpTngwr; nra;jy;.

Offered by : jkpo;;j;Jiw

Course Content

Instructional Hours / Week : 2

Unit	Description	Instructional Hours	Week
I	GJf;ftpij 1. ghujpahH-GJikg;ngz; 2. ghujpjhhd; - ,Uz;ltPL	10	
	gpiopd;wp vOjr; nra;jy; 1. thHj;ijg; gpiopd;fk; 2. njhIH gpiopd;fk; 3. gj;jp vOjr; nra;jy;		
III	,yf;fzg; gapw;rp mspj;jy; 1. njhifepiyj; njhIH 2. njhfepiyj; njhIH 3. MFngaH> MFngaH tiffs;	5	
	fbjk; vOJjy; 1. ghuhl;Lf; fbjk; 2. ed;wfp; fbjk; 3. miog;Gf; fbjk; 4. mYtyff; fbjk;		
V	,yf;fpa tuyhW 1. GJf;ftpijapd; Njhw;wKk; tsHr;rpAk; 2. ghujpahH- Fwpg;G tiuf. 3. ghujpjhhd; - Fwpg;G tiuf.	5	
	Total Hours		

ghlj;njhFg;G

,sq;fiy Kjyhk; Mz;L jkpo; khztHfSf;Fhpa ghIE}y; “jpul;L”

njhFg;G: jkpo;;j;Jiw> NeU fiy kw;Wk; mwptpay; fy;Y}hp> Nfhak;Gj;J}H - 105

ghh;it E}y;fs;

1. ghujpahH – ghujpahH ftpijfs;> mgpuhkpjgpg;gfk;>7- gp>nfhbkuj; njU> nrd;id– 013
2. gtze;jpKdptH–ed;D}y; G+ypA+H;f;Nfrpfd; ciu> rhujh gjpg;gfk;> nrd;id-040
3. jkpoz;zy; - GjpaNehf;fpy; jkpo; ,yf;fpa tuyhW>kPdhl;rp Gj;jf epiyak;> kJiu–001.
4. m.fp. gue;jhkdH–ey;yjkpo; vOj Ntz;Lkh? my;ypepiyak;> nrd;id– 600 007.

5. fh..Nfh.Ntq;fluhkd;- jkpo; ,yf;fpa tuyhW jkpo;kz; gjpg;gfk; - ehkf;fy;.
6. khztH jkpo; ,yf;fzk; - GytH.ftpaofd;> vk;.V.>R+lhkzp gpuRuk;> nrd;id-083.

Mapping

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	M	-	M	L	L	M					
CO2	-	-	H	-	M	H	M	H					
CO3	-	-	H	-	L	L	H	H					
CO4	-	-	H	-	M	L	M	H					
CO5	-	-	M	-	M	L	M	H					

H-High; M-Medium; L-Low;

Course Designed by	Verified by	Checked by	Approved by

Course Code	Title	
21U4NM3BT1	Part IV – BASIC TAMIL - I	
Semester: III	Credits: 2	CIA : 50 Marks

(Common to all UG Programmes)

Course Objective: jkpo; nkhopiaf; fw;gpj;jy; – nkhopj;jpwid tsHj;jy;

Course Outcomes:

CO1	jkpo; vOj;Jf;fs; mwpKfk; nra;jy; kw;Wk; thrpj;jy; Mfpatw;wpd; gad;ghl;il mwpar; nra;jy;.
CO2	gpwnkhop fw;wy; MHTk;; Jz;ly;.
CO3	gpwnkhop mwpTj; jpwd; Nkk;glr; nra;jy;.
CO4	thHj;j mikf;Fk; jpwd; ngwr; nra;jy;.
CO5	ifnaOj;J;jpwd; ngwr; nra;jy;.

Offered by : jkpo;;j;Jiw

Course Content

Instructional Hours / Week: 2

Unit	Description	Instructional Hours
I	jkpo; nkhopapd; mbg;gilf; \$Wfs;	
	1. vOj;Jf;fs; - capH vOj;Jf;fs; 2. nka; vOj;Jf;fs; 3. capHnka; vOj;Jf;fs;	
		10
II	nrhy; mik;jy;	
	1. XH vOj;J xU nkhop 2. ,uz;L Kjy; le;J vOj;Jr; nrhw;fs; 3. jkpo; khjq;fs; ngah;> fpoikfspd; ngaH 4. tz;q;fs; ngaH 5. nra;jy; Mfpatw;wpd;	
		5
III	njhluikg;G	
	1. vOtha; 2. nrag;gLnghUs; 3. gadpiy	
		5
IV	Fwpq;G vOJiy;	
	1. njhluikg;G 2. gj;jp mikg;G	
		5
V	gpiio ePf;Fjy;	
	1. xw;Wg;gpiio 2. thf;foaq; apio	
		5
		Total Hours 30

ghlj;njhFg;G :

,sq;fiy jkpo; khztHfSf;Fhpa ghl E}y; “mhpr;Rtb”

njhFg;G: jkpo;;j;Jiw> NeU fiy mwptpay; fy;Y}hp> Nfhak;Gj;J}H.

ghHit E}y;fs;:

1. gtze;jp KdptH> ed;D}y; G+ypA+Hf;Nfrpfd; ciu>rhujh gjpg;gfk;> nrd;id – 40.
2. njhy;fhg;gpak;> fNzrlaH gjpg;G> cyfj; jkpohuha;r;rp epWtdk;> nrd;id – 113.
3. m.fp.gue;jhkdhH – ey;yjkpo; vOjNtz;Lkh? my;yp epiyak;> nrd;id – 007.

Tools for Assessment (50 Marks)

CIA I	CIA II	CIA III	Writing Skills	Reading Skills	Translation Knowledge	Total
8	8	10	8	8	8	50

Mapping

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	H	-	H	M	H	H					
CO2	-	-	H	-	M	M	L	H					
CO3	-	-	H	-	L	M	M	H					
CO4	-	-	M	-	L	M	H	M					
CO5	-	-	H	-	M	M	H	H					

H-High; M-Medium; L-Low;

Course Designed by	Verified by	Checked by	Approved by

Course Code	Title	
21U4NM3CAF	Non Major Elective : Consumer Affairs	
Semester : III	Credits : 2	ESE : 50 Marks

(Common to all UG Programmes)

Course Outcomes:

On successful completion of the course, the students will be able to

CO1	Know their rights and responsibilities as a consumer
CO2	Gain knowledge about Legal framework of protecting consumer rights
CO3	Understand the procedure about redressal of consumer complaints
CO4	Learn about Consumer related regulatory agencies and norms
CO5	Comprehend business firms, interface with consumers

Course Content

Instructional Hours / Week : 2

Unit	Description	Text Book
I	Conceptual Framework Consumer and Markets: Concept of Consumer, Nature of markets: Liberalization and Globalization of markets with special reference to Indian Consumer Markets, Concept of Price in Retail and Wholesale, Maximum Retail Price (MRP), Fair Price, GST, labeling and packaging along with relevant laws, Legal Metrology.	1
	Consumer Complaining Behaviour: Alternatives available to Dissatisfied Consumers; Complaint Handling Process	1
InstructionalHours		6
II	The Consumer Protection Law in India Objectives and Basic Concepts: Consumer rights and UN Guidelines on consumer protection, Consumer goods, defect in goods, spurious goods and services, deficiency in service, unfair trade practice.	1
	InstructionalHours	
III	Grievance Redressal Mechanism under the Indian Consumer Protection Law Who can file a complaint? Grounds of filing a complaint; Limitation period; Procedure for filing and hearing of a complaint; Disposal of cases, Relief/Remedy available; Temporary Injunction, Offences and penalties.	1
	InstructionalHours	
IV	Role of Industry Regulators in Consumer Protection – industry self-regulation (ISR), Protection policies, Consumer Protection Agencies i. Telecommunication: TRAI ii. Food Products: FSSAI iii. Insurance : IRDA and Insurance Ombudsman	1
	Instructional Hours	

V	Contemporary Issues in Consumer Affairs	
	Consumer Movement in India: Formation of consumer organizations and their role in consumer protection, Misleading Advertisements and sustainable consumption, National Consumer Helpline, Comparative Product testing.	1
	Quality and Standardization: Voluntary and Mandatory standards; Role of BIS, Indian Standards Mark (ISI), Ag-mark, Hallmarking, Licensing and Surveillance.	1
Instructional Hours		6
Total Hours		30

Text book

1. "Consumer Affairs", Compiled by Department of Business Administration, Nehru Arts and Science College.

Suggested Readings

1. Khanna, Sri Ram, Savita Hanspal, Sheetal Kapoor, and H.K. Awasthi. (2007) Consumer Affairs, Universities Press.
2. Choudhary, Ram Naresh Prasad (2005). Consumer Protection Law Provisions and Procedure, Deep and Deep Publications Pvt Ltd.
3. G. Ganesan and M. Sumathy. (2012). Globalisation and Consumerism: Issues and Challenges, Regal Publications
4. Suresh Misra and Sapna Chadah (2012). Consumer Protection in India: Issues and Concerns, IIPA, New Delhi
5. Rajyalaxmi Rao (2012), Consumer is King, Universal Law Publishing Company
6. Girimaji, Pushpa (2002). Consumer Right for Everyone, Penguin Books.

Mapping

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	-	-	-	M	H	H	M					
CO2	L	-	-	-	M	H	H	M					
CO3	L	-	-	-	M	H	M	M					
CO4	L	-	-	-	M	H	H	M					
CO5	L	-	-	-	M	H	H	M					

H-High; M-Medium; L-Low

Course Designed by	Verified by HOD	Checked by	Approved by

Course Code	Title	
21U4NM3GTS	Non Major Elective : Gandhian Thoughts	
Semester : III	Credits : 2	ESE : 50 Marks

(Common to all UG Programmes)

Course Objective:

To make the Students understand the philosophies of Gandhiji and fulfill their duties and responsibilities towards the society.

Course Outcomes:

On successful completion of the course, the students will be able to

CO1	Aware about the significance of Gandhian thought
CO2	Understand the applicability of Gandhian methods in the contemporary economic and social demines.
CO3	Analyze the area of truth, non-violence and peace.
CO4	Familiarize with the view of Gandhiji on women
CO5	Delineate the framework of democracy in Gandhian perspective

Course Content**Instructional Hours/Week : 2**

Unit	Description	Text Book
I	Educational Philosophy of Gandhiji: Definitions on Education - What is True Education? - Gandhiji's New Scheme of Education - Wardha Scheme of Education - Main Aims of Gandhian Education - Why Gandhiji's Scheme of Education was Called 'Basic Education?' - Features of the Wardha Scheme of Education - Features of Basic Education - The Methodology of Basic Education - The Content of Basic Education - Routine Work of a Basic School	1
Instructional Hours		6
II	Gandhian Concept of Correlation of Studies - Technique of Correlation - The Place of Teacher in Basic Education - Merits of Basic Education - Educational Scenario after Independence - Influences of Gandhiji on Education Commissions - Basic Schools in the Present Society - Education for Peace – A Gandhian View - Why Basic Education is called a Holistic Model	1
Instructional Hours		6
III	Gandhiji's View on Truth and Non-Violence : Gandhiji's Words about Truth - Meaning of Truth, Truth is God - Truth and God - The Importance of Truth in Human Life - Absolute and Relative Truth - Realisation of the Self - Liberation.	1
Instructional Hours		6
IV	Mahatma Gandhi's Views on Women : Status of Women in Pre Independence India - Gandhi's Perception of Women - Role of Women in Family – Perception of Gandhi - Value of Equality - Women in Politics - Gandhiji's Vision to Abolish Social Evils against Women - Role of Women as Envisaged by Gandhi.	1
Instructional Hours		6

V	Gandhiji's View on Democracy : Problem of Majority and Minority – Democracy, Gandhian strategies for democratic decentralization, Gram Swaraj : City and Village - Gram Swaraj - Critique of Industrialisation - Critique of Machinery, Participatory Democracy Swarajyam Grama Rajya and Ramarajya.	1
Instructional Hours		6
Total Hours		30

Text Book(s):

1. “Gandhian Thoughts”, Compiled by Nehru Arts and Science College.

Mapping

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	-	-	L	H	H	L					
CO2	-	-	-	-	-	H	H	L					
CO3	-	-	-	-	-	H	H	L					
CO4	-	-	-	-	-	H	H	L					
CO5	-	-	-	-	-	H	H	L					

H-High; M-Medium; L-Low;

Course Designed by	Verified by HOD	Checked by	Approved by

Course Code	Title	
21U4NM3WRT	Non Major Elective : Women's Rights	
Semester : III	Credits : 2	ESE : 50Marks

(Common to all UG Programmes)

Course Objective:

To facilitate the awareness about the social, economical, political, intellectual or cultural contributions of Women in India.

Course Outcomes:

CO1	Aware of basic constitutional rights
CO2	Gain awareness on Political rights
CO3	Understand individual and familial rights
CO4	Grasp the provisions for Women's Rights in India
CO5	Develop an understanding of the Protection Mechanisms for women

Course Content**Instructional Hours / Week : 2**

Unit	Description	Text book	Chapter
I	Constitutional Rights of Women in India: Indian constitution relating to women - Fundamental rights - Directive principles of state policy - right to equality - rights against exploitation - cultural and educational rights - the right to constitutional remedy - University Declaration of Human Rights - Enforcement of Human Rights for Women and Children - Role of Cells and Counseling Centers - Legal AID cells, Help line, State and National level Commission	4	2
Instructional Hours			6
II	Political Rights of Women in India: Political Rights of Women in India - Electoral process - women as voters - candidates and leader - pressure group, 73rd and 74th amendment and representation of women in local self-government - women in Rural and urban local bodies - Reservation of women - party ideologies and women's issues.	5	1
Instructional Hours			6
III	Women's Rights: Access to Justice Introduction-Criminal Law-Crime Against Women Domestic Violence - Dowry Related Harassment and Dowry Deaths - Molestation - Sexual Abuse and Rape Loopholes in Practice- Law Enforcement Agency	3	7
Instructional Hours			6
IV	Women's Rights Violence Against Women - Domestic Violence The Protection of Women from Domestic Violence Act, 2005, The Marriage Validation Act, 1982 - The Hindu Widow Re-marriage Act, 1856- The Dowry Prohibition Act, 1961	3	5
Instructional Hours			6

V	Special Women Welfare Laws Sexual Harassment at Work Places, Rape and Indecent Representation, The Indecent Representation (Prohibition) Act, 1986, Immoral Trafficking, The Immoral Traffic (Prevention) Act, 1956 - Acts Enacted for Women Development and Empowerment, Role of Rape Crisis Centers. Protection of Children from sexual Offences Act 2012	3	9
		Instructional Hours	6
		Total Instructional Hours	30

Text Books:

1. Nitya Rao **Good Women do not Inherit Land** Social Science Press and OrientBlackswan2008
2. International Solidarity Network **Knowing Our Rights** An imprint of KaliforWomen2006
3. P. D. Kaushik **“Women Rights”** Book well Publication 2007 UN Centre for Human Rights, Discrimination against Women (Geneva: World Campaign for Human Rights,1994).
4. Agnes, Flavia. (1992). “Give us “Give us This Day Our Daily Bread: Procedures and Case Law on Maintenance”. Majlis, Bombay.
5. Agnes, Flavia. (1999). “Law and Gender Inequality: The Politics of Women’s Rights in India”. OUP, New Delhi

Reference Books:

1. Aruna Goal **Violence Protective Measures for Women Development and Empowerment**, Deep and Deep Publications Pvt.2004
2. Monica Chawla **Gender Justice**, Deep and Deep Publications Pvt. Ltd. 2006
3. Preeti Mishra **Domestic Violence Against Women**, Deep and Deep Publications Pvt.2007
4. Clair M.Renzetti, JeffreyL. Edleson, Raquel Kennedy Bergen, Source Book on **Violence Against Women** Sage Publications 2001

Mapping

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	L	-	-	H	H	L					
CO2	-	-	L	-	-	H	H	L					
CO3	-	-	L	-	-	H	H	L					
CO4	-	-	L	-	-	H	H	L					
CO5	-	-	L	-	-	H	H	L					

H-High; M-Medium; L-Low

Course Designed by	Verified by HOD	Checked by	Approved by

Course Code	Title	
21U4NM4AT2	Part IV – Advanced Tamil - II	
Semester : IV	Credits : 2	ESE : 50 Marks

(Common to all UG Programmes)

Course Objective : jkpo; E}y;fspd; top mwr; rpe;jidfis cUthf;Fjy; nrk;nkhopapidr; nrk;ikg;gLj;Jjy;.

Course Outcomes :

CO1	mwr; rpe;jidfis khztHfSf;F Vw;gLj;Jjy;
CO2	jkpo; rpWfijfspd; %yk; ey;y rpe;jidfis cUthf;Fjy;
CO3	nkhopiag; gpiopad;wpg; Ngr> vOJk; jpwd; ngwr;nra;jy;
CO4	,yf;fz mwpit tsHg;gjd; %yk; kuGg; gpiopad;wp NgrTk;> vOJk; jpwid tsHj;jy;
CO5	gilg;ghf;fj;jpww; mwpTngwr; nra;jy;.

Offered by : jkpo;;j;Jiw

Course Content

Instructional Hours / Week : 2

Unit	Description	Instructional Hours	
I	gjpndz; fPo;f;fzf;F E}y; - jpUf;Fws;		
	1. tha;ik 2. \$lhel;G 3. nra;ed;wpawpjy;		
		Instructional Hours	10
II	rpWfij		
	nt.,iwad;G – G+dhj;jp rpWfijfs; 1. tpLfij 2. ez;gHfs;		
		Instructional Hours	5
III	vOj;Jg; gpiopad;f topfs;		
	1. nrhw;fisr; rhpahfg; gad;gLj;Jk; Kiw 2. tpidr; nrhw;fs;> ngaHr;nrhw;fs;		
		Instructional Hours	5
IV	tof;fwpjy;		
	1. kuG tof;F 2. ,ay;G tof;F 3. jFjp tof;F mwpjy;		
		Instructional Hours	5
V	gilg;ghw;wy; gapw;rp		
	ftpij-rpWfij-E}y; kjpg;gPL vOJjy;		
		Instructional Hours	5
		Total Hours	30

ghlj;njhFg;G

,sq;fiy Kjyhk; Mz;L jkpo; khztHfSf;Fhpa ghIE}y; “**jpul;L**”

njhFg;G: jkpo;;j;Jiw> NeU fiy kw;Wk; mwptpay; fy;Y}hp> Nfhak;Gj;J}H - 105

ghh;it E}y;fs;

1. jpUf;Fws; – ghpNkyofH ciu> kzpthrH gjpg;gfk;> nrd;id – 018
2. jkpoz;zy; -GjpaNehf;fpy; jkpo; ,yf;fpa tuyhW kPdhl;rp Gj;jf epiyak;> kJiu-001.
3. m.fp. gue;jhkdH-ey;yjkpo; vOjNtz;Lkh? my;ypepiyak;> nrd;id -600 007.
4. gtze;jpKdptH> ed;D}y; G+ypA+Hf;Nfrpfd; ciu> rhujh gjpg;gfk;> nrd;id -040
5. nt.,iwad;G-G+dhj;jp> ftpjh gjpg;gfk;> nrd;id.

Mapping

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	H	-	H	H	M	H					
CO2	-	-	H	-	M	L	H	M					
CO3	-	-	H	-	H	L	H	H					
CO4	-	-	M	-	M	L	H	H					
CO5	-	-	H	-	H	M	H	M					

H-High; M-Medium; L-Low;

Course Designed by	Verified by	Checked by	Approved by

Course Code	Title	
21U4NM4BT2	Part IV – Basic Tamil - II	
Semester : IV	Credits : 2	CIA : 50 Marks

(Common to all UG Programmes)

Course Objective: mw ,yf;fpaq;fis mwpKfg;gLj;jy;**Course Outcomes:**

CO1	ePjpE}y;fspd; top Nghjidfis khztHfSf;F vLj;Jiuj;jy;
CO2	jpUf;Fwspd; rpwg;Gfis vLj;Jiuj;jy;
CO3	ePjpf;fijfis; \$Wtjd; %yk; khztHfSf;F ew;r;rpe;jidfis tsHj;jy;
CO4	fpuhkpa;f; fijfis; \$Wtjd; %yk; khztHfSf;F ey;mwpit tsHj;jy;
CO5	jkpo; Mq;fpy nkhopg; gapw;rpapd; %yk; ,Unkhopj;jpwid tsHj;jy;

Offered by : jkpo;;j;Jiw**Course Content****Instructional Hours / Week : 2**

Unit	Description	Instructional Hours
I	ePjp E}y;fs; 1. ghujpahh; - Mj;jpr;#b – Kjy; 12 thpfs; 2. nfhd;iwNte;jd; Kjy; 7 thpfs;	10
	jpUf;Fws; flTs; tho;j;J - mfuKjy vdj; njhlq;Fk;... mjp. - 1 Fws; - 1 thd; rpwg;G - ePhpd;wp mikahJ cyF... mjp. - 2 Fws; - 10 md;Gilik - md;gpd; topaJ caph;epiy ... mjp. - 8 Fws; - 10 fy;tp - fz;Zillahh; vd;gh; mjp. - 40 Fws; - 3 ,dpait \$wy; - ,dpa csthf ,d;dhj ... mjp. - 10 Fws; - 10	
		Instructional Hours 5
III	ePjpf;fijfs; Ky;yhtpd; Ntbf;iff; fijfs;> gPh;ghy; fijfs;	5
	Instructional Hours 5	
IV	fpuhkpa;f; fijfs; 1. gukhh;j;jFU fijfs; 2. ehl;Lg;Gwf; fijfs; mwpKfk;	5
	Instructional Hours 5	
V	nkhopg; gapw;rp 1. gpwnkhopr;nrhw;fSf;F jkpo;r;nry; vOJjy; 2. jd;tptuk; vOJjy; 3. vq;fs; fy;Y}hp	5
	Instructional Hours 5	
		Total Hours 30

ghlj;njhFg;G :

,sq;fiy jkpo; khztHfSf;Fhpa ghl E}y; “mhpr;Rtb”

njhFg;G: jkpo;j;Jiw> NeU fiy mwptpay; fy;Y}hp> Nfhak;Gj;J}H.

ghHit E}y;fs; :

1. Xsitahh; Mj;jpr;#b kzpthrfrh; gjpg;gfk;>Nfhak;Gj;J}h; ,uh[tPjp– 01.
2. jpUf;Fws; - ghpNkyofh; ciu>kzpthrfrh; gjpg;gfk;>nrd;id -600018.
3. Ky;yhtpd; Ntbf;iff; fijfs; - Ky;iy gp.vy;.Kj;ijah nrd;id– 007.
4. ehI;Lg;Gwtpay; Xh; Ma;T – R.rf;jpNty; ghhp epiyak;>nrd;id–01

Tools for Assessment (50 Marks)

CIA I	CIA II	CIA III	Writing Skills	Reading Skills	Translation Knowledge	Total
8	8	10	8	8	8	50

Mapping

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	H	-	H	M	H	H					
CO2	-	-	H	-	H	H	M	H					
CO3	-	-	M	-	M	H	M	H					
CO4	-	-	M	-	L	M	H	M					
CO5	-	-	H	-	H	M	H	H					

H-High; M-Medium; L-Low;

Course Designed by	Verified by	Checked by	Approved by

Course Code	Title	
21U4NM4GEN	Non Major Elective : General Awareness	
Semester : IV	Credits : 2	ESE : 50 Marks

(Common to all UG Programmes)

Course Objective:

Enable the students to learn General knowledge and prepare for different competitive exams.

Course Outcomes:

CO1	Determine Verbal Aptitude , Numerical Aptitude and Logical Reasoning
CO2	Recall basic Science, history , Tamil , Computer , Commerce concepts which would help to crack competitive Examinations
CO3	Acquire time Management skills to attempt competitive Examinations
CO4	Develop Aptitude and problem solving skills
CO5	Gain Knowledge about Current Affairs

Course Content

Instructional Hours / Week : 2

S. No.	Topics
1.	Verbal Aptitude
2.	Numerical Aptitude and Logical Reasoning
3.	Abstract Reasoning
4.	Tamil and Other Literature
5.	General Science and Technology
6.	Computer
7.	Economics and Commerce
8.	History and Freedom Struggle
9.	Sports
10.	Current Affairs
Total Hours : 30	

Text Book: “General Awareness”, compiled by Nehru Arts and Science College, Coimbatore

Mapping

PO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	L	-	-	H	-	-	L					
CO2	H	L	-	-	H	-	-	L					
CO3	H	L	-	-	H	-	-	L					
CO4	H	L	-	-	H	-	-	L					
CO5	H	L	-	-	H	-	-	L					

H-High; M-Medium; L-Low

Course Designed by	Verified by HOD	Checked by	Approved by

Course Code		Title	
21U1MAL101	Part - I : Malayalam - I		
Semester : I	Credit : 4	CIA : 50 Marks	ESE : 50 Marks

(Common to all UG Programmes)

Course Objective :

Course Outcomes:

CO1	
CO2	
CO3	
CO4	
CO5	

Offered by : Malayalam Department

Course Content

Instructional Hours/Week: 5

Unit	Description
I	-
	Instructional Hours 15
II	-
	Instructional Hours 15
III	
	Instructional Hours 15
IV	
	Instructional Hours 15
V	
	Instructional Hours 15
	Total Hours 75

1. (10)
- 2.

1. -
2. -

3.

Tools for Assessment (50 Marks)

CIA I	CIA II	CIA III	Assignment	Seminar	Group Project	Total
8	8	10	8	8	8	50

Mapping

CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	H	M	H	H	-	-					
CO2	-	-	H	L	H	M	-	-					
CO3	-	-	-	M	M	H	-	-					
CO4	-	-	L	M	L	H	-	-					
CO5	-	-	L	-	H	-	-	-					

H-High; M-Medium; L-Low

Course designed by	Verified by	Checked by	Approved by

Course Code		Title	
21U1MAL202		Part - I : Malayalam - II	
Semester : II	Credits : 4	CIA : 50 Marks	ESE : 50 Marks

Course Objective: ഓരോന്നിനും ഓരോന്നും ഓരോന്നും ഓരോന്നും
 ഓരോന്നിനും ഓരോന്നിനും ഓരോന്നിനും ഓരോന്നിനും
 ഓരോന്നിനും ഓരോന്നിനും.

Course Outcomes:

CO1	ഓരോന്നിനും ഓരോന്നിനും ഓരോന്നിനും
CO2	ഓരോന്നിനും ഓരോന്നിനും ഓരോന്നിനും
CO3	ഓരോന്നിനും ഓരോന്നിനും ഓരോന്നിനും
CO4	ഓരോന്നിനും ഓരോന്നിനും ഓരോന്നിനും
CO5	ഓരോന്നിനും ഓരോന്നിനും ഓരോന്നിനും

Offered by : Malayalam Department
Course Content

Instructional Hours/Week: 5

Unit	Description	Instructional Hours
I	ഓരോന്നിനും - ഓരോന്നിനും	15
II	ഓരോന്നിനും - ഓരോന്നിനും	15
III	ഓരോന്നിനും - ഓരോന്നിനും	15
IV	ഓരോന്നിനും - ഓരോന്നിനും	15
V	ഓരോന്നിനും - ഓരോന്നിനും	15
		Total Hours 75

ഓരോന്നിനും :

- ഓരോന്നിനും ഓരോന്നിനും - ഓരോന്നിനും - ഓരോന്നിനും ഓരോന്നിനും
- ഓരോന്നിനും ഓരോന്നിനും - ഓരോന്നിനും - ഓരോന്നിനും ഓരോന്നിനും

ഓരോന്നിനും :

- ഓരോന്നിനും ഓരോന്നിനും - ഓരോന്നിനും ഓരോന്നിനും - ഓരോന്നിനും ഓരോന്നിനും
- ഓരോന്നിനും ഓരോന്നിനും ഓരോന്നിനും - ഓരോന്നിനും ഓരോന്നിനും - ഓരോന്നിനും ഓരോന്നിനും
- ഓരോന്നിനും ഓരോന്നിനും - ഓരോന്നിനും ഓരോന്നിനും ഓരോന്നിനും - ഓരോന്നിനും ഓരോന്നിനും
- ഓരോന്നിനും - ഓരോന്നിനും ഓരോന്നിനും ഓരോന്നിനും - ഓരോന്നിനും ഓരോന്നിനും

Tools for Assessment (50 Marks)

CIA I	CIA II	CIAIII	Assignment	Seminar	Group Project	Total
8	8	10	8	8	8	50

Mapping

POs COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	-	H	H	H	H	-	-					
CO2	-	-	H	M	H	M	-	-					
CO3	-	-	M	M	M	H	-	-					
CO4	-	-	L	H	L	H	-	-					
CO5	-	-	L	M	L	H	-	-					

S-Strong; H-High; M-Medium; L-Low;

Course designed by	Verified by	Checked by	Approved by