J.J. COLLEGE OF ARTS AND SCIENCE (Autonomous)

DEPARTMENT OF COMPUTER APPLICATIONS

B.C.A.

Course Structure based on U.G.C. - LOCF and TANSCHE
(Choice Based Credit System)
(Applicable for the candidates admitted during the Academic year 2022 - 2023 onwards)

Sem	Part	Course code	Course Title	Hrs / Week	Credit	Exam Hours	Marks CIA	Marks Ext	Total Marks
I	I	U1R2TL1/ HL1/FL1	Language Course – I	5	3	3	25	75	100
	II	U1R2EL1	English Language course – I	5	3	3	25	75	100
	III	U1R2CACC1	Programming in C	6	5	3	25	75	100
		U1R2CACC2	Digital Computer Fundamentals	6	5	3	25	75	100
		UIR2CACC3P	Programming in C Practical	3	3	3	40	60	100
		U1R2CAAC1	Algebra and Calculus	5	4	3	25	75	100
			Total	**30**	**23**				**600**
II	I	U2R2TL2/ HL2/FL2	Language Course – II	5	3	3	25	75	100
	II	U2R2EL2	English Language course – II	5	3	3	25	75	100
	III	U2R2CACC4	Relational Database Management System	5	5	3	25	75	100
		U2R2CACC5P	SQL and PL/SQL Practical	3	3	3	40	60	100
		U2R2CAAC2	Operations Research	5	4	3	25	75	100
		U2R2CAAC3	Numerical Methods and Statistics	5	4	3	25	75	100
	IV	U2R2AECC1	**Ability Enhancement Compulsory Course – 1** Environmental Studies	2	2	3	25	75	100
			Total	**30**	**24**				**700**
III	I	U3R2TL3/ HL3/FL3	Language Course – III	6	3	3	25	75	100
	II	U3R2EL3	English Language course – III	6	3	3	25	75	100
	III	U3R2CACC6	Programming in Java	7	5	3	25	75	100
		U3R2CACC7P	Programming in Java Practical	3	3	3	40	60	100
		U3R2CAAC4	Organizational Behavior	6	4	3	25	75	100
	IV	U3R2AECC2	**Ability Enhancement Compulsory Course – 2** Value Education	2	2	3	25	75	100
			Total	**30**	**20**				**600**
IV	I	U4R2TL4/ HL4/FL4	Language Course – IV	5	3	3	25	75	100
	II	U4R2EL4	English Language course – IV	5	3	3	25	75	100
	III	U4R2CACC8	Programming in Python	6	5	3	25	75	100
		U4R2CACC9P	Programming in Python Practical	3	3	3	40	60	100
		U4R2CAAC5	Financial and Mgmt. Accounting	6	4	3	25	75	100
		U4R2CAAC6P	Accounting Packages Practical	3	3	3	40	60	100
	IV	U4R2CASEC1:1/ 1:2	**Skill Enhancement Course – 1 (1:1/1:2)**	2	2	3	25	75	100
			Total	**30**	**23**				**700**

V	III	U5R2CACC10	Operating Systems	5	5	3	25	75	100
		U5R2CACC11	Software Engineering	5	5	3	25	75	100
		U5R2CACC12	PHP Programming	5	5	3	25	75	100
		U5R2CACC13P	Open-Source Technology Practical	3	3	3	40	60	100
		U5R2CADSE1:1/ 1:2	**Discipline Specific Elective – 1** (1:1 or 1:2)	6	4	3	25	75	100
	IV	U5R2CASEC2:1/ 2:2	**Skill Enhancement Course – 2** (2:1/2:2)	4	2	3	25	75	100
		U5R2MTGEC1	**Generic Elective Course – 1** To be Selected from other Dept.	2	2	3	25	75	100
			Total	**30**	**26**				**700**
VI	III	U6R2CACC14	Web Technology	6	5	3	25	75	100
		U6R2CACC15P	Web Technology Practical	3	3	3	40	60	100
		U6R2CADSE2:1/ 2:2	**Discipline Specific Elective – 2** (2:1 or 2:2)	6	5	3	25	75	100
		U6R2CADSE3:1/ 3:2	**Discipline Specific Elective – 3** (3:1 or 3:2)	6	5	3	25	75	100
	IV	U6R2CASEC3:1/ 3:2	**Skill Enhancement Course – 3** (3:1/3:2)	5	2	3	25	75	100
		U6R2MTGEC2	**Generic Elective Course – 2** To be Selected from other Dept.	2	2	3	25	75	100
		U6R2AECC3	**Ability Enhancement Compulsory Course – 3 Gender Studies**	2	1	3	25	75	100
	V		Extension Activities	-	1				---
			Extra Credit Online Course – MOOCS	-	-	-	-	-	---
			Total	**30**	**24**				**700**
			Grand Total		**140**				**4000**

CC **- Core Course /** AC **– Allied Course /** DSE **– Discipline Specific Elective /** SEC **– Skill Enhancement Course /** GEC **– Generic Elective Course /** AECC **– Ability Enhancement Compulsory Course /** P **– Practical**

Total Credits – 140 & Total Marks – 4000.

Extension activities shall be outside the instruction hours.

Discipline Specific Elective

Discipline Specific Elective - 1

1:1 Data Mining and Warehousing

1:2 Multimedia Systems

Discipline Specific Elective - 2

2:1 Computer Networks

2:2 Wireless Network

Discipline Specific Elective - 3

3:1 Software Application Project

3:2 Internet of Things

Skill Enhancement Course

Skill Enhancement Course - 1

1:1 Internet Programming

1:2 Open-Source Technology

Skill Enhancement Course - 2

2:1 Mobile Computing

2:2 Cloud Computing

Skill Enhancement Course - 3

3:1 Android Programming

3:2 E-Commerce Technologies

Generic Elective Courses

Generic Elective Courses (Offered by the Department)

1. Computer Skill Development Course
2. Internet Skill Development Course
3. Computer Applications in Chemistry

List of Core Courses (C.C.)

Sl. No.	Course Code	Name of the Course
1	U1R2CACC1	Programming in C
2	U1R2CACC2	Digital Computer Fundamentals
3	UIR2CACC3P	Programming in C Practical
4	U2R2CACC4	Relational Database Management System
5	U2R2CACC5P	SQL and PLSQL Practical
6	U3R2CACC6	Programming in Java
7	U3R2CACC7P	Programming in Java Practical
8	U4R2CACC8	Programming in Python
9	U4R2CACC9P	Programming in Python Practical
10	U5R2CACC10	Operating Systems
11	U5R2CACC11	Software Engineering
12	U5R2CACC12	PHP Programming
13	U5R2CACC13P	Open-Source Technology Practical
14	U6R2CACC14	Web Technology
15	U6R2CACC15P	Web Technology Practical

n[. n[. fiymwptpay;;;fy;Y}hp (jd;dhl;rp)
rptGuk;>GJf;Nfhl;il
2022 –2023 Mk; fy;tpahz;LKjy; NrHf;fg;gl;l ,sepiygl;lkhztHfSf;FhpaJ

jiyg;G	**:**	**,f;fhy ,yf;fpak; - ,yf;fzk;**	**thpirvz;; : c1**	**Nehf ;fk;**
gUtk;	**:**	**Kjyhk; gUtk;**	**jhs; FwpaPL;;: U1R2TL1**	1.
gpupT	**:**	**gFjp I jkpo;**	**kjpg;Gg; Gs;sp: 3**	
kjpg;ngz;	**:**	**CIA -25, EA -75**	**fw;wy; Neuk; : 5 kzp**	

jkpo; ,yf;fpaj;jpd; etPdj;jd;ikia mwpe;J nfhs;sy;

2. trd ftpijapd; mikg;G Kiwiag; Gupe;J nfhs;sy;
3. GJf;ftpijf;Fk; kuGf;ftpijf;Fk; cs;s NtWghl;Lj; jd;ikiag; gpupj;Jf; fhl;Ljy;
4. ciueil thrpg;gpd; %yk; ehnefpo;g; gapw;rp mspj;jy;
5. r%f khw;wj;jpw;Fr; rpwe;j Clfk; fij ,yf;fpak; vd;gij Ma;e;jwpaj; J}z;Ljy;

$W: 1 **,f;fhy ,yf;fpa tuyhW> ,yf;fzk; (Inst.Hrs: 15)**

,f;fhy ,yf;fpa tuyhW – ciueil> rpWfij> Gjpdk;> ftpij> ehl;Lg;Gw ,yf;fpak;> ,yf;fzk; - MFngau;fs;

$W: 2 **trd ftpij (Inst.Hrs: 15)**

ghujpahH – fz;zd; ghl;L - fz;zd; vd; Nrtfd;> ghujpjhrd; - thspid vLlh> ftpkzp Njrpf tpehafk; gps;is – kyUk; khiyAk; - ghujpAk; gl;bf;fhl;lDk;> thzpjhrd; - Gjpa Mj;jp#b> ehl;Lg;Gwg;ghl;L – ehw;WeLk; ghl;L> fijg;ghly; - 1980 itif nts;sj;JaH

$W: 3 **GJf;ftpij (Inst.Hrs: 15)**

mg;Jy;uFkhd; - Myhgid – Mwh(j)mwpT> kPuh - Crpfs; - ehd; mtd; ez;gd;> K.Nkj;jh - Mfhaj;jpw;F mLj;j tPL> nt.,iwad;G – G+ghsj;jpw;F xU Gy;yhq;Foy; - epwntwpf;F fWg;G> #.nry;yg;gh – Njd;fpz;zk; - GOjpf;fhl;Lg; Gyk;gy;> Mq;fiug; igutp – tpuy; njhl;lthdk; - Gj;jfk;

$W: 4 **ciueil (Inst.Hrs: 15)**

ghujpahu; - nfhs;iff;Fk; nraYf;FKs;s J}uk;> eh.rQ;rPtp - nkhoptopg; nghOJ Nghf;Ffs;> K.tujuhrd; - jq;iff;F> g+.MyhyRe;juk; - goe;jkpou; gz;G> uh.gp.NrJgps;is - fiyAk; fw;gidAk;> ghy; tsd; muR – jkpoff; Nfhtpy;fs;> v];. itahGupg;gps;is – fk;gDk; jkpOk;

$W: 5 rpWfij (Inst.Hrs: 15)

nrk;ig kzthsd; - jtk> mz;lD}u; Ruh – kplw;Wj; jhfk;> RNu\; khd;ah – capu; epyk;> Nrhyr;rp – fijay;y> e.Nrhiyag;gd; - g+kuhq;> GJifrQ;r{tp –jpUkjpjiytu;> kplWKUfjh]; - J}f;Ff; $il

ghlE}y;fs;:

,yf;fpa tuyhW	-	Jiw ntspaPL
nra;As; jpul;L	-	Jiw ntspaPL
epwg;gpupif (rpWfijj; njhFjp)	-	Jiw ntspaPL
ciukhiy (ciueilj; njhFjp)	-	Jiw ntspaPL

,g;ghlj;jpidf; fw;gjpd; %yk; khztu;fs; ngWk; gad;fs

Sl.No	Course Outcomes	Knowledge Level
CO1	fhye;NjhWk; jkpo; ,yf;fpak; fle;J te;j fhyr;RtLfis mwpe;J nfhs;th;	K2
CO2	ftpijapy; ifahsg;gl;Ls;sr; nrhy;yhliyf; fz;Lzh;th;	K2
CO3	GJf;ftpijapd; tuyhw;Wf;Fhpaf; fUg;nghUis kjpg;gpLth;	K5
CO4	ciueil thrpg;Gj; jpwdpy; Nkd;ik milth;	K2
CO5	rpWfijg; gilg;gjpy; cs;s EZf;fq;fis tiuaiw nra;th;	K4

,f;fhy ,yf;fpak;> ,yf;fzk;					U1R2TL1					
Course Outcomes	Programme Outcomes (POs)					Programme Specific Outcomes(PSOs)					Mean Score
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	3	3	3	3	2	2	3	3	3	2	2.7
CO2	3	2	3	3	2	2	3	2	3	2	2.5
CO3	3	2	3	3	3	2	3	3	3	2	2.7
CO4	3	2	2	3	2	2	3	2	3	2	2.4
CO5	3	3	3	3	2	3	3	3	3	2	2.8
									Mean Overall Score		2.6
									Result		High

Title of the Course : PROSE AND ENGLISH FOR COMMUNICATION
Category of the Course : PART-II ENGLISH
Course Code : U1R2EL1
Nature of the Skill : Communicative Skill

Marks : CIA : 25 +Ext: 75 = 100 **Hrs / Week : 05**
Credits : 03 **Total Inst. Hrs : 75**

OBJECTIVES:

1	To expose the learner to modern English prose.
2	To extend learners communication skills through suitable tasks.
3	To expand the learners passive and active vocabulary and repertoire of structures.
4	To develop the ability in independent writing.
5	To provide enough practice for real life applications of language (English)

UNIT – 1 **(Inst. Hrs : 15)**

A.P.J Abdul Kalam My vision for India
Jim Corbett A Deed of Bravery
Bertrand Russell Has Man A Future?

UNIT – II **(Inst. Hrs :15)**

Swami Vivekananda The Secret of Work
C.E.M. Joad Our Civilization
Nirad C. Chaudhuri The Great City
Rabindranath Tagore The Auspicious Vision

UNIT – III **(Inst. Hrs : 15)**

Synonyms - Antonyms - Homonyms - One Word Substitutes - Idioms and Phrases-Use of Articles, Prepositions, Analysis of Simple Sentences into SVOCA, Tag Questions, Framing questions to suit responses - short form responses both positive and negative to questions.

UNIT - IV **(Inst. Hrs : 15)**

Comprehension Exercises oral and written - 12 passages (multiple choice & Questions and Answers supplemented by listening exercises to be given by the teacher)

UNIT – V **(Inst. Hrs :15)**

Letter Writing - Both formal & Informal, Jumbled words and sentences, Paragraph Writing (Hints Development)

Units III, IV and V from workbook appended to the textbook

Web Resources

https://rufusonline.blogspot.com/2011/10/my-visions-for-india-drapjabdul-kalam.html
https://mastanappa.blogspot.com/2016/03/our-civilization-c-e-m-joad-additional.html
http://xylemofenglish.blogspot.com/2016/05/the-secret-of-work-by-swami-vivekananda.html?m=1
https://peacenews.info/node/5147/bertrand-russell-has-man-future
http://sittingbee.com/the-auspicious-vision-rabindranath-tagore/

OUTCOME:

Course Name -Prose and English for Communication	**Course Code - U1R2EL1**	**Knowledge Level**
On completion of the course, students will be able to		
CO1	discover and respond to aspects of language like diction, syntax, and style.	**K3**
CO2	perceive features like tense and time reference, polysemy, ambiguity and paraphrase.	**K5**
CO3	formulate ordinary dialogues and conversations in real life.	**K6**
CO4	appraise communicative acts like narrating an incident, describing a process, etc.	**K5**
CO5	develop skills in speaking and writing.	**K6**

Relationship Matrix for CO, PO, PSO

Title of the Course : **Prose and English for Communication**						Course code : **U1R2EL1**					
Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)					**Mean Score of COs**
	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PSO 1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**	
CO – 1	3	2	1	3	2	2	2	3	3	1	2.2
CO – 2	2	3	2	2	3	3	2	2	3	3	2.5
CO – 3	3	2	2	3	3	3	3	2	3	2	2.6
CO – 4	2	3	3	2	1	3	2	3	2	2	2.3
CO – 5	3	3	2	2	3	1	2	2	3	1	2.2
									Mean Overall Score		**2.36**
									Result		**HIGH**

Title of the Course : PROGRAMMING IN C

Category of the Course : Core Course

Course Code : U1R2CACC1

Nature of the Skill : Skill Development

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week** : 06

Credits : 05 **Total Inst. Hrs** : 90

COURSE OBJECTIVES

C obj – 1. To develop programming skills using the fundamentals of C language.

C obj - 2. To develop programs using the basic elements like control statements, Arrays and Strings.

C obj - 3. To develop programs using functions .

C obj - 4. To develop programs using the basic elements like Arrays and Strings.

C obj - 5. To develop programs using pointers and file.

UNIT - I: Overview of C (Inst Hrs: 18)

C fundamentals Character set - Identifier and keywords - data types **(ICT)** - constants - Variables - Declarations - Expressions - Statements – Arithmetic - Unary - Relational and logical - Assignment and Conditional Operators**(Assignment)** - Library functions.

UNIT - II: Input Output, Branching And Looping Statements (Inst Hrs: 18)

Data input output functions**(Seminar)** - Simple C programs - Flow of control - if, if-else, while, do-while, for loop, Nested control structures - Switch, break and continue, go to statements - Comma operator.

UNIT - III: User Defined Functions (Inst Hrs: 18)

Functions -Definition - proto-types - Passing arguments **(ICT)** - Recursions. Storage Classes**(Seminar)**- Automatic, External, Static, Register Variables - Multi-file programs.

UNIT - IV: Arrays and Strings (Inst Hrs: 18)

Arrays - Defining and Processing - Passing arrays to functions **(Seminar)** - Multi-dimension arrays - Arrays and String. Structures - User defined data types - Passing structures to functions - Self-referential structures - Unions - Bit wise operations. **(Assignment)**

UNIT - V: Pointers and File operations (Inst Hrs: 18)

Pointers - Declarations - Passing pointers to Functions - Operation in Pointers - Pointer and Arrays - Arrays of Pointers - Structures and Pointers - Files: Creating Processing **(ICT)**, Opening and Closing a data file.

TEXT BOOK (S):

1. E.Balagurusamy, "Programming in ANSI C", Fifth Edition, Tata McGrawHill.

REFERENCE BOOK (S):

1. B.W. Kernighan and D M.Ritchie, "The C Programming Language", 2nd Edition, PHI, 1988.

2. H. Schildt, "C: The Complete Reference", 4th Edition. TMH Edition, 2000.

3. Gottfried B.S, "Programming with C", Second Edition, TMH Pub. Co. Ltd.,New Delhi 1996.

ONLINE RESOURCE (S):

1. https://www.w3schools.in/c-tutorial

COURSE OUTCOMES

After the successful completion of the Course the Students shall be to able to,

CO - 1. Gain knowledge in fundamentals and basics of c Language. **- K3**

CO - 2. Write programs using C Programming language using various control structures- **K1**

CO - 3. Have the expertise in using the various functions in C effectively. **- K6**

CO - 4. Gain Knowledge in Arrays and Strings. **- K3**

CO - 5. Gain knowledge in handling files. **- K3**

Relationship Matrix for CO, PO, PSO

Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	2	1	2	2	2	2	3	2	3	2
CO-2	3	2	2	3	3	3	1	3	3	3
CO-3	2	3	2	3	2	2	3	2	1	2
CO-4	3	3	2	1	3	1	3	2	3	1
CO-5	2	1	2	3	2	2	2	3	2	3

Mean Overall Relationship is 2.26 which is HIGH

Title of the Course **:** DIGITAL COMPUTER FUNDAMENTALS

Category of the Course **:** Core Course

Course Code **:** U1R2CACC2

Nature of the Skill **:** Skill Development and Employability skill

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week** : 06

Credits **:** 05 **Total Inst. Hrs** **:** 90

COURSE OBJECTIVES

C obj – 1. To train the student to the basic concepts of Digital Computer Fundamentals

C obj - 2. To impart the in-depth knowledge of logic gates, Boolean algebra,

C obj - 3. To Gain the Knowledge of combinational circuits .

C obj - 4. To learn the concept of Sequencial Circuit

C obj - 5. To learn the concept of Counters

UNIT –I: Number Systems and Logic Gates (Inst Hrs:18)

Number Systems and Codes: Number System – Base Conversion – Binary Codes – Code Conversion. Digital Logic: Logic Gates – Truth Tables – Universal Gates.

UNIT – II: Boolean Algebra (Inst Hrs:18)

Boolean Algebra: Laws and Theorems – SOP, POS Methods – Simplification of Boolean Functions – Using Theorems, K-Map, Prime – Implicant Method – Binary Arithmetic: Binary Addition – Subtraction – Various Representations of Binary Numbers – Arithmetic Building Blocks – Adder – Subtractor.

UNIT – III: Combinational Logic (Inst Hrs:18)

Combinational Logic: Multiplexers – Demultiplexers – Decoders – Encoders – Code Converters – Parity Generators and Checkers.

UNIT – IV: Sequential Logic **(Inst Hrs:18)**

Sequential Logic: RS, JK, D, and T Flip-Flops – Master-Slave Flip-Flops. Registers: Shift Registers – Types of Shift Registers.

UNIT – V: Counters **(Inst Hrs:18)**

Counters: Asynchronous and Synchronous Counters - Ripple, Mod, Up-Down Counters– Ring Counters. Memory: Basic Terms and Ideas –Types of ROMs – Types of RAMs.

TEXT BOOK (S):

1. M. Moris Mano, Digital Logic and Computer Design, PHI, 2001.

2. T.C.Bartee, Digital Computer Fundamentals, 6th Edition, Tata McGraw Hill, 1991.

REFERENCE BOOK (S):

1. V.Rajaraman and T.Radhakrishnan, Digital Computer Design, Prentice Hall of India, 2001

2. D.P.Leach and A.P.Malvino, Digital Principles and Applications – TMH – Fifth Edition – 2002.

ONLINE RESOURCE (S):

1. https://www.python.org

COURSE OUTCOMES

After the successful completion of the Course the Students shall be to able to,

CO - 1. Understand clearly to basic concept of logic gates **– K3**

CO - 2. Apply the concept of Boolean functions and Algebra **–K3**

CO - 3. Develop the circuit using multiplexer and multiplexer **–K6**

CO - 4. Analyse the skill of Sequential circuit with Flip-Flop **–K4**

CO - 5. Develop the circuit using Counters **–K6**

Relationship Matrix for CO, PO, PSO

Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	3	2	3	3	2	1	2	3	1	3
CO-2	2	2	2	2	2	3	1	2	3	2
CO-3	1	3	2	2	2	1	2	2	1	3
CO-4	2	2	1	3	2	2	3	1	3	2
CO-5	3	3	2	2	1	2	2	3	2	2

Mean Overall Relationship is 2.12 which is HIGH

Title of the Course **:** PROGRAMMING IN C PRACTICAL

Category of the Course **:** Core Course

Course Code **:** U1R2CACC3P

Nature of the Skill **:** Skill Development

Marks : CIA **:** 40+ Ext: 60 = 100 **Hrs / Week** : 03

Credits **:** 03 **Total Inst. Hrs** **:** 45

COURSE OBJECTIVES

C obj – 1. To train the student in the basic concepts of C-programminglanguage.

C obj - 2. To improve the programming skills through C language.

C obj - 3. To train the student to handle strings in C-programming.

C obj - 4. To improve the programming skills handling various matrix operations.

C obj - 5. To develop programs using various sorting and searching techniques.

LIST OF PRACTICAL PROGRAMS

1. Write and execute a C program for finding the biggest of three numbers
2. Write and execute a C program for Sine series.
3. Write and execute a C Program to Count the number of vowels, consonants, words, white spaces in a line of text and array of lines.
4. Write and execute a C Program to display Reverse of a string and check if it is a palindrome.
5. Write and execute a C Program to find a sub string and replace the sub string.
6. Write and execute a C Program to calculate GCD of two numbers

7. Write and execute a C Program to display Fibonacci series .

8. Write and execute a C Program to find Maximum & Minimum of given set of numbers.

9. Write and execute a C Program to find Addition and Subtraction of two matrices.

10. Write and execute a C Program to find Multiplication of two matrices.

11. Write and execute a C Program to sort N elements using Insertion Sort.

12. Write and execute a C Program to search an element using Binary search algorithm.

Title of the Course : **ALGEBRA AND CALCULUS**

Category of the Course : Allied Course

Course Code : **U1R2CAAC1**

Nature of the Skill : Skill Development

Marks : CIA **:** 25+ Ext: 75 = 100 **Hrs / Week** : 05

Credits : 04 **Total Inst. Hrs** : 75

Objectives:

- To solve the Algebraic problems using the knowledge of equations
- To introduce the basic concept of Matrices
- To understand the basic skills of Successive differentiation
- To know the fundamental principles Differential equations
- To introduce the basic concept of Integration

Unit I: Theory of Equations **(Inst. Hrs: 15)**

Introduction- In equation with rational coefficients irrational roots occur in pairs- Relations between roots and coefficients of equations- transformation of equations- To increase or decrease the roots of a given equation by a quantity- Form of the quotient and remainder when a polynomial is divided by a binomial. [Simple problems only]

Unit II: Matrices **(Inst. Hrs: 15)**

Introduction to Matrices – Scalar multiplication of a matrix- Equality of matrices- Addition and Subtraction – Symmetric matrix- Multiplication- Inverse matrix – Solution of simultaneous equation – Rank of Matrix – Consistency – Characteristic equation, Eigen Values, Eigen Vectors – Cayley Hamilton's Theorem (Proof not needed) – Simple applications only.

UNITIII: Differentiation and Successive Differentiation **(Inst. Hrs: 15)**

Definitions – Differential Co-efficient - product rule – Quotient rule – Function of function rule – Inverse Functions – Hyperbolic functions – Successive Differentiation: n^{th} derivative – Trigonometrical Transformations –Leibnitz formula for n^{th} derivative [Formulas and simple applications only.

UNITIV: Differential Equations **(Inst. Hrs: 15)**

Differential equations of first order - Second order of types $(aD^2+bD+c)\ y = f(x)$, where a, b, c are constants and f(x) is one of the following types: (i)e^{kx} (ii)Sinkx (or) Coskx, where k be a constant (iii) x^n, n being integer.

UNIT V: Integration **(Inst. Hrs: 15)**

Integration – Definite integral – Integrals of function containing linear functions of x - Integration of Rational Algebraic Functions - Rule (a), (b) and (c).

Text Books:

1. **Algebra vol. I**,T.K.ManicavachagamPillai and Others, S.V. Publications 2011.
2. **Algebra vol. II**, S. Narayanan &T.K.ManicavachagamPillai and Others, S.V. Publications 2011.
3. **Calculus, Vol. I**,T.K.ManicavachagamPillai and Others, S.V. Publications 2011.
4. **Calculus, Vol. III**, S. Narayanan &T.K.ManicavachagamPillai and Others, S.V. Publications 2011.
5. **Calculus, Vol. II**, S. Narayanan &T.K.ManicavachagamPillai and Others, S.V. Publications 2011.

UnitI: Chapter 6 (Sec 10, 11, 15, 17, 18) [1]
Unit II: Chapter 2 (Sec 1 – 8 and 10 – 16) [2]
UnitIII: Chapter 2 (Sec 2.1 – 3.14) and Chapter 3 Fully [3]
Unit IV: Chapter 1 (Sec 1.1 – 1.3 formulas only), Chapter 2(Sec 1, 3 and 4) [4]
Unit V: Chapter 1 (Sec 1.1 - 7.4) [5]

Reference Books:

1. **Differential Calculus,** M.L.Kanna, Jai Prakashnath& Co.,
2. **Allied Mathematics**, S.G.Venkatachalapathy, Margham Publications 2007.

e – Resources:

1. https://youtu.be/wgD50fKbcJ8
2. https://www.vedantu.com/maths/leibnitz-theorem

Outcomes:

The learners would have the ability to,

CO1	Access students in making the transition from the arithmetic to the symbolic form.	K4
CO2	Obtain the knowledge of Characteristic equation, Eigen Values and Eigen Vectors.	K1
CO3	Obtain expressions for higher order derivatives of a function using the rules of differentiation.	K5
CO4	Compute the expression for the differential equations of first order.	K1
CO5	Interpret the indefinite integral as a definite integral with variable limits.	K3

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create

PROGRAM SPECIFIC OUTCOMES

Course Outcome (CO)	**Programme Outcomes (PO)**					**Programme Specific Outcomes (PSO)**				
CO/PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	3	3	2	3	1	3	3	3	2	3
CO2	3	2	3	3	1	3	2	3	3	1
CO3	2	1	3	3	2	3	3	3	3	1
CO4	3	2	1	3	2	1	3	1	3	2
CO5	3	1	3	3	2	2	3	3	2	3

3-Strong; 2-Medium; 1-Low

Mean Overall Relationship is 2.4 which is **HIGH**

n[.n[.fiymwptpay; fy;Yup (jd;dhl;rp)
rptGuk;>GJf;Nfhl;il

(2022-2023 Kjy; Nrh;f;ifg; ngw;wth;fSf;F chpaJ)

jiyg;G	**:**	**,ilf;fhy ,yf;fpak;> ,yf;fzk;**	**thpirvz;;**	**:**	**c2**
gUtk;	**:**	**,uz;lhk; gUtk;**	**jhs; FwpaPL;;**	**:**	**U2R2TL2**
gpupT	**:**	**gFjp I jkpo;**	**kjpg;Gg; Gs;sp**	**:**	**3**
kjpg;ngz;	**:**	**CIA -25, EA -75**	**fw;wy; Neuk;**	**:**	**5 kzp**

Nehf;fk; :

1. ,ilf;fhy ,yf;fpak; $Wk; jj;Jtq;fis kPl;lwpar; nra;jy;
2. rkaf;fy;tp %yk; Vw;gLk; ey;ypzf;f newpfisg; Gupe;J nfhs;sr; nra;jy;
3. itzt ,yf;fpaj;ij tho;tpaNyhL xg;gpl;L mwpa J}z;Ljy;
4. Rpw;wpyf;fpaj;jpYs;s ,yf;fpar; Ritia vjhh;j;j tho;tpaNyhL nghUj;jpg; ghh;f;fr; nra;jy;
5. Gjpdk; czh;j;Jk; kdpj cstpay; $Wfis kjpg;gPL nra;jy;

$W : 1 ,yf;fpa tuyhW> ,yf;fzk; **(Inst. Hrs: 15)**

gf;jp ,yf;fpaq;fs; - gd;dpU jpUKiwfs;> ehyhapu jpt;a gpuge;jk;> rpw;wpyf;fpaq;fs;> ,yf;fzk; - tO> tohepiy> tOtikjp> ,ul;ilf;fpstp.

$W : 2 irt ,yf;fpak; **(Inst. Hrs: 15)**

jpUQhd rk;ge;jh; Njthuk; - jpUr;rha;f;fhL gjpfk; (ghly; : 100 -110);> jpUehTf;furh; - jpUkog;ghb gjpfk; (ghly; : 2567 - 2576);> jpUthrfk; - md;idg;gj;J

$W : 3 itzt ,yf;fpak; **(Inst. Hrs: 15)**

jpUkq;if Mo;thh; - nghpa jpUnkhop – nghpa jpUke;jpuj;jpd; kfpik >(ghly; :948 –957) ehr;rpahh; jpUnkhop – Fapw;gj;J (ghly; 545 -556) G+jj;jho;thh; - ,uz;lhk; jpUte;jhjp (ghly;: 2182 - 2191)

$W : 4 rpw;wpyf;fpaq;fs;> rpj;jh; ,yf;fpak; (Inst. Hrs: 15)

Kj;Jf;Fkhurhkp gps;isj; jkpo; - Kj;jg;gUtk; (4MtJ ghly;)> tUifg;gUtk; (2MtJ ghly;) jphp$luhrg;gf; ftpuhah; - FwtQ;rp tre;jts;sp ge;jhbaJ (Kjy; ehd;F ghly;fs;> jkpo; tpLJ}J – 151-160 fz;zpfs;> gl;bdj;jhh; ghly;fs; - neQ;nrhL Gyk;gy; (1 – 10 ghly;fs;)

$W : 5 ehty; (Inst. Hrs: 15)

gidab – Mrpupau; ,uh.nry;tk;

ghlE}y;fs; :

gf;jp ,yf;fpa tuyhW	-	Jiw ntspaPL
gidab (ehty;)	-	,uh.nry;tk; NCBH nrd;id.

,g;ghlj;jpidf; fw;gjpd; %yk; khztu;fs; ngWk; gad;fs;

Sl.No	Course Outcomes	Knowledge Level
CO1	gf;jp ,yf;fpaj; Njhw;wj;jpd; mtrpaj;ij kPl;Lzh;th;	K2
CO2	irt ,yf;fpaq;fspy; fhzyhFk; caph;g;guty; caph; Njhw;wk; Nghd;wtw;iw mwptpay; fUj;JfNshL nghUj;jp fhz;gu;	K4
CO3	itztk; $Wk; kdpjj;ijg; Nghw;wp gpd;gw;Wth;	K3
CO4	rpw;wpyf;fpar; Ritawpe;J nra;As; eyk; ghuhl;Ltu;	K6
CO5	Gjpdk; fhl;Lk; Gdpjj;ij czh;e;J ghj;jpug; gz;Gfisj; jpwdha;Tr; nra;th;	K4

,ilf;fhy ,yf;fpak;> ,yf;fzk;						U2R2TL2					
Course Outcomes	Programme Outcomes (POs)					Programme Specific Outcomes(PSOs)					Mean Score
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	3	2	2	3	2	2	3	2	3	1	2.3
CO2	3	3	3	1	2	3	3	3	2	2	2.4
CO3	2	2	2	1	2	2	2	2	1	1	1.7
CO4	3	2	2	3	2	3	3	2	3	2	2.5

CO5	**3**	**3**	**3**	**3**	**2**	**3**	**3**	**2**	**3**	**2**	**2.7**
									Mean Overall Score		**2.3**
										Result	**High**

Title of the Course : POETRY AND ENGLISH FOR COMMUNICATION
Category of the Course : PART-II ENGLISH
Course Code :U2R2EL2
Nature of the Skill :Reading and Study Skill

Marks : CIA : 25 +Ext: 75 = 100 **Hrs / Week : 05**
Credits : 03 **Total Inst. Hrs :75**

OBJECTIVES

1	To give the learner a feel of poetry
2	To promote a perception of the aesthetic use of language
3	To revise a few aspects of grammar from a communicative angle
4	To provide reading and writing practice
5	To give practice in free writing.

UNIT - I **(Inst. Hrs :15)**

Shakespeare	:	All the World's a Stage...(lines 139-166) (The seven stages of Man) As You Like It(Act II Scene VII)
Henry Wordsworth Longfellow	:	A Psalm Of Life
Oliver Goldsmith	:	The Village Schoolmaster
Rabindranath Tagore	:	Where the mind is without Fear
John Masefield		Laugh and Be Merry

UNIT – II **(Inst. Hrs :15)**

Rupert Brooke	The Soldier
P.B. Shelley	Ozymandias
Judith Wright	The Company of Lovers
Sarojini Naidu	The Queen's Rival

UNIT - III **(Inst. Hrs:15)**

Verbs –Infinitives and Gerunds - Modals - Tenses – Active &Passive - Direct and Indirect - Clauses – Analysis and Transformation of sentences – Concord and Governance– Word order.

UNIT - IV **(Inst. Hrs :15)**

Note making – Arguments for and against Issues - Summarizing

UNIT - V **(Inst. Hrs :15)**

Developing outlines into paragraphs - Report Writing – Writing Curriculum Vitae

Web Resources:

https://poemanalysis.com/william-shakespeare/all-the-worlds-a-stage/
https://poemanalysis.com/henry-wadsworth-longfellow/a-psalm-of-life/#:~:text=Henry%20Wadsworth%20Longfellow-,Summary,matter%20of%20number%20and%20figures
https://www.toppr.com/guides/english/english-literature/ozymandias-summary/
https://www.litcharts.com/poetry/rupert-brooke/the-soldier
http://sumanabala.blogspot.com/2012/10/queens-rival-sarojini-naidu.html?m=1

OUTCOME:

Course Name - Poetry and English for Communication	**Course Code - U2R2EL2**	**Knowledge Level**
On completion of the course, students will be able to		
CO1	interpret and appreciate simple poems.	**K5**
CO2	categorise and respond to aspects of poetic language like deviance, figures of speech, etc.	**K4**
CO3	perceive features like tense and time reference, polysemy, ambiguity and paraphrase relations.	**K5**
CO4	construct ordinary dialogues , conversations and group discussions to suit real life situations.	**K6**
CO5	design communications in writing on ordinary matters like narrating an incident, describing a process, etc.	**K6**

Relationship Matrix for CO, PO, PSO

Title of the Course : **Poetry and English for Communication**						Course code : U2R2EL2					
Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)					**Mean Score of Cos**
	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PSO 1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**	
CO – 1	3	2	2	3	1	3	3	3	2	3	2.5
CO – 2	3	1	1	2	3	3	2	2	3	1	2.1
CO – 3	2	3	1	2	2	3	3	2	3	2	2.3

CO – 4	2	1	3	3	2	2	3	2	3	2	2.3
CO – 5	1	3	2	2	3	3	1	2	3	3	2.3
	Mean Overall Score										**2.30**
	Result										**HIGH**

Title of the Course **:** RELATIONAL DATABASE MANAGEMENT SYSTEM

Category of the Course **:** Core Course

Course Code **:** U2R2CACC4

Nature of the Skill **:** Skill Development

Marks : CIA **:** 25 + Ext: 75 = 100 **Hrs / Week** : 05

Credits **:** 05 **Total Inst. Hrs** **:** 75

COURSE OBJECTIVES

C obj - 1 To understand the various RDBMS Models.

C obj - 2. To impart knowledge on SQL and Data Definition Language

C obj - 3. To acquire Knowledge on Integrity and Security of SQL

C obj - 4. To be effective in Relational Data Base Design using various Normal Forms

C obj - 5. To impart knowledge on Transaction and its Management

UNIT – I (Introduction) : **(Inst Hrs:15)**

Database System Applications-DBMS Vs. File System - View of Data-Data Model Database Languages - Database users and Administrators **(ICT)** - Transaction Management - Database System Structure - Application Architecture. Data Models: Basic Concepts - Constraint- Keys- ER Diagram **(Seminar)** - Weak Entity - Extended ER Features **(Assignment)** - UML; Relational Model: Structure of Relational Databases - Relational Algebra - Views.

UNIT – II SQL: **(Inst Hrs:15)**

Background-Basic Structure-Set Operation-Aggregate Function-Null Values-Nested Sub Queries – Views **(ICT)** - Modification of the Database - Data Definition Language - Embedded SQL - Dynamic SQL.

UNIT-III (Advance SQL) : (Inst Hrs:15)

Integrity and Security: Domain - Constraint - Referential Integrity - assertions - Triggers - Security and Authorization - Authorization in SQL **(ICT)** - Encryption and Authentication.

UNIT – IV (Normalization: (Inst Hrs:15)

Relational Database Design: First Normal Form **(Seminar)** - Pitfalls in Relational Database Design-Functional Dependencies (Second Normal Form) - Boyce-Codd Normal Form - Third Normal Form - Fourth Normal Form - Overall Database Design Process.

UNIT-V Transaction Management: (Inst Hrs:15)

Transaction concepts **(Assignment)** - States - Serializability. Lock based concurrency control: Locks **(Seminar)** - Granting - Two-Phase Locking protocol. Time stamp based protocol: Timestamps - Timestamp ordering protocol - Dead lock handling.

TEXT BOOK (S):

1. A Silberschatz, H Korth, S Sudarshan, "Database System and Concepts", 5th Edition McGraw-Hill, 2005.

REFERENCE BOOK (S):

1. Alexix Leon & Mathews Leon, "Essential of DBMS", 2nd reprint, Vijay Nicole Publications, 2009.

2. Alexix Leon & Mathews Leon, "Fundamentals of DBMS", 2nd Edition, Vijay Nicole Publications, 2014.

ONLINE RESOURCE (S):

1. https://www.tutorialspoint.com/sql/sql-rdbms-concepts.htm
2. https://www.oracle.com/in/database/what-is-a-relational-database/

COURSE OUTCOMES

After the successful completion of the Course the Students shall be to able to,

CO - 1. Gain knowledge in the concepts of DBMS and their models **– K3**

CO - 2. Apply Set operations and aggregate function in queries **– K3**

CO - 3. Evaluating Integrity and Security Constraints **- K5**

CO - 4. Create a Normalized data by Appling the Normalization techniques **-K6**

CO - 5. Have a career in the field of Data Science as a Data Base Administrator **– K3**

Relationship Matrix for CO, PO, PSO

Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	2	2	3	1	2	3	2	1	2	2
CO-2	3	3	2	2	2	2	3	3	1	3
CO-3	2	1	3	2	3	3	3	2	2	2
CO-4	1	3	2	2	3	2	2	3	3	2
CO-5	2	2	3	2	1	2	3	2	3	2

Mean Overall Relationship is 2.24 which is HIGH

Title of the Course :SQL AND PL/SQL PRACTICAL

Category of the Course : Core Course

Course Code : U2R2CACC5P

Nature of the Skill : Skill Development

Marks : CIA :40 + Ext: 60= 100 **Hrs / Week** : 03

Credits :03 **Total Prac. Hrs** :45

COURSE OBJECTIVES

C obj – 1. To understand the various RDBMS Models.

C obj - 2. To impart knowledge on SQL and Data DefinitionLanguage

C obj - 3. To acquire Knowledge on Integrity and Security of SQL

C obj - 4. To be effective in Relational Data Base Design using various Normal Forms

C obj - 5. To impart knowledge on Transaction and its Management

LIST OF PRACTICAL PROGRAMS

1. Create a table with 5 fields.

2. Create a table with Primary key constraints.

3. Create a table with all possible constraints by insert command.

4. Create tables and do Data Manipulation of Base Tables and Views.

5. Demonstrate the Query commands.

6. Write a PL/SQL code block that will accept an account number from the user and debit an amount of Rs.2000 from the account if the account has a minimum balance of 500 after the amount is debited. The Process is to be fired on the Accounts table.

7. Write a PL/SQL code block to calculate the area of the circle for a value of radius varying from 3 to 7 . Store the radius and the corresponding values of calculated area in a table Areas.

8. Write a PL/SQL block of code for reversing a number. (Example : 1234 as 4321).

9. Create a transparent audit system for a table Client_master (client_no, name, address, Bal_due). The system must keep track of the records that are being deleted or updated. The functionality being when a record is deleted or modified the original record details and the date of operation are stored in the audit client (client_no, name, bal_due, operation, userid, opdate) table, then the delete or update is allowed to go through.

Title of the Course : **OPERATIONS RESEARCH**

Category of the Course : Allied Course 2

Course Code : **U2R2CAAC2**

Nature of the Skill : **Employability**

Marks : CIA **:** 25+ Ext: 75 = 100 **Hrs / Week** : 05

Credits : 04 **Total Inst. Hrs** **:** 75

Objectives:

- To understand Operation Research, Linear programming formation and role of Computer in OR
- To improve the skills of solving very common problems which we come across in various fields like transportation.
- To introduce concepts of Assignment Problems
- To develop Sequencing Problems in industries with machines
- To introduce Network and to find critical path

Unit I: Introduction to OR **(Inst. Hrs: 15)**

Introduction - basics of OR - OR & decision making - Role of computers in OR - Linear programming formulations & graphical solution of two variables - canonical & standard forms of LPP - Introduction - concepts of slack & surplus variables - simplex method for ≤ constraints.

Unit II: Transportation Problem **(Inst. Hrs: 15)**

Introduction - Transportation algorithm - concepts of feasibility basicness, methods used to find the solution to a TP - Unbalanced transportation problem.

Unit III: Assignment Problem **(Inst. Hrs: 15)**

Introduction - - assignment algorithm - General model of the assignment problem - unbalanced assignment problem - solution to the assignment problem – maximization – Travelling Salesman.

Unit IV: Sequencing Problems **(Inst. Hrs: 15)**

Problems of sequencing - Processing of n jobs through two machines - processing of n jobs through 3 machines.

Unit V: Networks **(Inst. Hrs: 15)**

Introduction to Network - Fulkerson's rule - measures of activity - CPM - Finding the critical path - calculating TF, FF, IF, PERT computation.

Text Books:

1. **Problems in Operations Research,** Manmohan &P. .K Gupta, Sultan Chand Publishers, New Delhi, 1999.

Unit I: Chapter 1 - 4
Unit II:Chapter 15
Unit III:Chapter 16 –Pg. No. 399 – 432.
Unit IV: Chapter 17
Unit V: Chapter 27

Reference Books:

1) **AnIntroduction of Operations Research,**Prem Kumar Gupta and D.S.Hira, S.Chand and co., Ltd. New Delhi, 1995.
2) **Operations Research,**HumdyA.Taha,(7thEdn.), Mcmillan Publishing Company, New Delhi, 1982.

e- Resources:

1. https://youtu.be/nLjopro7H7k
2. https://www.notes4free.in/admin/postimages/OR%20NOTES.pdf

Outcomes:

The learners would have the ability to,

CO1	Identify and develop OR models from the verbal description of the real system	K1
CO2	Develop the solving technique and analyse the concepts of feasibility	K3
CO3	Solve specialized linear programming problems like the transportation and assignment problems.	K5

CO4	Identity the resources required for a project and generate a plan and work schedule.	K1
CO5	Develop computational skill and logical thinking in formulating industry oriented problems as a mathematical problem and finding solutions to these problems	K6

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create

PROGRAM SPECIFIC OUTCOMES

Course Outcome (CO)	**Programme Outcomes (PO)**					**Programme Specific Outcomes (PSO)**				
CO/PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	3	3	3	3	3	3	3	3	3	3
CO2	3	2	2	3	2	3	3	2	3	3
CO3	3	2	1	3	2	3	3	2	3	2
CO4	3	1	3	3	3	2	3	3	3	1
CO5	3	3	3	3	3	3	3	3	3	1

3-Strong; 2-Medium; 1-Low

Mean Overall Relationship is 2.66 which is **HIGH**

Title of the Course : **NUMERICAL METHODS AND STATISTICS**

Category of the Course : Allied Course 3

Course Code : **U2R2CAAC3**

Nature of the Skill : **Employability**

Marks : CIA **:** 25+ Ext: 75 = 100 **Hrs / Week** : 05

Credits **:** 04 **Total Inst. Hrs** **:** 75

Objectives:

- To understand the concept of transcendental and polynomial equations
- To Know how to use numerical methods to solve Simultaneous Linear Equations
- To understand how to find Numerical interpolation with equal and unequal intervals
- To know the techniques of Numerical Differentiation and Numerical Integration
- To understand Mean, Median, Mode, Standard Deviation, Correlation and Regression

Unit I: Solution of Algebraic and Transcendental Equations (Inst. Hrs: 15)

Bisection Method, Method of False Position, Iteration Method, Newton Raphson Method - Problems only.

Unit II: Solution of Simultaneous Linear Equations (Inst. Hrs: 15)

Gauss Elimination Method, Gauss Jacobi Method, Gauss Jordan Method, Gauss Seidel Method- (no proof needed).

Unit III: Numerical Interpolation (Inst. Hrs: 15)

Lagrange's Interpolation Formula – Divided differences –Newton's Formula - Newton's Forward and Backward Interpolation Formulae(No proof needed problems only).

Unit IV: Numerical Differentiation and Integration (Inst. Hrs: 15)

Newton's Forward and Backward Differentiation Formula – Trapezoidal, Simpson's1/3rd and 3/8th Rule. (Problems only)

Unit V: Statistics **(Inst. Hrs: 15)**

Mean, Median, Mode, Standard Deviation, Correlation and Regression – Simple Numerical Problems Only.

Text books:

1. **Introductory methods of numerical analysis**,S.S. Sastry, Prentical Hall India, 1994.
2. **Statistical methods,** S.P.Gupta ,S.Chand& Company, New Delhi.
3. **Numerical Methods**, N. Subramaniam, Scm Publishers, Erode.

Unit I: Chapter II sec 2.1to 2.5 [1]
Unit II: Chapter I, Sec 1.2 fully [3]
Unit III: Chapter II sec2 {Page No. 87 – 92, 99 - 110 and 128 – 145} [3]
Unit IV: Chapter V 5.2, 5.4.1,5.4.2, 5.4.3[1]
Unit V: Chapter II, Sec 2.5, 2.6, 2.7 [2]

E – Resources:

1. https://youtu.be/pUDeeE-ugyc
2. https://www.maths.dur.ac.uk/users/anthony.yeates/na17.pdf

Reference Books:

1. **Numerical Methods**,P.Kandasamy,S.Chand& Co., New Delhi, .1998
2. **Statistics**,R.S.N. Pillai and Bagavathi S, Chand & Co Ltd., New Delhi, 1999.

Outcomes:

The learners would have the ability to,

CO1	Acquire the knowledge of transcendental and polynomial equations.	K2
CO2	Choose the suitable computational method among existing methods.	K3
CO3	Understand the nature and operations of Numerical analysis with theories & concepts.	K2
CO4	Know about numerical methods to solve Numerical differentiation and Integration.	K1
CO5	Compute Correlation coefficients and Regression Analysis.	K5

K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create

PROGRAM SPECIFIC OUTCOMES

Course Outcome (CO)	**Programme Outcomes (PO)**					**Programme Specific Outcomes (PSO)**				
CO/PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**
CO1	3	3	3	3	3	3	3	3	3	3
CO2	3	2	3	3	2	3	3	2	3	3
CO3	3	2	1	3	2	3	3	2	3	2
CO4	3	1	3	3	3	3	3	3	3	1
CO5	3	3	3	3	3	3	3	3	3	1

3-Strong; 2-Medium; 1-Low

Mean Overall Relationship is 2.7 which is **HIGH**

Title of the Course **:** ENVIRONMENTAL STUDIES

Category of the Course **: AECC1**

Code **:** U2R2AECC1

Nature of the Skill **:** Skill Development

Marks : CIA **:** 25+ Ext: 75 = 100 **Hrs / Week** : 02

Credits **:** 02 **Total Inst. Hrs** **:** 30

COURSE OBJECTIVES

1. To impart basic knowledge of various natural resources
2. To understand the importance of ecosystem and biodiversity in Earth
3. To be effective in Pollution & waste water management of our nation.
4. To acquire knowledge on environmental issues & social issues.
5. To gain the knowledge about population management.

UNIT I **(Inst. Hrs:06)**

The Multidisciplinary Nature Of Environmental Studies: Definition, Scope And Importance - Need Of Public Awareness. **Natural Resources:** Renewable And Non-Renewable Resource, Natural Resources And Associated Problems.

a) Forest resources: Use and over-exploitation, Deforestation, Case studies. Timber extraction, mining, Dams and their effects on forests and tribal people.
b) Water resources: use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams - benefits of and related problems.
c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.

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

e) Energy resources: Growing energy needs, Renewable and non-renewable energy resources, use of alternate energy sources,case studies

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

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

Unit - II **(Inst. Hrs: 06)**

Ecosystem: Concept Of An Ecosystem - Structure And Functions Of An Ecosystem – Producers, Consumers And Decomposers - Energy Flow In The Ecosystem - Ecological Succession - Food Chains, Food Webs And Ecological Pyramids.Types, Characteristic Feature, Structure And Functions Of The Following Ecosystem: Forest Ecosystems, Grassland Ecosystems, Desert Ecosystems And Aquatic Ecosystems (Ponds, Streams, Lakes, Rivers, Oceans, Estuaries).

Biodiversity:

Introduction - Definition: Genetic, Species And Ecosystem Diversity. Biogeographical Classification Of India, Value Of Biodiversity: Consumptive Use, Productive Use, Social, Ethical, Aesthetic And Option Values. Biodiversity At Global, National And Local Levels, India As A Mega-Diversity Nation, Hot-Spots Of Biodiversity, Threats To Biodiversity: Habitat Loss, Poaching Of Wildlife, Man-Wildlife Conflicts, Endangered And Endemic Species Of India, Conservation Of Biodiversity: *In-Situ* Conservation And *Ex-Situ* Conservation.

UNIT - III **(Inst.Hours: 06)**

Environmental pollution:

Definition, causes, effects and control measures of Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Radioactive pollution.

Solid waste management:

Causes, effects and control measures of urban and industrial waste, Role of an individual in the prevention of pollution - pollution case studies - disaster management: floods, earthquakes, cyclones, landslides.

Effects of Fireworks:

Firework and celebrations, Health Hazards, Types of Fire, Firework and safety.

UNIT - IV (**Inst. Hrs: 06)**

Social Issues and Environment:

From unsustainable to sustainable development, urban problems related to energy,water conservation, rainwater harvesting, watershed management. Resettlement and rehabilitation of people: Its problems and concerns - case studies, Environment ethics; issu

es and possible solutions. Climate change, Global Warming, Acid Rain, Ozone Layer Depletion, Nuclear Accidents and Holocaust - Case studies. Wasteland reclamation, Consumerism and waste products, Environment Protection Act - Air (prevention and control of pollution) Act, Water (prevention and control of pollution) Act - Wildlife Protection Act, Forest Conservation AcT, Issues involved in the enforcement of environmental legislation.Public awareness.

UNIT - V (**Inst. Hrs:06)**

Human Population and the Environment:

Population growth, variation among nations - Population explosion - Family Welfare Programmes; -Environment and human health -Human Rights and Value Education; -HIV/AIDS , Women and Child Welfare; -Role of Information Technology in Environment and Human Health; -Case Studies

Field work:

- Visit to a local area to document environmental assets: river / forest / grasslands/ hill / mountain.
- Visit to a local polluted site-Urban/Rural/Industrial/Agricultural
- Study of common plants, insects, birds.
- Study of simple ecosystems-pond, river, hill slopes, etc.

-

REFERENCE:

- Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.
- Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd.,Ahmedabad – 380 013, India, Email:mapin@icenet.net (R)
- Miller T.G. Jr. Environmental Science, Wadsworth Publishing Co. (TB)
- Odum, E.P. 1971. Fundamentals of Ecology. W.B. Saunders Co. USA, 574p
- Jadhav, H & Bhosale, V.M. 1995. Environmental Protection and Laws. Himalaya Pub. House, Delhi 284 p.
- Manigandan G . 2020 Environmental Studies, PoGo publications, Trichy ISBN: 978-93-83069-36-1

COURSE OUTCOMES

Environmental Studies		Course Code **: U2R2AECC1**
S. No.	Course Outcome	Knowledge Level
Upon completion of course, the students will be able to		
CO - 1	Understand the resources of environment and its importance in detail.	**K2**
CO - 2	Get an in-depth knowledge about the nature of biodiversity.	**K3**
CO - 3	Apply their knowledge about solid waste management.	**K3**
CO - 4	Analyze various social issues & determining the solution from this.	**K4**
CO - 5	acquire knowledge on Human Population from case studies	**K6**

Relationship matrix for CO, PO and PSO

Course Outcome	**Programme Outcome (PO)**					**Programme Specific Outcome (PSO)**					
	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PSO-1**	**PSO-2**	**PSO-3**	**PSO-4**	**PSO 5**	**Mean**
CO-1	3	2	2	2	2	3	3	2	2	3	2.4
CO-2	2	3	3	2	2	2	2	2	2	2	2.2
CO-3	2	3	3	1	3	2	3	3	3	3	2.6

CO-4	3	2	3	1	2	2	2	2	2	2	2.1
CO-5	2	2	2	3	3	3	1	3	3	2	2.4
										Mean Overall Score	**2.34**
										Result	**High**

n[.n[. fiymwptpay; fy;Y}hp (jd;dhl;rp)
rptGuk;> GJf;Nfhl;il

(2022 – 2023 Mk; fy;tpahz;L Kjy; Nru;f;ifg; ngw;wtu;fSf;FhpaJ)

jiyg;G : fhg;gpa ,yf;fpak;> ,yf;fzk; thpirvz;; : c3

gUtk; : %d;whk; gUtk; jhs; FwpaPL;; : U3R2TL3

gpupT : gFjp I jkpo; kjpg;Gg; Gs;sp ;;: 3

kjpg;ngz; : CIA -25, EA -75 fw;wy; Neuk; : 6 kzp

Nehf;fk;

1. jkpopy; fhg;gpaq;fis mwpKfg; gLj;Jjy;.
2. fhg;gpaq;fs; $Wk; tho;tpay; mwq;fis cau;j;Jjy; .
3. Guhzq;fs; top tho;tpay; jj;Jtj;ij kjpg;gPL nra;jy;.
4. rkaf; fhg;gpaj;jpd; %yk; tho;tpd; gd;Kfj; jd;ikia tiuaWj;Jf; $Wjy;.
5. fhg;gpa> ehlf ,yf;fpaq;fSf;F ,ilapyhd xw;Wik
Ntw;Wikfisg; gFg;ghar; nra;jy;.

$W : 1 ,yf;fpa tuyhW> ,yf;fzk; **(Inst.Hrs.18)**

,yf;fpa tuyhW - Ik;ngUq;fhg;gpaq;fs;> IQ;rpWfhg;gpaq;fs; - gpwfhg;gpaq;fs; ehlfj;jpd; Njhw;wKk; tsu;r;rpAk;> ,d;iwa epiy. ,yf;fzk; – %tplg; ngau;fs; jd;ik> Kd;dpiy> gluf;;if

$W : 2 fhg;gpaq;fs; **(Inst.Hrs.18)**

rpyg;gjpfhuk; - fdhj;jpwk; ciuj;jfhij> kzpNkfiy - fe;jpw;ghit tUtJ ciuj;j fhij> rPtfrpe;jhkzp - RukQ;rupahu; ,yk;gfk; - 42 ghly;fs; (1-7> 14> 17 - 36> 44 - 47>57 - 62> 64 - 68).

$W :3 ,jpfhrk;> Guhzk; **(Inst.Hrs.18)**

fk;guhkhazk; - Ffg;glyk; (1 - 23 ghly;fs;) ngupGuhzk; - rz;NlRtu ehadhu; Guhzk; (1> 8 - 12> 30 - 42> 51 - 59) tpy;ypghujk; - cY}fd; J}J rUf;fk; (1 - 21 ghly;fs;)

$W : 4 gpw fhg;gpaq;fs; **(Inst.Hrs.18)**

,uhtzf; fhtpak; - tpe;jf;fhz;lk; - jrujg;glyk; (1-27 ghly;fs;). rPwhg;Guhzk; - <j;jq;Fiy tutioj;jg; glyk; (1-17 ghly;fs;)> Njk;ghtzp - ePu;tuk; mile;j glyk; (1-19 ghly;fs;)

$W : 5 ehlfk; **(Inst.Hrs.18)**

gjpndl;lhk; Nghu; ($thfj;jpy; nfhYtpUf;Fk; muthd; Gfo; $Wk; ehlfk;)> Mrpupau; Kj;JNtyofd;.

ghlE}y;fs; :

rpyg;gjpfhuk; %yKk; ciuAk	-	r.Nt.Rg;gpukzpad;> fq;if Gj;jf epiyak;
kzpNkfiy %yKk; ciuAk;	-	=re;jpud;> tu;j;jkhdd; gjpg;gfk;> nrd;id
rPtfrpe;jhkzp %yKk; ciuAk;	-	Qh.khzpf;fthrfk;> khzpf;fthrfu; gjpg;gfk;>
,uhtz fhtpak;	-	Gytu; Foe;ij> Ntyh gjpg;gfk;> <NuhL
gjpndl;lhk; Nghu;	-	Kj;JNtyofd;> rPij gjpg;gfk;> nrd;id

,g;ghlj;jpidf; fw;gjpd; %yk; khztu;fs; ngWk; gad;fs;

Sl.No	Course Outcomes	Knowledge Level
CO1	fhg;gpa ,yf;fpaj;jpd; jiyikg; gz;Gfis mwptu;	**K2**
CO2	fhg;gpaf; fijfs; top mwr;rpe;jidfis czu;tu;	**K2**
CO3	gy;NtW tifahd fhg;gpa tbtq;fspy; ,lk;ngWk; nghUz;ikiag; ghFgLj;jp mwptu;	**K3**
CO4	r%f tsu;r;rpf;Fr; rkaf; fhg;gpaq;fspd; gq;fspg;ig kjpg;gPL nra;tu;.	**K5**
CO5	jkpo;r; r%f tsu;r;rpNahL ehlff;fiy njhlu;e;J tUk; fhyr;R+oiy Muha;e;Jzu;tu;	**K6**

fhg;gpa ,yf;fpak;> ,yf;fzk;						**U3R2TL3**					
Course Out comes	**Programme Outcomes (POs)**					**Programme Specific Outcomes(PSOs)**					**Mean Score**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**	
CO1	**2**	**2**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**2**	**2.7**

CO2	**3**	**3**	**3**	**2**	**2**	**3**	**3**	**2**	**2**	**1**	**2.4**
CO3	**3**	**2**	**3**	**2**	**3**	**2**	**3**	**3**	**3**	**1**	**2.5**
CO4	**3**	**3**	**3**	**2**	**3**	**3**	**3**	**3**	**2**	**1**	**2.6**
CO5	**3**	**2**	**3**	**3**	**2**	**3**	**3**	**2**	**2**	**1**	**2.4**
										Mean Overall Score	**2.52**
										Result	**High**

Title of the Course : DRAMA AND ENGLISH FOR COMPETITIVE EXAMINATIONS
Category of the Course : PART-II ENGLISH
Course Code : U3R2EL3
Nature of the Skill : Comprehension and Appreciation

Marks : CIA : 25 +Ext: 75 = 100 **Hrs / Week : 06**
Credits : 03 **Total Inst. Hrs :90**

OBJECTIVES:

1	To introduce the learner to living language in dramatic situations
2	To enable the student to see the special features of dramatic language
3	To give the class practice in proper reading with correct stress and intonation
4	To enable the learner to perceive the structure of paragraphs and passages
5	To promote skills in dialogue writing and precise writing and make them see the elements of sentence and paragraph structure

UNIT I **(Inst. Hrs :18)**

Shakespeare	1.Trial for a Pound of Flesh (The Merchant of Venice)
	2. Forum scene (Julius Caesar)
Edith M Barling	His Majesty Masquerades

UNIT II **(Inst. Hrs :18)**

Fritz Karinthy	The Refund
Anton Chekov	The Bear
Ella Adkins	The Expected

UNIT III **(Inst. Hrs :18)**

Note making - Precis Writing – Rhetorical features – The dynamics of communication – Field – Mode – Interpersonal context – Greetings, Partings, Fillers and Tonal variations

UNIT IV **(Inst. Hrs :18)**

Dialogue Writing - Writing Interviews -Group Discussions

UNIT V **(Inst. Hrs :18)**

Writing Speeches – Welcome – Introductory and thanks giving – Constructing arguments for and against propositions for debates.

Web Resources

https://www.literaturewise.in/mdl/mod/page/view.php?id=269
https://www.sparknotes.com/shakespeare/juliuscaesar/section7/
http://sujarithasaravanan.blogspot.com/2019/10/refund-fritz-karinthy-summary.html?m=1
https://educationallodge.com/2021/01/the-bear-by-anton-chekhov-summary-characters-questions-answers.html.

OUTCOME:

Course Name – Drama and English for Competitive Examinations	**Course Code - U3R2EL3**	**Knowledge Level**
On completion of the course, students will be able to		
CO1	analyse the force of dramatic language, improve their histrionic abilities and pronunciation skills.	**K5**
CO2	perceive subtle differences in language use and their tonal implications.	**K5**
CO3	develop skills of logical reasoning and become capable of identifying markers of coherence and concord.	**K6**
CO4	construct ordinary dialogues and conversations in real life.	**K6**
CO5	estimate ideas and situations and ways of expressions to construct written messages.	**K5**

Relationship Matrix for CO, PO, PSO

Title of the Course : DRAMA AND ENGLISH FOR COMPETITIVE EXAMINATIONS		Course code : U3R2EL3	
Course	Programme Outcome	Programme Specific Outcome	**Mean Score**

Outcome (CO)	(PO)					(PSO)					of Cos
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	
CO – 1	3	2	1	3	3	2	3	3	3	2	2.5
CO – 2	2	3	1	2	2	2	3	1	2	3	2.1
CO – 3	2	3	1	2	3	3	3	2	3	3	2.5
CO – 4	2	3	3	1	2	3	2	3	3	2	2.4
CO – 5	2	3	2	3	3	2	3	2	2	3	2.5
	Mean Overall Score										2.30
	Result										HIGH

Title of the Course **:** PROGRAMMING IN JAVA

Category of the Course **:** Core Course

Course Code **:** U3R2CACC6

Nature of the Skill **:** Skill Development and Employability

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week** : 07

Credits **:** 05 **Total Inst. Hrs** **:** 105

COURSE OBJECTIVES

C obj – 1. To Write Java application programs using OOP principles

C obj - 2. To Understand defining classes, objects, invoking methods

C obj - 3. To Understand the principles of inheritance, packages and Exceptions

C obj - 4. To Develop Java program using applets

C obj - 5. To Develop Graphical User Interface using AWT.

UNIT –I: The Java Language **(Inst Hrs:21)**

The Genesis of Java: The Creation of Java – Why java is important to the Internet – The Java Buzzwords – An overview of Java: Object Oriented Programming**(ICT)**- Data types,

Variables and Arrays – Type conversion and casting – Automatic type Promotion in Expressions – Arrays Packages & Interface **(ICT)**: One Dimensional Array – Multi Dimensional Arrays – Operators – Control Statements.

UNIT – II: Introducing classes (Inst Hrs:21)

Class Fundamentals(**ICT)** – Declaring objects – Assigning object Reference variables– Introducing Methods – Constructors – Garbage Collection – Finalize() Method– A Stack class- A Closer Look at Methods and classes: Overloading Methods – A closer look at Argument Passing – Introducing Nested and Inner classes – Exploring the String class – Using Command-Line Arguments- Inheritance Basics - Method Overriding **(Seminar**) – Dynamic Method Dispatch – Using Abstract classes – Using final with Inheritance.

UNIT – III: Packages and Interfaces (Inst Hrs:21)

Packages and Interfaces - Exception Handling**(Seminar)** - Creating your own Exception Subclasses- Multithreaded Programming: Java Thread Model – Main Thread **(Seminar)** – Creating a Thread - Creating Multiple Threads–Using isAlive() and join() – Thread priorities – Synchronization – Interthread Communication.

UNIT – IV: I//O , Applets (Inst Hrs:21)

I/O Basics - Reading console Input – Writing console output – The Print Writer Class – Reading and Writing Files- The Applet class(**Assignment): -** AppletArchitecture – Applet Skeleton – Simple Applet Display methods – Requesting Repainting – HTML APPLET tag- Passing Parameters to Applet – AudioClip Interface- Event Handling Mechanisms – Delegation Event Model – Event classes – Sources of Events – Event Listener Interfaces – Adapter Classes.

UNIT – V: Introducing the AWT (Inst Hrs:21)

AWT Classes(**Assignment**)– Window fundamentals – working with Frame Windows - working with Graphics- Using AWT controls: Controls fundamentals – Labels – using Buttons – Applying check Boxes – Check Box group – Choice controls – Using a Textfield – Using a TextArea – Understanding Layout Managers(Flow Layout only) – Menu Bars and Menus.

TEXT BOOK (S):

1. Herbert Schildt, "Java - The Complete Reference", Ninth Edition, McGraw-Hill Education, 2014

REFERENCE BOOK (S):

1. E.Balagurusamy, "Programming with Java", Tata McGraw-Hill Education India, 2014

ONLINE RESOURCE (S):

1. https://www.simplilearn.com/resources-to-learn-java-programming-article
2. https://stackify.com/java-tutorials/

COURSE OUTCOMES

After the successful completion of the Course the Students shall be to able to,

CO - 1. Recall to write, compile, run, and test simple object-oriented Java programs **– K1**

CO - 2. Outline classes, objects, members of a class and relationships among them. **– K2**

CO - 3.Make use of Java programs using OOP principles . **– K3**

CO - 4. Analyze the concepts of polymorphism and inheritance **– K4**

CO - 5. Build Java programs to implement AWT **– K6**

Relationship Matrix for CO, PO, PSO

Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	2	2	2	3	2	2	3	2	3	1
CO-2	3	2	2	3	2	3	2	2	3	2
CO-3	3	2	2	1	3	2	3	3	2	2
CO-4	2	3	2	3	2	3	2	3	2	2
CO-5	3	2	2	3	2	2	3	2	2	3

Mean Overall Relationship is 2.32 which is HIGH

Title of the Course **:** PROGRAMMING IN JAVA PRACTICAL

Category of the Course **:** Core Course

Course Code **:** U3R2CACC7P

Nature of the Skill **:** Skill Development and Employability

Marks : CIA : 40 + Ext: 60 = 100 **Hrs / Week** : 03

Credits **:** 03 **Total Inst. Hrs** **:** 45

COURSE OBJECTIVES

C obj – 1. To gain knowledge about basic Java language syntax and semantics.

C obj - 2. To implement constructors, inheritance, threads, exception handling,AWT

LIST OF PRACTICAL PROGRAMS

1. Define a class called Student with the attributes name, reg_number and marks obtained in four subjects(m1,m2,m3,m4). Write suitable constructor and methods to find the total mark obtained by the student and display the details of the student.

2. Write a Java program to find the area of a square, rectangle and triangle by (i) Overloading Constructor (ii) Overloading Method.

3. Write a java program to add two complex numbers. [Use passing object as argument and return object].

4. Define a class called Student_super with data members name, roll number and age. Write a suitable constructor and a method output() to display the details.

5. Derive another class Student from Student_super with data members height and weight. Write a constructor and a method output() to display the details which overrides the super class method output().[Apply method Overriding concept].

6. Write a java program to create an interface called Demo, which contains a double type constant, and a method called area() with one double type argument. Implement the interface to find the area of a circle.

7. Write a java program to create a thread using Thread class.

8. Demonstrate Java inheritance using extends keyword.

9. Create an applet with four Checkboxes with labels MARUTI-800, ZEN, ALTO and ESTEEM and a Text area object. The program must display the details of the car while clicking a particular Checkbox.

10. Write a Java program to throw the following exception,

1) Negative Array Size 2) Array Index out of Bounds

11. Write a java program to create a file menu with option New, Save and Close, Edit menu with option cut, copy, and paste.

12. Write a java programming to illustrate Mouse Event Handling.

Title of the Course **: ORGANISATIONAL BEHAVIOUR**

Category of the Course **:** Allied

Course Code **: U3R2CAAC4**

Nature of the Skill **:** Skill Development and Employability skill

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week** : 06

Credits **:** 04 **Total Inst. Hrs** **:** 90

COURSE OBJECTIVES

C obj – 1. To introduce the concept of Individual and Organizational Behaviour.

C obj - 2. To acquaint the knowledge of Personality theories and factors influencing perception.

C obj - 3. To study the attitudes of Individual and Impact of Learning on Employee behavior.

C obj - 4. To understand the group nature and their Dynamics.

C obj - 5. To assess the stress and various strategies followed to remove the stress

UNIT-I INTRODUCTION AND INDIVIDUAL BEHAVIOUR (Inst. Hrs:18)

Organizational Behavior – Definition And Meaning – Nature – Importance- Role Of Organizational Behavior – Nature Of Human Behavior – Organizational System And Resources – Personal Factors – Psychological Factors – Environmental Factors – Models Of Individual Behavior.

UNIT-II PERSONALITY AND PERCEPTION (Inst. Hrs:18)

Personality – Nature – Theories Of Personality – Stages – Determinants – Perception – Meaning And Definition – Factors Influencing Perceptions – Perceptual Process.

UNIT-III ATTITUDES AND VALUES AND LEARNING (Inst. Hrs:18)

Attitudes – Nature – Components – Formation – Functions – Changing Attitude - Ways Of Changing – Measurements – Work Related Attitudes - Values – Importance – Differ From Attitudes – Learning – Definition – Theories Of Learning – Learning Impact On An Employee Behavior.

UNIT-IV GROUP DYNAMICS (Inst. Hrs:18)

Group – Nature Of Group – Advantages And Disadvantages – Types – Why Do People Join Group – Group Development – Benefits – Pitfalls Of Group – Determinates Of Group Behavior – Group Size- Group Name – Group Tasks – Group Cohesiveness – Causes And Consequences – Group Consequences – Group Decision Making –Approaches – Problems – Consideration In Group Decision Making.

UNIT-V WORK STRESS AND JOB SATISFACTION (Inst. Hrs:18)

Work Stress – Meaning – What Is Not Stress ?- Sources Of Stress – Individual Level Stressors – Group Level Stressors – Organizational Stressors – Extra - Organizational Stressors – Outcomes –Stress Management – Individual Strategies – Organizational Strategies – Job Satisfaction – Causes And Consequences – Measuring Job Satisfaction.

TEXT BOOKS:

1. Organizational behavior – P. Subbarao – Himalaya publishing house, Mumbai.
2. Organizational behavior – L.M.Prasad – sultan chand publication, New Delhi.
3. Organizational behavior – Stephen P.Robbins – Prentice Hall International.

COURSE OUTCOME:

1. Equipped the students with the basic idea and introduction on Organizational Behaviour as a concept.
2. Gives a light on the concept and difference of personality and perception.
3. Gain the knowledge on Attitude, value and learning.
4. Understand the concept of group dynamics.
5. Impacted Knowledge with work stress and job satisfaction.

Relationship Matrix for CO, PO, PSO

Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	3	2	3	3	2	1	2	3	1	3
CO-2	2	2	2	2	2	3	1	2	3	2
CO-3	1	3	2	2	2	1	2	2	1	3
CO-4	2	2	1	3	2	2	3	1	3	2
CO-5	3	3	2	2	1	2	2	3	2	2

Mean Overall Relationship is 2.12 which is HIGH

Title of the Course **: VALUE EDUCATION - Syllabus Tamil Version**

Category of the Course **:** AECC2

Course Code **: U3R2AECC2**

Nature of the Skill **:** Life Skills

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week** : 02

Credits **:** 02 **Total Inst. Hrs** **:** 30

myF I – tho;tpay; jj;Jtk; (Inst. Hrs :06)

tho;f;if (g.2;;;, Fws; -629) – tho;tpd; Nehf;fk; (g.61, Fws;-46) – tho;f;ifj; jj;Jtk; (g.61-69, Fws; 131, 226) - ,aw;if epajp (g.123-125, Fws; 374) –gpw caph; Ngzy; (g.137, 138 Fws; - 322, 327) - ,aw;if tsk; fhj;jy; (E}y; : Fzeyg;NgWk; , rKjha eyDk; g.109 - 112, Fws; - 16, 20,1038)

myF II – jdpkdpj gz;Gfs; (Inst. Hrs :06)

gz;ghL (g.132-136, Fws; - 72, 431) vz;zk; Muha;jy; (g.70-77, 666, 282, 467) – Mir rPuikj;jy; (g.79-86, Fws; - 158,305,306,314) – ftiy xopj;jy; (g.99-108, Fws; 629) – tho;j;Jk; gaDk; - (g.109-114 Fws; - 3) – el;G eyk; (g.115-117 Fws; 786) md;Gk; fUizAk; (g.131, Fws; - 76) jdpkdpj mikjp (g.118, Fws; 318)

myF III – rKjha kjpg;Gfs; (Fzeyg;NgWk;, rKjha eyDk;) (Inst. Hrs :06)

FLk;gk; (g.87, Fws; 45) – FLk;g mikjp (g.87-90, Fws; - 1025) – rKjhak; (g.93, Fws; - 446) – tho;f;if Kiw (g.101-103, Fws; - 952) – rNfhjuj;Jtk; (g.103-106, Fws; - 807) ngz;zpd; ngUik (g.99-100, Fws; 56) Itiff;flikfs; (jhd; FLk;gk; , Rw;wk; , Ch; , cyfk;) (g.93-96 Fws; - 43, 981) nghUshjhuk; (g.122-123 Fws; - 754) – Rfhjhuk; (g.123, Fws; 298) – fy;tp (g.113, 123, 127, 128 Fws; 400) – murpay; (g.124, Fws; 691) kf;fspd; nghWg;G (g.125, Fws; 37) cyf -mikjp (g.103-106 Fws; - 572)

myF IV – kzts Nkk;ghL (Inst. Hrs :06)

kztsk; (g.46, Fws; - 457) – capUk; , kdKk; (g.23) caphpd; ,af;f ikak; (g.26) thd; fhe;jk; (,iwQhdKk; , Koikg;NgWk; (g . 34-39)rPtfhe;jk; (g. 26) – fUikak; (g. 27, 126,130) kdpjd; nray; (g.47) – Ruf;fpg; gjpT nra;jy; (g.47) tphpj;Jf;fhl;ly; (g.48) – kd miyr; Roy; (g.49) – kd ,af;fg;gb epiyfs; (g. 51-53) jpahdk; (g. 55- 60, Fws; 261 , 266, 270) Md;kPf kjpg;G (g.44, 45 Fws; 423)

myF V – cly; eyk; Ngzy; (Inst. Hrs :06)

clyikg;G (g. 5-7) , clypd; %tif ,af;f epiyfs; (g. 8-10) clYf;Fk; , capUf;FKs;s cwT (g. 7-8) Neha;f;fhd ,aw;iff;fhuzq;fs; - nraw;iff;fhuzq;fs; (g. 11-14 Fws; 941) Neha; ePf;Fk; Kiwfs; (g. 14,15 Fws; - 948 , 949) Ie;jpy; msTKiw (g. 15-19) , vspa Kiw clw;gapw;rp (g 20 – 22)

ghh;it E}y;fs;

1. * kdtsf;fiy Nahfh , cyf rKjha Nrth rq;fk; , Ntjhj;jphp gjpg;gfk; , 156 fhe;jp NuhL, <NuhL – 635001. Website:www.vethathiri.org. Kjw;gjpg;G 2008 tpiy &. 70/-
2. ** Fzeyg;NgWk; , rKjha eyDk; , cyf rKjha Nrth rq;fk; , Ntjhj;jphp gjpg;gfk;, 56 fhe;jp NuhL, <NuhL – 635001. Website:www.vethathiri.org. ,uz;lhk; gjpg;G Mf];l; 2008.
3. ,iwQhdKk; , Koikg;NgWk; - myF – 4 (thd;fhe;jk; (34)) rPtfhe;jk; (67) fUikak; (77)

* myF 1,2,4,5 Mfpatw;wpw;fhd ghlj;jl;lk; mike;Js;s gf;fq;fSk; , Fws; vz;Zk; milg;Gf;Fwpf;fs; nfhLf;fg;gl;Ls;sd.

** myF 3f;fhd ghlj;jp;l;lk; mike;Js;s gf;fq;fSk; , Fws; vz;Zk; milg;Gf;Fwpf;fs; nfhLf;fg;gl;Ls;sd.

Relationship Matrix for CO, PO, PSO

Title of the Course : VALUE EDUCATION						Course code : U3R2EGAECC2					
Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)					**Mean Score of Cos**
	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PSO 1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**	
CO – 1	2	3	3	2	3	3	2	3	2	3	2.6

CO – 2	3	2	3	2	2	3	2	2	2	1	2.2
CO – 3	2	3	2	3	2	2	2	2	2	3	2.3
CO – 4	3	3	3	2	3	2	2	3	2	1	2.4
CO – 5	2	2	3	3	2	2	3	3	3	2	2.5
									Mean Overall Score		**2.40**
									Result		**HIGH**

Title of the Course : VALUE EDUCATION – Syllabus English Version
Category of the Course : AECC2
Course Code : U3R2AECC2
Nature of the Skill : Life Skills

Marks : CIA : 25 +Ext: 75 = 100 **Hrs / Week : 02**
Credits : 02 **Total Inst. Hrs : 30**

OBJECTIVES:

1	To sensitize learners to the need for values in human life.
2	To make them aware of the need for values in all roles of life.
3	To make them see the need for value-education.
4	To make them realize the noble values as basis of all religions.
5	To sensitize them to the need for gender equity and social justice.

UNIT I -PHILOSOPHY OF LIFE **(Inst.Hrs:06)**

Life - Principles of Living - Laws of Nature - Protection of all living organisms -Conservation of natural resources - Individual qualities and Social Welfare.(Thirukural No:- 629, 46, 131, 374, 322, 16)

UNIT II - PERSONAL VALUES **(Inst.Hrs:06)**

Culture – Self -Analysis – Right Desires – Avoidance of Worries – Benefits of Blessings – Merits of Friendship – Love and Compassion – Personal Harmony and Peace. (Thirukural No:- 72, 158, 629, 786, 76, 318)

UNIT III – SOCIAL VALUES **(Inst.Hrs:06)**

Family – Family Peace – Society –Way of Living – Principles of Brotherhood – Status of Woman - Five types of Duties towards Family, Society, Country, World and Environment –Business and Economic roles – Social hygiene - Education – Politics – Duties and Responsibilities of Citizens – World Peace.(Thirukural No:-45, 1025, 446, 952, 807, 56, 43, 754, 298, 400, 691, 37, 572)

UNIT IV – TAPPING AND CULTIVATING THE MIND (Inst.Hrs:06)

Potential of Mind - Personality – Mind and Body – Creativity and Positivity – The Centrality of the Mind – Astral and Physical Bodies – Knowledge of the divine and quest for perfection - Life Force – Tapping the Life Force – Perceiving the Kernel- Realization of Self- Stream of Consciousness – Hierarchy of Self motivation- Meditation – Spiritual Values.(Thirukural No:-457, 261, 423)

UNIT V – PRESERVING THE BODY HEALTH (Inst.Hrs:06)

Sructure of human body – Three States of Living – Relationship between body and spirit – Natural Causes for Bodily Diseases – Man-made causes for diseases – Preventive and Curative methods – Five elements and their balance –Simple Exercises and Yoga.(Thirukural No:- 941, 948)

Book for Reference:

Value Education Vethathiri Publications

OUTCOME:

Course Name: VALUE EDUCATION	**Course Code: U3R2EGAECC2**	**Knowledge Level**
On completion of the course, students will be able to		
1	develop into balanced individuals.	**K6**
2	function as responsible members in society.	**K4**
3	apply physical and psychological energy in creative living.	**K3**
4	take up leadership roles in confidence.	**K3**
5	judge right and wrong with perspicacity.	**K5**

Relationship Matrix for CO, PO, PSO

Title of the Course : **VALUE EDUCATION**						Course code : **U3R2EGAECC2**					
Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)					**Mean Score of Cos**
	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PSO 1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**	
CO – 1	2	3	3	2	3	3	2	3	2	3	2.6
CO – 2	3	2	3	2	2	3	2	2	2	1	2.2
CO – 3	2	3	2	3	2	2	2	2	2	3	2.3
CO – 4	3	3	3	2	3	2	2	3	2	1	2.4
CO – 5	2	2	3	3	2	2	3	3	3	2	2.5

	Mean Overall Score	**2.40**
	Result	**HIGH**

n[. n[. fiy mwptpay; fy;Y}hp (jd;dhl;rp)
rptGuk;> GJf;Nfhl;il
(2022 – 2023 Mk; fy;tpahz;L Kjy; Nrh;f;ifg; ngw;wth;fSf;FhpaJ)

jiyg;G	**:**	**rq;f ,yf;fpak;> ,yf;fzk;> mwptpay; jkpo;**	**thpirvz;**	**: c4**
gUtk;	**:**	**ehd;fhk; gUtk;**	**jhs; FwpaPL;;**	**: U4R2TL4**
gpupT	**:**	**gFjp I jkpo;**	**kjpg;Gg; Gs;sp:**	**3**
kjpg;ngz;	**:**	**CIA -25, EA – 75**	**fw;wy; Neuk;**	**: 5 kzp**

Nehf;fk;

1. rq;f ,yf;fpaq;fspd; gpd;dzpr; #oiy mwpar; nra;jy;
2. jkpoh;fspd; tho;tpay; $Wfisg; Ghpe;J nfhs;sy;
3. mftho;tpaypy; filgpbf;f Ntz;ba newpKiwfis tFj;Jf; nfhs;sy;
4. jkpo; ,yf;fpaj;NjhL mwptpay; jkpio xg;gpl;Lk; NtWgLj;jpAk; ghh;f;Fk; jpwd; tsh;j;jy;
5. Mf;fj;jpwidf; fz;lwpAk; topKiwfis cUthf;Fjy;

$W: 1 ,yf;fpatuyhW> ,yf;fzk; (Inst.Hrs: 15)

rq;f ,yf;fpa tuyhW – gjpndz; Nkw;fzf;F E}y;fs; ;- nrk;nkhop ,yf;fpa tuyhW – nrk;nkhopg; gz;Gfs, nrk;nkhop E}y;fs; ,yf;fzk; - tO, tOtikjp> tohepiy

$W: 2 mf,yf;fpak;; **(Inst.Hrs.:15)**

FWe;njhif – Ie;J ghly;fs;; – (ghly;-38,54,68,74,82)

ew;wpiz - ,uz;L ghly;fs; (ghly; 156, 228)
Iq;FE}W - ,sNtdpw; gj;J
mfehD}W - ,uz;L ghly;fs; (23,31) ghiyj;jpizj; jiytpf;$w;W
fypj;njhif – ,uz;L ghly;fs; (126,132) Njhopf;$w;W

$W: 3 GwKk; ghl;Lk; (Inst.Hrs:15)

gj;Jg;ghl;L – kJiuf;fhQ;rp 58 tupfs; (ghly; 725 – 782)
GwehD}W - 10 ghly;fs; 201, 202,236,237,247,308,373,382,386,400

$W: 4 mwptpay; jkpo; - nray;Kiw (Inst.Hrs: 15)

mwptpay; jkpo; - fiyr;nrhy;yhf;fk; - xypngau;g;G – rPh;ikahf;fk; - jug;gLj;jk;

$W: 5 mwptpay; jkpo; - gad;Kiw (Inst.Hrs:15)

mwptpay; fl;Liufs; - Jiwr; rhu;e;jf; fUj;Jfisj; jkpopy; (fiyr;nrhw;fSld;) cUthf;fg; gapw;rp mspj;jy;

ghlE}y;fs; :

rq;fj; jkpo;	-	jQ;ir jkpo;g; gy;fiyf;fof ntspaPL
mwptpay; jkpo; fiyr;nrhy;yhf;fk;	-	Kidtu; ,uhjhnry;yg;gd;

,g;ghlj;jpidf; fw;gjpd; %yk; khztu;fs; ngWk; gad;fs;

Sl.No	Course Outcomes	Knowledge Level
CO1	,yf;fpaq;fspd; %yk; tho;tpay; newpKiwfis mwpth;	**K2**
CO2	Ie;jpizapd; ghFghl;Lj; jd;ikia ,dq;fhz;gh;	**K2**
CO3	jdpkdpj xOf;fk; gz;ghl;L newpKiwfis tsh;j;Jf; nfhs;th;	**K3**
CO4	mwptpay; jkpopd; mtrpaj;ij ca;j;JzUk; Mw;wy; ngWth;	**K5**
CO5	gilg;ghsDf;Fhpaj; jFjpia tsh;j;Jf; nfhs;tjw;fhdg; gapw;rpfis Nkw;nfhs;th;	**K6**

rq;f ,yf;fpak;> ,yf;fzk;> mwptpay; jkpo;						U4R2TL4					
Course Outcomes	Programme Outcomes (POs)					Programme Specific Outcomes(PSOs)					Mean Score
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO1	3	2	2	3	2	2	3	2	3	1	2.3
CO2	3	3	3	1	2	3	3	3	2	2	2.4
CO3	2	2	2	1	2	2	2	2	1	1	1.7
CO4	3	2	2	3	2	3	3	2	3	2	2.5
CO5	3	3	3	3	2	3	3	2	3	2	2.7
Mean Overall Score											2.3
Result											High

Title of the Course: SHORT STORIES AND ENGLISH FOR COMPETITIVE EXAMINATION
Category of the Course : PART-II ENGLISH
Course Code : U4R2EL4
Nature of the Skill : Reading and Analytical Skills

Marks : CIA : 25 +Ext: 75 = 100 Hrs / Week : 05
Credits : 03 Total Inst. Hrs : 75

OBJECTIVES

1	To enable the learner to respond to short fiction.
2	To sensitize the learner to identify the elements of fiction.
3	To enable the learner to write short reviews paragraph and essays.
4	To give them practice in contextualized letter writing, making presentations and writing reports.
5	To enable them to identify error zones and correct sentences**.**

UNIT – I (Inst. Hrs :15)

Tagore Suba

R.K. Narayan An Astrologer's Day
Anita Desai A Devoted Son

UNIT - II **(Inst. Hrs :15)**

O' Henry A Retrieved Reformation
Arthur Conan Doyle The Blue Carbuncle
Maupassant Simon's Pa

UNIT - III **(Inst. Hrs :15)**

Paragraph Writing - General Essay, Book review , Film review

UNIT – IV **(Inst. Hrs :15)**

Replying to Letters - Letter Chains - Presentations –Visuals and their interpretations - Reports

UNIT - V **(Inst. Hrs :15)**

Error Zone Identification - Correction of Sentences ,Speech Writing – Expository Argumentative, Descriptive and Narrative – Fallacies and their avoidance.

Web Resources

https://bookishloom.wordpress.com/2018/10/01/subha-by-rabindranath-tagore-my-read/#:~:text=Tagore%20portrayed%20the%20everyday%20agonies,central%20character%2C%20%27Subha%27
https://smartenglishnotes.com/2019/05/31/the-white-flower-by-r-k-narayan-summary-explanations-and-question-solutions/
https://digestablewords.wordpress.com/short-story-a-devoted-son-by-anita-desai/
https://www.toppr.com/guides/english/english-literature/ozymandias-summary/

OUTCOME:

Course Name- Fiction and English for Competitive Examinations.	**Course Code - U4R2EL4**	**Knowledge Level**
On completion of the course, students will be able to		
CO1	adapt study habits to face competitive examinations with confidence.	**K6**
CO2	appraise the themes and structure of fiction through independent reading .	**K5**
CO3	justify their perceptions on characters ,themes and aspects of fiction.	**K5**

CO4	categorize and correct errors in usage.	**K4**
CO5	design the style of communication as needed.	**K6**

Relationship Matrix for CO, PO, PSO

Title of the Course : **Fiction and English for Competitive Examinations.**						Course code : U4R2EL4					
Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)					**Mean Score of COs**
	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PSO 1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**	
CO – 1	2	3	3	2	1	2	3	3	3	2	2.4
CO – 2	3	2	1	3	2	3	2	3	2	2	2.3
CO – 3	1	2	2	1	3	3	3	2	3	3	2.3
CO – 4	2	3	3	2	3	2	3	2	2	2	2.4
CO – 5	2	3	3	2	3	2	2	3	2	1	2.3
									Mean Overall Score		**2.34**
									Result		**HIGH**

Title of the Course : PROGRAMMING IN PYTHON

Category of the Course : Core Course

Course Code : U4R2CACC8

Nature of the Skill : Skill Development and Employability skill

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week** : 06

Credits : 05 **Total Inst. Hrs** : 90

COURSE OBJECTIVES

C obj – 1. To understand the basic components of the Python language

C obj - 2. To demonstrate the Python Program development environment

C obj - 3. To Gain the Knowledge of file handling and MySql

C obj - 4. To learn the concept of Graphics Programming

C obj - 5. To develop the concept of Open Source Projects

UNIT –I: Basic Programming Concepts (Inst Hrs:18)

Introduction to Python - Why Python - Installing in various Operating Systems Executing Python Programs - Basic Programming concepts - Variables, expressions and statements - Input/ Output – Operators**(ICT)**.

UNIT – II: Functions and Strings (Inst Hrs:18)

Conditions – Functions**(Seminar)** - Arguments - Return values - Iteration - Loops - Strings - Data Structures - Lists - Dictionaries - Tuples - Sequences - Exception Handling**(ICT)**.

UNIT – III: File Handling and MySQL (Inst Hrs:18)

File Handling**(Assignment)** - Modules - Regular Expressions - Text handling - Object Oriented Programming**(ICT)** - Classes - Objects - Inheritance - Overloading - Polymorphism Interacting with Databases - Introduction to MySQL - interacting with MySQL - Building a address book with add/edit/delete/search features.

UNIT – IV: Graphics Programming (Inst Hrs:18)

Introduction to Graphics programming - Introduction to GTK - PyGTK - Developing GUI applications using pyGTK**(Seminar)** - Scientific Programming using NumPy / SciPy - Image Processing - Processing multimedia files -Network Programming, Web services using SOAP, Introduction to Graphics programming**(Assignment)** – PyGame

UNIT – V: Version Control Systems (Inst Hrs:18)

Introduction to Version Control Systems - Subversion/Git, Writing Unit Tests, Creating Documentation, Contributing to Open Source Projects**(Seminar)**

TEXT BOOK (S):

1. Allen B. Downey, ”Think Python: How to Think Like a Computer Scientist“,1st Edition 2012, O’Reilly.

REFERENCE BOOK (S):

1. Jeff McNeil ,”Python 2.6 Text Processing: Beginners Guide”, 2010 ,Packet Publications

2. Mark Pilgrim ,”Dive Into Python “ , 2nd edition 2009, Apress

ONLINE RESOURCE (S):

1. https://www.python.org

COURSE OUTCOMES

After the successful completion of the Course the Students shall be to able to,

CO - 1. Understand clearly to develop a program **– K3**

CO - 2. Apply the concept of functions and string **–K3**

CO - 3. Develop the program using file **–K6**

CO - 4. Analyse the skill of graphics programming **–K4**

CO - 5. Develop the open source project **–K6**

Relationship Matrix for CO, PO, PSO

Course Outcome (CO)	**Programme Outcome (PO)**					**Programme Specific Outcome (PSO)**				
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PSO1**	**PSO2**	**PSO3**	**PSO4**	**PSO5**

CO-1	**2**	**2**	**3**	**1**	**3**	**1**	**2**	**3**	**2**	**2**
CO-2	**3**	**2**	**3**	**2**	**1**	**3**	**1**	**2**	**3**	**2**
CO-3	**1**	**3**	**2**	**2**	**2**	**1**	**2**	**2**	**1**	**2**
CO-4	**1**	**3**	**1**	**3**	**3**	**2**	**3**	**1**	**3**	**2**
CO-5	**3**	**1**	**2**	**3**	**1**	**3**	**2**	**3**	**2**	**3**

Mean Overall Relationship is 2.12 which is HIGH

Title of the Course **:** PROGRAMMING IN PYTHON PRACTICAL

Category of the Course **:** Core Course

Course Code **:** U4R2CACC9P

Nature of the Skill **:** Skill Development

Marks : CIA : 40 + Ext: 60 = 100 **Hrs / Week** : 03

Credits **:** 03 **Total Inst. Hrs** **:** 45

COURSE OBJECTIVES

C obj – 1. To understand the programming basics in Python Programming.

C obj – 2. To understand the object-oriented program design and development.

LIST OF PRACTICAL PROGRAMS

1. Create a simple calculator to do all the arithmetic operation.

2. Write a program to use control flow tools like if.

3. Write a program to use for loop.

4. Write a program to use the following Data structures : list ,stack , list as queue, tuple, sequence.

5. Create new module for mathematical operations and use in your program.

6. Write a program to read and write files, create and delete directories.

7. Write a program with exception handling.

8. Write a program using classes.

9. Connect with MySQL and create address book.

10. Write a program using string handling and regular expressions.

11. Write a program Program to parse apache log file.

12. Write a program to Create a GUI program using pygtk.

Title of the Course : FINANCIAL AND MANAGEMENT ACCOUNTING

Category of the Course : Allied

Course Code : **U4R2CAAC5**

Nature of the Skill : Skill Development and Employability skill

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week** : 06

Credits : 04 **Total Inst. Hrs** : 90

COURSE OBJECTIVES:

C obj – 1 .To familiarize the student with basic knowledge of accountancy and accounts related management.

C obj – 2 .To make appropriate knowledge about the management of business with effective.

C obj – 3 . Utilization of accounting records in future purpose.

C obj – 4 . It fulfills the need for the specialized syllabus for degree level students.

C obj – 5. It gives opportunities for the students simplified the accounting nature.

Unit-I: Introduction of Accounting (Inst. Hrs:18)

Meaning, Definition – Branches- Merits and Demerits- Accounting Concept-Convention-Kinds of Accounts, Rules of Double entry-Journal-Ledger-Trial balance.

Unit-II: Final Accounts (Inst. Hrs:18)

Subsidiary book- Purchase, Sales, Cash book-simple, Double and Petty cash book.Trading account – Profit and Loss Account-Balance sheet with simple adjustments.

Unit-III: Depreciation Accounting (Inst. Hrs:18)

Depreciation Accounts - Straight line method, Written down value method and Annuity method.

Unit-IV: Management Accounting (Inst. Hrs:18)

Definition Of Management Accounting –Nature-Scope-Objectives-Merits-Limitations-Difference Between Management Accounting And Financial Accounting-Financial Statement Analysis-Comparative Income Statement –Common Size Income Statement-Trend Analysis.

Unit-V: Budget analysis **(Inst. Hrs:18)**

Budget And Budgetary Control-Production-Production Cost, Sales, Cash, Flexible Budget.

TEXT BOOKS:

1. Financial Accounting- Dr. Radha, Prasanna Publication.
2. Management Accounting – Murthy and S. Gurusamy. Vijay Nicole Imprints Pvt.Ltd.

REFERENCE BOOKS:

1. Management Accounting – R.S.N.Pillai and Bhagavathy, Sultan Chand Publication.
2. Financial Accounting- T.S.ReddyandMurthy, Margham Publication.

COURSE OUTCOMES:

1. Understand about the concept of management accounting, and different methods of analysis of financial statements.
2. Elicit knowledge on various types of ratio analysis techniques and analyzing the cost volume and break even analysis in Marginal costing.
3. Proficiency in preparation of different types of budgets like sales budget, Cash budget and flexible budget etc.

Relationship Matrix for CO, PO, PSO

Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	3	2	3	3	2	1	2	3	1	3
CO-2	2	2	2	2	2	3	1	2	3	2
CO-3	1	3	2	2	2	1	2	2	1	3
CO-4	2	2	1	3	2	2	3	1	3	2
CO-5	3	3	2	2	1	2	2	3	2	2

Mean Overall Relationship is 2.12 which is HIGH

Title of the Course : **ACCOUNTING PACKAGES PRACTICAL**

Category of the Course : Allied

Course Code : **U4R2CAAC6P**

Nature of the Skill : Skill Development and Employability skill

Marks : CIA : 40 + 60 = 100 **Hrs / Week** : **03**

Credits : 03 **Total Inst. Hrs** : 45

COURSE OBJECTIVES:

C obj – 1 To enable the students to know the accounting software programme.

C obj - 2. To enable the students to know the accounting software programme.

C obj - 3. To maintain the business secrets in system with effective.

C obj - 4. It gives the nature of accounting standard.

C obj - 5. It Maintain the business movement with continuously

PRACTICAL LIST:

1. Creation of company in your own name with address, E-mail id. Maintain with inventory and Accounts only.
2. Create the accounting groups.
3. Editing and deleting of groups
4. Voucher creation (Contra, payment, Receipt, Journal, Sales and Purchase).
5. Vouchers from the Transactions.
6. Ledger preparation.
7. Display and Alteration of ledger.
8. Preparation of trading and profit and loss account.
9. Preparation of final accounts.
10. Creation of inventory report (Stock Group, Category, Items and Units of Measures)

Title of the Course **:** OPERATING SYSTEMS

Category of the Course **:** Core Course

Course Code **:** U5R2CACC10

Nature of the Skill **:** Skill Development

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week** : 05

Credits **:** 05 **Total Inst. Hrs** **:** 75

COURSE OBJECTIVES

C obj – 1. To introduce basic concepts and functions of operating systems.

C obj - 2. To understand the concept of process, thread

C obj - 3. To understand various Memory management techniques.

C obj - 4. To understand the concept of Dead Locks and multiprocessor systems.

C obj - 5. To understand I/O and File management techniques.

UNIT - I: Introduction **(Inst Hrs: 15)**

Introduction - History of operating system- Different kinds of operating system **(ICT)** – Operating system concepts - System calls-Operating system structure.

UNIT - II: Processes and Thread **(Inst Hrs: 15)**

Processes and Threads: Processes - threads - thread model and usage - inter process communication. **(Assignment)-** Scheduling.

UNIT - III: Memory Management **(Inst Hrs: 15)**

Memory Management: Memory Abstraction - Virtual Memory **(Seminar)**- Page replacement algorithms. **(ICT)**

UNIT - IV: Deadlocks **(Inst Hrs: 15)**

Deadlocks: Resources - introduction to deadlocks - deadlock detection and recovery - deadlocks avoidance - deadlock prevention. **(Seminar)**. Multiple processor system: multiprocessors - multi computers. **(Assignment)**

UNIT - V: Input /Output and File Systems **(Inst Hrs: 15)**

Input / Output: principles of I/O hardware - principles of I/O software**(Seminar)**.. Files systems: Files - directories - files systems implementation**(ICT)** - File System Management and Optimization.

TEXT BOOK(S)

1. Andrew S. Tanenbaum, "Modern Operating Systems", 2nd Edition, PHIprivate Limited, New Delhi, 2008.

REFERENCE BOOK(S)

1. William Stallings, "Operating Systems - Internals & DesignPrincipl Delhi, 2004.

2. Sridhar Vaidyanathan, "Operating System", 1st Edition,Vijay NicolePublica

ONLINE RESOURCE (S):

1. https://www.geeksforgeeks.org/operating-systems

COURSE OUTCOMES

After the successful completion of the Course the Students shall be to able to,

CO - 1. Describe the importance of computer system resources and the role of OS – K3

CO - 2. Understand the Process management policies & scheduling process by CPU **- K1**

CO - 3. Analyze the Memory management concepts and its allocation policies **.- K4**

CO - 4. Gain knowledge about the concept of Deadlocks **-K3**

CO - 5. Evaluate the different functions & policies of File Management **-K3**

Relationship Matrix for CO, PO, PSO

Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	2	1	2	2	2	4	3	3	2	2
CO-2	3	2	2	3	3	3	2	3	2	3
CO-3	2	3	2	3	2	3	3	2	1	2
CO-4	3	3	2	1	3	1	2	3	2	1
CO-5	2	1	2	3	2	3	2	3	2	3

Mean Overall Relationship is 2.32 which is HIGH

Title of the Course : SOFTWARE ENGINEERING

Category of the Course : Core Course

Course Code : U5R2CACC11

Nature of the Skill : Skill Development

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week** : 05

Credits : 05 **Total Inst. Hrs** : 75

COURSE OBJECTIVES

C obj – 1. To understand the software engineering concepts.

C obj - 2. To estimate the cost and requirements for developing software projects.

C obj - 3. To know the various design concepts and notations for modeling the software.

C obj - 4. To implement the coding techniques, strategies to evaluate the software.

C obj - 5. To construct software with high quality and reliability.

UNIT- I: Introduction (Inst Hrs: 15)

Introduction - Software Engineering Discipline - Evolution and Impact - Programs Vs Software Products. Software Life Cycle Models: Use of a Life Cycle Models - Classical Waterfall Model -Iterative Waterfall Model - PrototypingModel - Evolutionary Model - Spiral Model. **(ICT)** Software Project Management: Responsibilities of a Software Project Manager**(Seminar)** - Project Planning - Metrics for Project Size Estimation - Project Estimation Techniques -Risk Management. **(Assignment).**

UNIT - II: Requirements Analysis and Specification (Inst Hrs: 15)

Requirements Analysis and Specification: Requirements Gathering and Analysis - Software Requirements Specification (SRS) - Formal System Development Techniques. Software Design: Characteristics of a Good Software Design**(Seminar)** - Cohesion and Coupling - Neat Arrangement - Software Design Approaches.

UNIT- III: Function-Oriented Software Design (Inst Hrs: 15)

Function-Oriented Software Design: Overview of SA/SD Methodology - Structured Analysis - Data Flow Diagrams (DFDs).Object Modeling Using UML: Overview of Object-Oriented Concepts - UML Diagrams - Use Case Model - Class Diagrams - Interaction Diagrams - Activity Diagrams - State Chart Diagram. **(ICT)**

UNIT- IV: User Interface Design and Testing (Inst Hrs: 15)

User Interface Design: Characteristics of a Good User Interface - Basic Concepts - Types of User Interfaces**(Seminar)** - Component-Based GUI Development; Coding and Testing: Coding - Testing - UNIT Testing - Black-Box Testing - White-Box Testing - Debugging -Integration Testing - System Testing. **(Assignment)**

UNIT- V: Software Realiabilty and Quality Management (Inst Hrs: 15)

Software Reliability and Quality Management: Software Reliability - Statistical Testing -Software Quality - Software Quality Management System - ISO 9000.Computer Aided Software Engineering: CASE Environment - CASE support in Software Life Cycle - Characteristics of CASE Tools - Architecture of a CASE Environment. **(ICT)** Software Maintenance: Characteristics of Software Maintenance - Software Reverse Engineering - Software Maintenance Process Models - Estimation of Maintenance Cost. Software Reuse: Issues in any Reuse Program - Reuse Approach.

TEXT BOOK(S)

1. Rajib Mall, "Fundamentals of Software Engineering",3rd Edition, Prentice
Hall of India Private Limited, 2008.

REFERENCE BOOK(S)

1. Rajib Mall, "Fundamentals of Software Engineering", 4thEdition, PrenticeHall of India Private Limited, 2014.
2. Richard Fairley, "Software Engineering Concepts", TMGH Publications, 2004.

ONLINE RESOURCE (S):

1. https://www.guru99.com/software-engineering

COURSE OUTCOMES

After the successful completion of the Course the Students shall be to able to,

CO - 1. Understand about Software Engineering. **-K1**

CO - 2. Estimate the cost using various techniques. **-K5**

CO - 3. Model the software projects using design notations. **-K3**

CO - 4. Implement the coding with various techniques and strategies. **-K2**

CO - 5. Analyze, design, verify, validate, implement and maintain software systems-**K4.**

Relationship Matrix for CO, PO, PSO

Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	3	1	3	2	2	4	3	3	3	2
CO-2	3	2	2	3	3	3	2	3	2	3
CO-3	2	3	2	3	2	3	3	2	2	2
CO-4	3	3	2	2	3	2	2	3	2	1
CO-5	2	2	2	3	2	4	2	3	2	3

Mean Overall Relationship is 2.48 which is HIGH

Title of the Course **:** PHP PROGRAMMING

Category of the Course **:** Core Course

Course Code **:** U5R2CACC12

Nature of the Skill **:** Skill Development

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week** : 05

Credits **:** 05 **Total Inst. Hrs** **:** 75

COURSE OBJECTIVES

C obj - 1 To having clear understanding on handling variables.

C obj - 2. To impart knowledge on looping and conditional statements

C obj - 3. To acquire Knowledge on working with array functions

C obj - 4. To be effective in files and Directories

C obj - 5. To create dynamic web pages and its connectivity with data base

UNIT- I: Basic development Concepts (Inst Hrs:15)

Creating first PHP Scripts – Using Variable and Operators – Storing Data in variable **(ICT)** – Understanding Data types – Setting and Checking variables Data types **(Seminar)** – Using Constants – Manipulating Variables with Operators.

UNIT-II: Conditional Statements (Inst Hrs:15)

Writing Simple Conditional Statements - Writing More Complex Conditional Statements **(Assignment)** – Repeating Action with Loops **(ICT)** – Working with String and Numeric Functions.

UNIT-III: Arrays (Inst Hrs:15)

Storing Data in Arrays – Processing Arrays with Loops and Iterations – Using Arrays with Forms - Working with Array Functions **(Seminar)** – Working with Dates and Times.

UNIT-IV: Functions **(Inst Hrs:15)**

Creating User-Defined Functions - Creating Classes – Using Advanced OOP Concepts. Working with Files and Directories: Reading Files **(ICT)** - Writing Files- Processing Directories.

UNIT-V: Database and SQL **(Inst Hrs:15)**

Introducing Database and SQL **(Assignment)** - Using MySQL – Adding and modifying Data- Handling Errors **(Seminar)** – sing SQLite Extension and PDO Extension. Introduction XML - Simple XML and DOM Extension.

TEXT BOOK(s)

1. VIKRAM VASWANI- PHP A Beginner's Guide, Tata McGraw-Hill

REFERENCE BOOK(S)

1. The PHP Complete Reference – Steven Holzner – Tata McGraw-Hill Edition.

2. Spring into PHP5 – Steven Holzer, Tata McCraw Hill Edition

ONLINE RESOURCE (S):

1. https://www.w3schools.com/php/
2. . https://www.javatpoint.com/php-tutorial

COURSE OUTCOMES

After the successful completion of the Course the Students shall be to able to,

CO - 1. Understand very clearly the identifiers like variables and constants **– K2**

CO - 2. Construct simple programs **– K3**

CO - 3. Analysing the performances of function **- K4**

CO - 4. Handle file operations effectively **- K4**

CO - 5. Have studied DOM **– K3**

Relationship Matrix for CO, PO, PSO

Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	1	2	2	1	2	3	3	1	2	2
CO-2	3	3	2	2	3	2	3	2	2	2
CO-3	3	2	2	1	3	3	1	2	2	3
CO-4	2	2	3	2	3	3	2	3	3	2
CO-5	2	2	1	2	2	2	2	2	3	2

Mean Overall Relationship is 2.20 which is HIGH

Title of the Course : OPEN SOURCE TECHNOLOGY PRACTICAL

Category of the Course : Core Course

Course Code : U5R2CACC13P

Nature of the Skill : Skill Development

Marks : CIA : 40 + Ext: 60 = 100 **Hrs / Week** : 03

Credits : 03 **Total Prac. Hrs** : 45

COURSE OBJECTIVES

C obj – 1. To understand and use HTML forms.

C obj - 2. To impart knowledge on string operations

C obj - 3. To acquire Knowledge on page redirection

LIST OF PRACTICAL PROGRAMS

1. Create a simple HTML form and accept the username and display the name

   through PHP echo statement.

2. Write a PHP script to redirect a user to a different page.
3. Write a PHP function to test whether a number is greater than 30 , 20 or 10 using ternary operator.
4. Create a PHP script which display the capital and country name from the given array. Sort the list by the name of the country
5. Write a PHP script to calculate and display average temperature, five lowest and highest temperatures.
6. Create a script using a for loop to add all the integers between 0 and 30 and display the total.
7. Write a PHP script using nested for loop that creates a chess board.
8. Write a PHP function that checks if a string is all lower case.
9. Write a PHP script to calculate the difference between two dates.
10. Write a PHP script to display time in a specified time zone.

Title of the Course **:** WEB TECHNOLOGY

Category of the Course **:** Core Course

Course Code **:** U6R2CACC14

Nature of the Skill **:** Skill Development and Employability

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week** : 06

Credits **:** 05 **Total Inst. Hrs** **:** 90

COURSE OBJECTIVES

C obj - 1 To Study the various HTML tags and design simple web pages .

C obj - 2. To develop valid Hyperlinks– images– lists– tables and forms programs.

C obj - 3. To Create web pages using HTML and Cascading Style Sheets.

C obj - 4. To Build dynamic web pages using JavaScript (Client side programming).

C obj - 5. To Learn Scripting language characteristics.

UNIT –I: Structuring Documents for the Web (Inst Hrs:18)

Introducing HTML and XHTML – Basic Text Formatting **(ICT)** – Presentational Elements – Phrase Elements – Lists – Editing Text – Core Elements and Attributes – Attribute Groups - Links and Navigation: Basic Links – Creating Links with the <a> Element – Advanced E-mail Links – Images, Audio – and Video: Adding Images Using the <img> Element – Using Images as Links - Image Maps – Choosing the Right Image Format – Adding Flash Video and Audio to your web pages.

UNIT – II: Tables (Inst Hrs:18)

Tables: Introducing Tables **(ICT)** – Grouping Sections of a Table – Nested Tables **(Seminar)** – Accessible Tables - Forms: Introducing Forms – Form Controls – Sending Form Data to the Server. Frames: Introducing Frameset – <frame> Element – Creating Links Between Frames – Setting a Default Target

Frame Using <base> Element – Nested Framesets – Inline or Floating Frames with < iframe>.

UNIT – III: Cascading Style Sheets (Inst Hrs:18)

Introducing CSS(ICT) – Where you can Add CSS Rules. CSS Properties: Controlling Text – Text Formatting**(Seminar)** – Text Pseudo Classes – Selectors – Lengths – Introducing the Box Model. More Cascading Style Sheets: Links – Lists – Tables – Outlines – The focus and activate Pseudo classes Generated Content – Miscellaneous Properties – Additional Rules – Positioning and Layout with CSS – Design Issues.

UNIT – IV: Learning Javascript (Inst Hrs:18)

Java Script: How to Add Script to Your Pages – Variables and Data Types**(Seminar)** – Statements and Operators – Control Structures – Conditional Statements – Loop Statements – Functions - Message box – Dialog Boxes **(Assignment)** – Alert Boxes – Confirm Boxes – Prompt Boxes.

UNIT – V: Working with JavaScript (Inst Hrs:18)

Practical Tips for Writing Scripts – JavaScript Objects: Window Object - Document object - Browser Object - Form Object**(Assignment)** - Navigator object Screen object – Events – Event Handlers – Forms – Validations – Form Enhancements – JavaScript Libraries

TEXT BOOK (S):

1. Jon Duckett– Beginning HTML– XTML– CSS and Java script – Wiley Publishing

REFERENCE BOOK (S):

1. Chris Bates– "Web Programming"– Wiley Publishing 3d Edition.

ONLINE RESOURCE (S):

1. https://www.tutorialspoint.com/html/html_tutorial.pdf
2. https://www.cs.uct.ac.za/mit_notes/web_programming.html

COURSE OUTCOMES

After the successful completion of the Course the Students shall be to able to

CO - 1. Make use of the 'language of the Web' – HTML **– K3**

CO - 2. Write valid programs including hyperlinks, images, lists, tables and forms – **K2**

CO - 3. Match CSS to implement a variety of presentation effects in HTML **– K1**

CO - 4. Study the importance of scripting language Java Script **– K6**

CO - 5. Explain Event-driven programming **– K2**

Relationship Matrix for CO– PO– PSO

Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	2	2	2	3	2	2	1	2	3	2
CO-2	2	2	1	3	2	3	2	2	3	2
CO-3	3	2	2	3	1	2	3	2	2	2
CO-4	2	3	2	3	2	3	2	3	2	2
CO-5	2	2	2	3	2	2	3	2	2	3

Mean Overall Relationship is 2.24 which is HIGH

Title of the Course **:** WEB TECHNOLOGY PRACTICAL

Category of the Course **:** Core Course

Course Code **:** U6R2CACC15P

Nature of the Skill **:** Employability and Entrepreneurship

Marks : CIA : 40 + Ext: 60 = 100 **Hrs / Week** : 03

Credits **:** 03 **Total Inst. Hrs** **:** 45

COURSE OBJECTIVES

C obj - 1 To learn about the various tags in HTML.

C obj - 2. To understand the basics of script languages.

LIST OF PRACTICAL PROGRAMS

1. Create a form having number of elements (Textboxes, Radio buttons, Checkboxes, and so on). Write JavaScript code to count the number of elements in a form.

2. Create a HTML form that has number of Textboxes. When the form runs in the Browser fill the textboxes with data. Write JavaScript code that verifies that all textboxes has been filled. If a textboxes has been left empty, popup an alert indicating which textbox has been left empty.

3. Develop a HTML Form, which accepts any Mathematical expression. Write JavaScript code to Evaluates the expression and Displays the result.

4. Create a page with dynamic effects. Write the code to include layers and basic animation.
5. Write a JavaScript code to find the sum of N natural Numbers. (Use user-defined function)

6. Write a JavaScript code block using arrays and generate the current date in words, this should include the day, month and year.

7. Create a form for Student information. Write JavaScript code to find Total, Average, Result and Grade.

8. Create a form for Employee information. Write JavaScript code to find DA, HRA, PF, TAX, Gross pay, Deduction and Net pay.

9. Create a form consists of a two Multiple choice lists and one single choice list
   (a) The first multiple choice list, displays the Major dishes available
   (b)The second multiple choice list, displays the Starters available.
   (c)The single choice list, displays the Soft drinks available.

10. Create a web page using two image files, which switch between one another as the mouse pointer moves over the image. Use the onmouseover and onmouseout event handlers.

Title of the Course : DATA MINING AND WAREHOUSING

Category of the Course : Discipline Specific Elective - 1

Course Code : U5R2CADSE1:1

Nature of the Skill : Employability

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week** : 06

Credits : 04 **Total Inst. Hrs** : 90

COURSE OBJECTIVES

C obj - 1. To know the basic concepts of Data Mining.

C obj - 2. To learn about handling unprocessed data.

C obj - 3. To know about how to handle data in Data Warehousing.

C obj - 4. To introduce the basics of Clustering and Classification.

C obj - 5. To understand various Cluster Analysis techniques.

UNIT –I: Introduction (Inst Hrs:18)

Introduction: Data mining – Functionalities – Classification – Introduction to Data Warehousing – Data Preprocessing: Preprocessing the Data – Data cleaning – Data Integration and Transformation – Data Reduction.

UNIT – II: Data Mining (Inst Hrs:18)

Data Mining- Primitives- Languages and System Architecture: Data Mining – Primitives – Data Mining Query Language **(Assignment)** - Architecture of Data mining Systems. Concept Description- Characterization and Comparison **(ICT)**: Concept Description- Data Generalization and Summarization **(Seminar)** - Analytical Characterization- Mining Class Comparison – Statistical Measures.

UNIT – III: Mining Association (Inst Hrs:18)

Mining Association Rules: Basic Concepts – Single Dimensional Boolean Association Rules from Transaction Databases **(ICT) -** Multilevel Association Rules from transaction databases – Multi dimension Association Rules from Relational Database and Data Warehouses.

UNIT – IV: Classification and Prediction (Inst Hrs:18)

Classification and Prediction: Introduction – Issues – Decision Tree Induction – Bayesian Classification **(ICT)** – Classification of Back Propagation. Classification based on Concepts from Association Rule Mining – Other Methods. Prediction **(Seminar)** – Introduction – Classifier Accuracy.

UNIT – V: Cluster Analysis (Inst Hrs:18)

Cluster Analysis: Introduction – Types of Data in Cluster Analysis **(Assignment) -** Petitioning Methods – Hierarchical Methods-Density Based Methods – GRID Based Method – Model based Clustering Method.

TEXT BOOK (S):

1. J.Han and M. Kamber, "Data Mining Concepts and Techniques", 2001, Harcourt India Pvt. Ltd, New Delhi.

REFERENCE BOOK (S):

1. K.P. Soman , Shyam Diwakar, V.Ajay "Insight into Data Mining Theory and Practice", Prentice Hall of India Pvt. Ltd, New Delhi.

ONLINE RESOURCE (S):

1. https://www.javatpoint.com/data-mining
2. https://www.geeksforgeeks.org/kdd-process-in-data-mining/

COURSE OUTCOMES

After the successful completion of the Course the Students shall be to able to,

CO - 1. Build an own Data Warehousing for KDD process **– K6**

CO - 2. Illustrate Data mining concepts **– K2**

CO - 3. Elaborate on Association mining rules **– K6**

CO - 4. Analyze the cluster **– K4**

CO - 5. Solve the Cluster analysis issues using different analysis methods **– K3**

Relationship Matrix for CO, PO, PSO

Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	3	1	2	3	2	3	3	3	3	3
CO-2	3	2	3	1	2	3	2	2	2	3
CO-3	3	1	2	1	2	2	2	2	3	3
CO-4	3	3	1	2	3	2	3	2	2	2
CO-5	3	3	2	1	2	2	2	2	2	2

Mean Overall Relationship is 2.28 which is HIGH

Title of the Course **:** MULTIMEDIA SYSTEMS

Category of the Course **:** Discipline Specific Elective - 1

Course Code **:** U5R2CADSE1:2

Nature of the Skill **:** Skill Development

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week** : 06

Credits **:** 04 **Total Inst. Hrs** **:** 90

COURSE OBJECTIVES

C obj - 1. To understand basic concepts of Multimedia.

C obj - 2. To have keen knowledge in handling the media files.

C obj - 3. To acquire knowledge on animation.

C obj - 4. To learn about making Multimedia.

C obj - 5. To have an idea about planning and costing of Multimedia.

UNIT –I: Introduction (Inst Hrs: 18)

Multimedia Definition - Use Of Multimedia - Delivering Multimedia - Text: About Fonts and Faces - Using Text in Multimedia **(ICT)** - Computers and Text - Font Editing and Design Tools - Hypermedia and Hypertext.

UNIT – II : Image and Audio (Inst Hrs: 18)

Images: Plan Approach - Organize Tools - Configure Computer Workspace - Making Still Images - Color - Image File Formats **(Seminar)**. Sound: The Power of Sound - Digital Audio - Midi Audio - Midi vs. Digital Audio **(Assignment)** - Multimedia System Sounds- Audio File Formats -Vaughan's Law of Multimedia Minimums - Adding Sound to Multimedia Project.

UNIT – III: Animation and Video (Inst Hrs: 18)

Animation: The Power of Motion - Principles of Animation **(Seminar)** - Animation by Computer - Making Animations that Work. Video: Using Video - Working with Video and Displays **(ICT)** - Digital Video Containers - Obtaining Video Clips - Shooting and Editing Video.

UNIT – IV: Multimedia (Inst Hrs: 18)

Making Multimedia: The Stage of Multimedia Project - The Intangible Needs - The Hardware Needs **(ICT)** - The Software Needs - An Authoring Systems Needs- Multimedia Production Team.

UNIT – V: Planning and Costing (Inst Hrs: 18)

Planning and Costing: The Process of Making Multimedia **(Assignment)** - Scheduling - Estimating - RFPs and Bid Proposals. Designing and Producing - Content and Talent: Acquiring Content - Ownership of Content Created for Project - Acquiring Talent.

TEXT BOOK (S):

1. Tay Vaughan, "Multimedia: Making It Work", 8th Edition, Osborne/McGraw- Hill, 2001.

REFERENCE BOOK (S):

1. Ralf Steinmetz & Klara Nahrstedt "Multimedia Computing, Communication & Applications", Pearson Education, 2012.

ONLINE RESOURCE (S):

1. https://www.geeksforgeeks.org/what-is-multimedia/
2. https://www.tutorialspoint.com/multimedia/index.htm

COURSE OUTCOMES

After the successful completion of the Course the Students shall be to able to,

CO - 1. Summarize multimedia to potential clients **– K2**

CO - 2. Identify the function of the general skill sets in the multimedia industry **– K3**

CO - 3. Outline the basic components of a multimedia project **– K2**

CO - 4. Identify the hardware and software requirements for multimedia development **- K3**

CO - 5. Assess the cost to make the multimedia for the client **– K5**

Relationship Matrix for CO, PO, PSO

Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	3	1	2	3	3	3	1	1	3	3
CO-2	3	1	1	2	2	3	2	2	3	3
CO-3	2	1	2	1	2	3	1	2	3	3
CO-4	3	1	3	1	1	3	3	3	3	3
CO-5	2	1	2	2	2	3	3	3	1	3

Mean Overall Relationship is 2.22 which is HIGH

Title of the Course **:** Computer Networks

Category of the Course **:** Discipline Specific Elective - 2

Course Code **:** U6R2CADSE2:1

Nature of the Skill **:** Skill Development

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week** **:** 06

Credits **:** 05 **Total Inst. Hrs** **:** 90

COURSE OBJECTIVES

C obj – 1. To understand the basics of concepts pertaining to computer networks.

C obj - 2. To know about sending data without errors during transmission.

C obj - 3. To learn the various protocols in network environment.

C obj - 4. To be aware of different algorithms involved in sending data.

C obj - 5. To know about securing the data.

UNIT –I: Introduction to OSI Model (Inst Hrs: 18)

Introduction – Network Hardware – Software – Reference Models – OSI and TCP/IP Models **(Assignment)** – Example Networks: Internet- ATM- Ethernet and Wireless LANs - Physical Layer – Theoretical Basis for Data Communication - Guided Transmission Media

UNIT – II: Wireless Transmission (Inst Hrs:18)

Wireless Transmission - Communication Satellites – Telephone System: Structure- Local Loop- Trunks and Multiplexing and Switching. Data Link Layer: Design Issues – Error Detection and Correction.

UNIT – III: Data Link Layer (Inst Hrs:18)

Elementary Data Link Protocols - Sliding Window Protocols **(ICT)** – Data Link Layer in the Internet - Medium Access Layer – Channel Allocation Problem – Multiple Access Protocols – Bluetooth **(Assignment)**.

UNIT – IV: Network Layer (Inst Hrs:18)

Network Layer - Design Issues - Routing Algorithms **(ICT)** - Congestion Control Algorithms – IP Protocol – IP Addresses – Internet Control Protocols **(Seminar)**.

UNIT – V: Transport Layer (Inst Hrs:18)

Transport Layer - Services - Connection Management - Addressing- Establishing and Releasing a Connection – Simple Transport Protocol **(Seminar)** – Internet Transport Protocols (ITP) - Network Security: Cryptography **(ICT)**.

TEXT BOOK (S):

1. A. S. Tanenbaum, "Computer Networks", 4th Edition, Prentice-Hall of India, 2008.

REFERENCE BOOK (S):

1. B. A. Forouzan, "Data Communications and Networking", Tata McGraw Hill, 4th Edition, 2007.
2. F.Halsall, "Data Communications, Computer Networks and Open Systems", Pearson Education, 2008.
3. D. Bertsekas and R. Gallagher, "Data Networks", 2nd Edition, PHI, 2008.
4. Lamarca, "Communication Networks", Tata McGraw- Hill, 2002

ONLINE RESOURCE (S):

1. https://www.javatpoint.com/computer-network-tutorial
2. https://www.geeksforgeeks.org/basics-computer-networking/

COURSE OUTCOMES

After the successful completion of the Course the Students shall be to able to,

CO - 1. Classify different types of networks. **– K4**

CO - 2. Decide which network to choose for different situations **– K5**

CO - 3. Utilize different types of protocols **– K3**

CO - 4. Develop a new routing algorithm **– K6**

CO - 5. Adapt new security mechanism in the network **– K5 & K6**

Relationship Matrix for CO, PO, PSO

Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	3	1	1	2	3	3	2	2	3	3
CO-2	3	3	2	2	2	3	2	2	2	3
CO-3	2	2	1	2	2	2	3	2	2	3
CO-4	3	1	1	2	2	2	3	2	3	3
CO-5	3	2	3	2	3	3	3	3	3	3

Mean Overall Relationship is 2.36 which is HIGH

Title of the Course **:** WIRELESS NETWORK

Category of the Course **:** Discipline Specific Elective - 2

Course Code **:**U6R2CADSE2:2

Nature of the Skill **:** Skill Development

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week** : 06

Credits **:** 05 **Total Inst. Hrs** **:** 90

COURSE OBJECTIVES

C obj - 1. To learn about the wireless networks.

C obj - 2. To understand in detail about Mobile IP and MANET.

C obj - 3. To have a keen knowledge in TCP.

C obj - 4. To know about UMTS and 3G.

C obj - 5. To learn about 4G.

UNIT –I: WLAN (Inst Hrs: 18)

Introduction-WLAN Technologies: Infrared- UHF Narrowband- Spread Spectrum - IEEE802.11: System Architecture- Protocol Architecture- Physical Layer- MAC Layer- 802.11b- 802.11a – Hiper LAN: WATM- BRAN- HiperLAN2 **(ICT)** – Bluetooth: Architecture- Radio Layer- Baseband Layer- Link Manager Protocol- Security – IEEE802.16 **(Assignment)** -WIMAX: Physical Layer- MAC- Spectrum Allocation For WIMAX.

UNIT – II: Mobile IP (Inst Hrs: 18)

Introduction – Mobile IP: IP Packet Delivery- Agent Discovery- Tunneling and Encapsulation- IPV6 **(ICT)** -Network Layer in the Internet- Mobile IP Session Initiation Protocol – Mobile Ad-Hoc Network: Routing- Destination Sequence Distance Vector- Dynamic Source Routing **(Seminar)**.

UNIT – III: TCP **(Inst Hrs: 18)**

TCP Enhancements For Wireless Protocols – Traditional TCP: Congestion Control- Fast Retransmit/Fast Recovery- Implications Of Mobility – Classical TCP Improvements: Indirect TCP- Snooping TCP- Mobile TCP- Time Out Freezing- Selective Retransmission- Transaction Oriented TCP – TCP Over 3G Wireless Networks **(Assignment)**.

UNIT – IV: UMTS and 3G **(Inst Hrs: 18)**

Overview Of UTMS Terrestrial Radio Access Network-UMTS Core Network Architecture: 3G-MSC - 3G-SGSN - 3G-GGSN- SMS-GMSC/SMS-IWMSC - Firewall **(Seminar)**- DNS/DHCP-High Speed Downlink Packet Access (HSDPA) **(ICT)** - LTE Network Architecture And Protocol.

UNIT – V: 4G Technologies **(Inst Hrs: 18)**

Introduction – 4G Vision – 4G Features And Challenges – Applications Of 4G – 4G Technologies: Multicarrier Modulation- Smart Antenna Techniques- OFDM- MIMO Systems- Adaptive Modulation And Coding With Time Slot Scheduler- Cognitive Radio.

TEXT BOOK (S):

1. Jochen Schiller, “Mobile Communications”, Second Edition, Pearson Education, 2012.
2. Vijay Garg , “Wireless Communications And Networking”, First Edition, Elsevier 2007.

REFERENCE BOOK (S):

1. Erik Dahlman, Stefan Parkvall, Johan Skold And Per Beming, “3G Evolution HSPA And LTE For Mobile Broadband”, Second Edition, Academic Press, 2008.

2. Anurag Kumar, D.Manjunath, Joy Kuri, “Wireless Networking”, First Edition, Elsevier 2011.

ONLINE RESOURCE (S):

1. https://www.javatpoint.com/mobile-communication-tutorial
2. https://www.tutorialspoint.com/wireless_communication/index.htm

COURSE OUTCOMES

After the successful completion of the Course the Students shall be to able to,

CO - 1. Experiment with latest wireless technologies and trends in the communication **-K3**

CO - 2. Elaborate the transmission of voice and data through various networks. **- K6**

CO - 3. Develop a MANET for critical situations like Tsunami or Earthquake. **- K6**

CO - 4. Utilize TCP Enhancements For Wireless Protocols **- K3**

CO - 5. Compare and contrast the 3G and 4G services **- K4 &K5**

Relationship Matrix for CO, PO, PSO

Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	3	2	2	1	2	3	2	3	2	2
CO-2	3	1	2	1	2	2	3	3	2	2
CO-3	3	3	3	3	3	3	3	3	3	3
CO-4	3	1	1	1	2	2	1	2	1	2
CO-5	3	2	1	1	3	2	2	2	3	3

Mean Overall Relationship is 2.22 which is HIGH

Title of the Course **:** INTERNET OF THINGS

Category of the Course **:** Discipline Specific Elective-3

Course Code **:** U6R2CADSE3:2

Nature of the Skill **:** Skill Development and Employability skill

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week** : 06

Credits **:** 05 **Total Inst. Hrs** **:**90

COURSE OBJECTIVES

C obj – 1. To understand the concept of IoT and its technologies.

C obj - 2. To acquire knowledge on IoT Design methodology.

C obj - 3. To acquire knowledge on IoT Design methodology.

C obj - 4. To Excel in IoT logical design using Python.

C obj - 5. To understand the IoT Physical Servers and cloud offerings.

UNIT –I: Introduction to Internet of Things (Inst Hrs:18)

Introduction - Physical Design of IoT - Logical Design of IoT - IoT Enabling Technologies **(ICT)** - IoT Levels & Deployment Templates

UNIT – II: Domain Specific IoT's (Inst Hrs: 18)

Introduction – Home Automation – Cities – Environment – Energy – Retail – Logistics - Agriculture - Industry – Health & Lifestyle **(Seminar)**. IoT and M2M: Introduction - M2M - Difference Between IoT and M2M - SDN and NFV for IoT.

UNIT – III: IoT System Management with NETCONF-YANG (Inst Hrs: 18)

Need for IoT Systems Management - Simple Network Management - Protocol [SNMP] - Network Operator Requirements - NETCONF-YANG - IoT Systems Management with NETCONF-YANG. IoT Platforms Design Methodology: Introduction - IoT Design Methodology **(Seminar)** - Case Study on IoT System for Weather Monitoring **(Assignment)**.

UNIT – IV: IoT System-Logical Design using Python (Inst Hrs:18)

Introduction - Installing Python - Python Data Structures - Control Flow-Functions - Modules- Packages - File Handling - Data/Time Operations **(ICT)** - Classes - Python Packages of Interest for IoT**(Assignment)**.

UNIT – V: IoT Physical Devices & Endpoints (Inst Hrs: 18)

Define IoT Device-Exemplary Device: Raspberry Pi-About the Board -Linux on Raspberry Pi-Raspberry Pi Interfaces-Programming Raspberry Pi with Python -Other IoT Devices. IoT Physical Servers & Cloud offerings: Introduction to Cloud Storage Models & Communication APIs – WAMP **(ICT)**- Auto Bahn for IoT - Xively Cloud for IoT – Python Web Application Framework - Django - Design a RESTful Web API-Amazon Web services for IoT- SkyNet IoT Messaging Platform**(Seminar)**

TEXT BOOK (S):

1. Arshdeep Bahga, Vijay Madisetti "Internet of Things – A hands on approach", Universities Press 2015.

REFERENCE BOOK (S):

1. Andrew Minteer "Analytics for the Internet of Things (IoT)" Packet Publishing Limited 2017.

ONLINE RESOURCE (S):

1. https://www.edureka.co/blog/iot-tutorial

COURSE OUTCOMES

After the successful completion of the Course the Students shall be to able to,

CO - 1. Apply the concepts of IoT ` **– K3**

CO - 2. Use domain specific IoT **-K1**

CO - 3. Design and Develop the IoT system management with NETCONF-YANG **-K3**

CO - 4. Apply several logical designs of IoT using Python **-K3**

CO - 5. Design and implement successful recommendation engines for enterprises **-K3**

Relationship Matrix for CO, PO, PSO

Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	3	2	1	3	3	2	2	1	3	3
CO-2	2	3	2	2	2	2	1	2	3	2
CO-3	1	2	3	2	2	2	3	2	2	2
CO-4	3	2	3	2	2	2	3	2	2	3
CO-5	2	1	2	3	2	2	2	2	2	2

Mean Overall Relationship is 2.18 which is HIGH

Title of the Course **:** INTERNET PROGRAMMING

Category of the Course **:** Skill Enhancement Course-1

Course Code **:** U4R2CASEC1:1

Nature of the Skill **:** Skill Development & Employability

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week** : 02

Credits **:** 02 **Total Inst. Hrs** **:** 30

COURSE OBJECTIVES

C obj – 1. To understand different Internet Technologies.

C obj - 2. To learn java-specific web services architecture.

C obj - 3. To learn servlet Architecture and Database connectivity.

C obj - 4. To Learn PHP and XML.

C obj - 5. To Learn AJAX and web Services

UNIT - I: Basics of Internet (Inst Hrs: 05)

Web Essentials: Clients, Servers and Communication – The Internet – Basic Internet protocols – World wide web – HTTP Request Message – HTTP Response Message – Web Clients – Web Servers – HTML5 – Tables – Lists – Image – HTML5 control elements – Semantic elements – Drag and Drop – Audio – Video controls – CSS3 – Inline, embedded and external style sheets**(ICT)** – Rule cascading – Inheritance – Backgrounds – Border Images – Colors – Shadows – Text – Transformations – Transitions – Animations.

UNIT - II: Introduction to Java script (Inst Hrs: 05)

Java Script: An introduction to JavaScript–JavaScript DOM Model-Date and Objects,-Regular Expressions- Exception Handling**(ICT)**-Validation-Built-in objects- Event Handling- DHTML with JavaScript- JSON introduction – Syntax –Function Files – Http Request – SQL. **(Assignment)**.

UNIT --III: Introduction to Servlet **(Inst Hrs: 05)**

Servlets: Java Servlet Architecture- Servlet Life Cycle **(Seminar)** - Form GET and POST actions- Session Handling- Understanding Cookies- Installing and Configuring Apache Tomcat Web Server.**(Assignment)** - DATABASE CONNECTIVITY: JDBC perspectives, JDBC program example – JSP: Understanding Java Server Pages-JSP Standard Tag Library (JSTL)-Creating HTML forms by embedding JSP code.

UNIT - IV: Introduction to PHP AND XML **(Inst Hrs: 05)**

An introduction to PHP: PHP- Using PHP- Variables- Program control- Built-in functions **(Seminar)** - Form Validation- Regular Expressions – File handling – Cookies – Connecting to Database. XML: Basic XML- Document Type Definition- XML Schema DOM and Presenting XML, XML Parsers and Validation, XSL and XSLT Transformation, News Feed (RSS and ATOM).

UNIT – V: Introduction to Web Services **(Inst Hrs: 05)**

AJAX: Ajax Client Server Architecture **(ICT)**-XML Http Request Object- Call Back Methods; Web Services: Introduction- Java web services Basics – Creating, Publishing**(Seminar) -** Testing and Describing a Web services (WSDL)-Consuming a web service - Database Driven web service from an application –SOAP.

TEXT BOOK(S)

1. Deitel and Deitel and Nieto, “Internet and World Wide Web – How to Program“, Prentice Hall, 5th Edition, 2011.

REFERENCES BOOK(S)

1. Stephen Wynkoop and John Burke —Running a Perfect Website‖, QUE, 2ndEdition,1999.

2. Jeffrey C and Jackson, —Web Technologies A Computer Science Perspective‖,Pearson Education, 2011.

3. Gopalan N.P. and Akilandeswari J., —Web Technology‖, Prentice Hall ofIndia, 2011.

ONLINE RESOURCE (S):

1. https://www.edu.gctglobal.org/en/internetbasics

COURSE OUTCOMES

After the successful completion of the Course the Students shall be to able to,

CO - 1. Gain the knowledge of different Internet Technologies. **- K1**

CO - 2. Gain the knowledge about java-specific web services architecture.**- K3**

CO - 3. Understand servlet Architecture and Database connectivity. **- K3**

CO - 4. Get the knowledge about PHP and XML. **- K3**

CO - 5. Understand about AJAX and web Services. **- K3**

Relationship Matrix for CO, PO, PSO

Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	2	1	3	2	2	3	3	1	3	2
CO-2	3	2	2	3	3	3	2	3	2	3
CO-3	2	3	2	3	2	3	3	2	2	2
CO-4	3	3	2	2	3	2	2	3	2	1
CO-5	2	2	1	3	2	3	2	3	2	3

Mean Overall Relationship is 2.36 which is HIGH

Title of the Course **:** Open-Source Technology
Category of the Course **:** Skill Enhancement Course
Course Code **:** U4R2CASEC1:2
Nature of the Skill **:** Skill Development

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week** : 02
Credits **:** 02 **Total Inst. Hrs** **:**30

COURSE OBJECTIVES

C obj - 1 To Understand the background details on Open Source Technology.
C obj - 2. To impart knowledge on the platform of free software
C obj - 3. To expertise in income generation using OST
C obj - 4. To be effective PHP Programming Environment
C obj - 5. To differentiate open and closed source technology.

UNIT-I :Introduction **(Inst Hrs:05)**

Open Source **(ICT)** – Free Software – Free Software vs Open Sources software - Public Domain Software - FOSS does not mean no cost. History: BSD**(Seminar)** - The Free Software Foundation and the GNU Project.

UNIT-II: Open Source **(Inst Hrs:05)**

History-Initiatives, Principle and methodologies - Philosophy: Software Freedom – open source Development Model Licences and Patents: What is a License , Important FOSS Licenses (Apache, BSD, GPL, LGPL) – Copyrights and copy lefts **(Seminar)** – Patents Economics of FOSS : Zero Marginal Cost , Income generation opportunities **(ICT)** –Problems with traditional commercial software - Internationalization(Assignment)

UNIT- III : Community Building **(Inst Hrs:05)**

Importance of Communities in Open Source Movement- JBoss Community - Starting and Maintaining an Open Source Project- Open Source Hardware**(Assignment)**

UNIT-IV :Apache HTTP Server and its flavors **(Inst Hrs:05)**

WAMP Server (Windows, Apache, MySQL, PHP) - Apache, MySQL, PHP, JAVA as development platform **(Seminar)**.

UNIT- V :Open source vs. closed source **(Inst Hrs:05)**

Open source government-Open source ethics. Social and Financial impacts of open source technology **(ICT)** – Shared software - Shared source.

TEXTBOOK (S):

1. Sumitabha Das "Unix Concepts and Applications, Tata McGraw Hill Education 2006
2. The Official Ubuntu Book, 8th Edition
3. Kailash Vedera, Bhavyesh Gandhi, "Open Source Technology", University Science press.

REFERENCEBOOK (S)

1. Paul Kavanagh, "Open Source Software: Implementation and Management", Elsevier Digital Press

ONLINE RESOURCE (S):

1. http://www.tldp.org
2. http://www.docker.com

COURSE OUTCOMES

After the successful completion of the Course the Students shall be to able to,

CO – 1. Understand BSD and their services – K3

CO - 2. Use development models for distribution – K2

CO - 3. Apply techniques to maintain open source project - K4

CO - 4. Manage WAMP for better development of a software - K3

CO - 5. Conclude the features of OST – K3

Relationship Matrix for CO, PO, PSO

Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	3	2	2	1	1	3	2	1	3	2
CO-2	3	3	3	2	3	3	3	2	2	2
CO-3	3	2	2	3	3	2	2	2	2	3
CO-4	2	2	1	2	3	2	2	3	3	3
CO-5	3	2	3	2	2	2	3	2	3	2

Mean Overall Relationship is 2.22 which is HIGH

Title of the Course : MOBILE COMPUTING

Category of the Course : Skill Enhancement Course - 2

Course Code : U5R2CASEC2:1/ 2:2

Nature of the Skill : Skill Development and Employability

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week** : 04

Credits : 02 **Total Inst. Hrs** : 60

COURSE OBJECTIVES

C obj - 1. To study the specifications of various protocols of mobile networks.

C obj - 2. To understand mobile computing in context of wireless network systems.

C obj - 3. To emphasises the database issues in mobile computing devices.

C obj - 4. To learn about data delivery mechanisms and data synchronization.

C obj - 5. To acquire knowledge about Ad-hoc networks considering futuristic requirements.

UNIT –I: Introduction –Telecommunications systems (Inst Hrs:12)

Mobile Computing – Paradigm – Promises/Novel Applications and Impediments and Architecture – Mobile and Handheld Devices – Limitations of Mobile and Handheld Devices – GSM**(ICT)** – Services – System Architecture – Radio Interfaces – Protocols – Localization – Calling – Handover – Security –New Data Services – GPRS**(Assignment)**.

UNIT – II: Medium access control (Inst Hrs:12)

Motivation for a specialized MAC (Hidden and exposed terminals – Near and far terminals) – SDMA – FDMA – TDMA – CDMA – Wireless LAN/(IEEE 802.11) **(ICT)** –Mobile Network Layer IP and Mobile IP Network Layers – Packet Delivery and Handover Management**(Seminar)** – Location Management – Registration – Tunneling and encapsulation – Route Optimizations – DHCP.

UNIT – III: Mobile transport layer (Inst Hrs:12)

Conventional TCP/IP Protocols**(Seminar)** – Indirect TCP – Snooping TCP – Mobile TCP – Other Transport Layer Protocols for Mobile Networks – Database Issues**(ICT)**: Database Hoarding and Caching Techniques – Client-Server Computing & Adaptation – Transactional Models – Query processing – Data Recovery Process & QoS Issues.

UNIT – IV: Data synchronization (Inst Hrs:12)

Communications Asymmetry – Classification of Data Delivery Mechanisms**(Seminar)** – Data Dissemination – Broadcast Models – Selective Tuning and Indexing Methods – Data Synchronization.

UNIT – V: Adhoc Networks (Inst Hrs:12)

Introduction – Applications & Challenges of a MANET**(Assignment)** – Routing – Classification of Routing Algorithm s– Algorithms such as DSR – AODV – DSDV – Mobile Agents – Service Discovery. Protocols and Platforms for Mobile Computing: WAP – Bluetooth – J2ME – iOS/Windows CE – Android – Security.

TEXT BOOK (S):

1. Jochen Schiller – "Mobile Communications" – Addison-Wesley – Second Edition – 2009.
2. Raj Kamal – "Mobile Computing" – Oxford University Press – 2007 – ISBN:0195686772

REFERENCE BOOK (S):

1. Dharma Prakash Agarwal and Qing an Zeng – "Introduction to Wireless and Mobile Systems – Cengage Learning, Inc – 3rd Edition

ONLINE RESOURCE (S):

1. https://www.tutorialspoint.com/mobile_computing/mobile_computing_overview.htm
2. https://www.javatpoint.com/mobile-computing

COURSE OUTCOMES

After the successful completion of the Course the Students shall be to able to –

CO - 1 Discuss about Telecommunication systems **– K6**

CO - 2. Elaborate about wireless LAN networks **– K6**

CO- 3. Explain the database issues that arises in networks **– K5**

CO - 4. Illustrate issues in Data delivery mechanisms **– K2**

CO - 5. Define the importance of Ad-hoc Networks **– K1**

Relationship Matrix for CO– PO– PSO

Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	2	2	2	3	2	2	1	2	3	1
CO-2	1	2	1	3	2	3	2	2	3	1
CO-3	3	1	2	1	1	2	3	1	2	2
CO-4	2	3	2	3	2	3	2	3	2	1
CO-5	1	2	2	3	1	2	3	2	2	3

Mean Overall Relationship is 2.04 which is Medium

Title of the Course **:** CLOUD COMPUTING

Category of the Course **:** Skill Enhancement Course – 2

Course Code **:** U5R2CASEC2:1/ 2:2

Nature of the Skill **:** Skill Development and Employability

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week** : 04

Credits **:** 02 **Total Inst. Hrs** **:** 60

COURSE OBJECTIVES

C obj – 1. To understand the basic concepts of cloud computing, cloud components, cloud architecture and services

C obj - 2. To understand the design of cloud services.

C obj - 3. To learn about network security and services

C obj - 4. To understand the overview of cloud storage.

C obj - 5. To identify the service of software plus and its developing applications.

UNIT –I: Cloud Computing Basics (Inst Hrs:12)

Cloud Computing Overview: Disambiguation - Cloud Components - Infrastructure – Services - Applications: Storage – Database Services**(ICT)** – Intranets and the Cloud: Components - Hypervisor Applications – First Movers in the Cloud: Amazon – Google - Microsoft.

UNIT – II: Cloud Computing Scenarios (Inst Hrs:12)

Your Organisation and Cloud Computing: When You Can Use Cloud Computing: Scenarios: - Benefits: Scalability – Simplicity - Knowledgeable Vendors - More Internal Resources – Security - Limitations: Your Sensitive Information– Application Not Ready - Developing Your Own Applications**(Seminar**) – Security Concerns: Privacy Concerns With a Third Party - Security Benefits - Cloud Computing With the Titans**(ICT)**: Google – EMC – NetApp – Microsoft – Amazon - SalesForce.com – IBM**–** Partnerships**.**

UNIT – III: Cloud Computing Services (Inst Hrs:12)

The Business Case For Going to the Cloud: Cloud Computing Services **(ICT)** - Infrastructure as a Service - Platform as a Service - Software as a Service - How Those Applications Help Your Business: Operational Benefits - Economic Benefits - Tips for Evaluating SaaS**(Seminar**) - Staffing Benefits - Hardware and Infrastructure: Clients: Mobile – Thin – Thick - Security: Data Leakage - Offloading Work – Logging – Forensicss**(Assignment)** – Development – Auditing - Network: Basic Public Internet - The Accelerated Internet - Optimized Internet Overlay - Site-to-Site VPN Cloud Providers - Cloud Consumers – Pipe – Redundancy - Services: Identity – Integration – Mapping – Payments - Search.

UNIT – IV: Cloud Storage Overview (Inst Hrs:12)

The Basics-Storage as a Service-Providers-Security-Reliability-Cautions- OutagesTheft - Cloud Storage for me - Cloud Storage Providers **(Assignment)**: Amazon Simple Storage Service (S3)- Nirvanix - Google Big table Data store- MobileMe- Live Mesh - Software as a Service: Overview**(Seminar**) : Advantages – Software – Considerations - Vendor Advantages-Limitations -Driving Forces: Popularity - Virtualization Benefits - SaaS and SOA -Economic Impact Company Offerings: Intuit- Google – Microsoft - IBM.

UNIT – V: Software plus Services (Inst Hrs:12)

Overview: Pros – Cons – Vendors - Mobile Device Integration**(ICT)**: Google Android - Providers: Adobe AIR - Apple iPhone SDK - Developing Applications: Google Payment Force.com and Google Gears - Microsoft: Live Services - Microsoft SQL Services - Microsoft .NET Services - Microsoft SharePoint Services and Dynamics CRM Services - Migrating to the Cloud: Cloud Services for Individuals: Available Services - Skytap Solution - Cloud Services Aimed at the Mid Market:Force.com - Enterprise - ClassCloud Offerings: MS Exchange – Vmotion - VMware VCenter Converter – Hyper - VLive Migration**.**

TEXT BOOK (S):

1. Anthony T.Velte Toby J. VelteRobert Elsenpeter, "Cloud Computing: A practical Approach", TataMcGrow Hill, 2010

REFERENCE BOOK (S):

1. Barrie Sosinsky, ”Cloud Computing Bible”, 2011, Wiley Publishers. 2.Kris Jamsa, ”Cloud Computing”,2015,Jones and Bartlett India Pvt Ltd.

ONLINE RESOURCE (S):

1. https://www.tutorialspoint.com/cloud_computing/cloud_computing_tutorial.pdf
2. https://www.javatpoint.com/cloud-computing-tutorial

COURSE OUTCOMES

After the successful completion of the Course the Students shall be to able to,

CO - 1. Explain the knowledge about basics of cloud computing **– K2**

CO - 2. Illustrate the services in cloud **– K2**

CO - 3. Make use of Cloud Network Security and services **–K3**

CO - 4. Survey about the overview of Storage on cloud **–K4**

CO - 5. Interpret the services of software plus **–K6**

Relationship Matrix for CO, PO, PSO

Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	2	2	2	1	2	2	1	2	3	2
CO-2	1	2	1	3	2	3	2	2	3	2
CO-3	1	1	2	2	1	2	3	2	2	2
CO-4	2	3	2	2	2	3	2	2	2	2
CO-5	2	2	2	3	1	2	2	2	2	2

Mean Overall Relationship is 2.02 which is Medium

Title of the Course **:** ANDROID PROGRAMMING

Category of the Course **:** Skill Enhancement Course-3

Course Code **:** U6R2CASEC3:1

Nature of the Skill **:** Skill Development and Employability skill

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week** : 05

Credits **:** 02 **Total Inst. Hrs** **:** 75

COURSE OBJECTIVES

C obj – 1. To introduce the knowledge on the android application development

C obj - 2. To study the types of intent

C obj - 3. To Gain the Knowledge of android life cycle .

C obj - 4. To study the sqlite Database

C obj - 5. To learn the concept of publishing App

UNIT –I: Basics of Android Programming (Inst Hrs:15)

Introduction - History about Android operating system - Android program structure**(ICT)** - User interface - Building blocks of User interface**(seminar)** - Android Layout types**(Assignment)** - Layout attributes - Toasts - Activity.

UNIT – II: Types of intent (Inst Hrs:15)

Dialogs - Intent - types of intent**(seminar)** - Explicit and Implicit intent - Intent datatransfer from one activity to another - Android switch button.

UNIT – III: Android Life cycle (Inst Hrs:15)

Android life cycle: Android Activity life cycle**(ICT)** - menus - menu Activity -Synchronous Task - Recycler view - Broadcast receiver and Notification.

UNIT – IV: sqlite database **(Inst Hrs:15)**

Shared preferences - sqlite Database**(seminar)** - Alarm manager - alarm Types - Androidservices.

UNIT – V: Publishing App **(Inst Hrs:15)**

Testing Activity**(Assignment)** - Publishing App**(ICT)** - steps of Publishing App.

TEXT BOOK (S):

1."Android For Beginners " Pratiyash Guleria, BPB publications.

REFERENCE BOOK (S):

1. "Android programming for Beginners " - By John Horton, Packt
2. "Android system programming " By Roger Ye, Packt

ONLINE RESOURCE (S):

1.https://www.tutorialpoints.com/android/index.htm

COURSE OUTCOMES

After the successful completion of the Course the Students shall be to able to,

CO - 1. Understand clearly to basic concept of Android programming **– K3**

CO - 2. Apply the concept of intent in Android **–K3**

CO - 3. Develop the menu activity **–K6**

CO - 4. Analyse the skill of sqlite database **–K4**

CO - 5. Develop the knowledge of publishing App **–K6**

Relationship Matrix for CO, PO, PSO

Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	2	2	3	3	2	1	2	3	1	3
CO-2	2	2	2	2	2	2	1	2	2	2
CO-3	1	3	2	2	2	1	2	2	1	3
CO-4	2	2	1	3	2	2	2	1	3	2
CO-5	2	2	2	2	1	2	2	3	2	2

Mean Overall Relationship is 2.00 which is HIGH

Title of the Course **:** E-COMMERCE TECHNOLOGIES

Category of the Course **:** Skill Enhancement Course-3

Course Code **:** U6R2CASEC3:2

Nature of the Skill **:** Skill Development and Employability Skill

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week** : 05

Credits **:** 02 **Total Inst. Hrs** **:** 75

COURSE OBJECTIVES

C obj - 1. Understand concept of Ecommerce and its types

C obj - 2. Study the various online payment and marketing on Web

C obj - 3. Understand various E-business Strategies.

C obj - 4. Gain the Knowledge of Internet Banking

C obj - 5. Learn the concept of mobile commerce

UNIT –I: Fundamentals of E-Commerce (Inst Hrs:15)

History of E-commerce and Indian Business Context: E-Commerce - Emergence of the Internet - Emergence of the WWW**(ICT)** - Advantages of E-Commerce - Transition to E-Commerce in India - The Internet and India - E-transition Challenges for Indian Corporate**(Seminar)**.

UNIT – II: E-Business Models (Inst Hrs:15)

Business Models for E-commerce: Business Model**(ICT)** - E-business Models Based on the Relationship of Transaction Parties - E-business Models Based on the Relationship of Transaction Types.

UNIT – III: World Wide Web Technologies (Inst Hrs:15)

Enabling Technologies of the World Wide Web: World Wide Web - Internet Client-Server Applications**(Assignment)** - Networks and Internets -

Software Agents - Internet Standards and Specifications - ISP.E-Marketing : Traditional Marketing - Identifying Web Presence Goals - Online Marketing**(Seminar)** - E-advertising -Ebranding.

UNIT – IV: Internet Banking (Inst Hrs:15)

E-Payment Systems: Main Concerns in Internet Banking - Digital Payment Requirements - Digital Token-based e-payment Systems - Classification of New Payment Systems**(Assignment)** - Properties of Electronic Cash - Cheque Payment Systems on the Internet**(ICT)**.

UNIT – V: Mobile Commerce Technologies (Inst Hrs:15)

Information systems for Mobile Commerce: Introduction - Wireless Applications - Cellular Network - Wireless Spectrum - Technologies for Mobile Commerce - Wireless Technologies**(Seminar)**.

TEXT BOOK (S):

1. P.T.Joseph, "E-Commerce - An Indian Perspective", 4th Edition, PHI a. Learning, 2012.

2. C Xavier, "World Wide Web Design with HTML", 13th Reprint, Tata McGrawHill, 2006.

3. A.Leon and M.Leon, "Introduction to Information Technology", 1stEdition,Vijay Nicole Publications, 2013.

REFERENCE BOOK (S):

1. David Whiteley, "E-Commerce Strategy, Technologies and Applications",
1stEdition, Tata Mc-Graw-Hill, 2001.

2. Kamalesh K Bajaj and Debjani Nag, "E-Commerce - The cutting edge of Business", 2nd Edition, Tata McGraw-Hill Education, 2005.

ONLINE RESOURCE (S):

1. https://www.bigcommerce.com
2. https://www.salesforce.com

COURSE OUTCOMES

After the successful completion of the Course the Students shall be to able to,

CO - 1. Apply the concept of E-Commerce **–K3**

CO - 2. Develop the E-Business Model **-K3**

CO - 3. Identify the WWW technologies **-K3**

CO - 4. Apply the Internet banking in real life **-K3**

CO - 5. Build the wireless technologies in E-Commerce **-K6**

Relationship Matrix for CO, PO, PSO

Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	2	1	3	2	2	1	3	3	3	1
CO-2	3	2	2	1	2	2	3	1	2	2
CO-3	2	1	3	1	2	3	2	3	1	3
CO-4	1	2	3	1	2	2	3	2	2	2
CO-5	2	2	2	3	2	2	3	3	1	3

Mean Overall Relationship is 2.28 which is HIGH

Title of the Course : COMPUTER SKILL DEVELOPMENT COURSE

Category of the Course : Generic Elective Course

Course Code : U6R2CAGEC1

Nature of the Skill : Employability

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week** : 02

Credits : 02 **Total Inst. Hrs** : 30

COURSE OBJECTIVES

C obj - 1. To understand the basics of computer.

C obj - 2. To understand the concept of computer component.

C obj - 3. To get the knowledge about programming languages.

C obj - 4. To understand the concept of computer networks.

C obj - 5. To get the knowledge about applications of computer.

UNIT - I: Introduction to Computer (Inst Hrs: 06)

Generations of Computer - Types of Computers **(ICT)** - Characteristics of Computers - Purpose of Computer – Limitations of Computer - Classification of Digital Computer Systems - Functions and Components of a Computer **(Assignment)**.

UNIT - II: Computer Components (Inst Hrs: 06)

Memory Units - Main and Auxiliary Storage Devices **(Seminar)** - Input Devices - Output Devices - Classification and Characteristics of Output Devices - Introduction to Computer Software: System Software and Application Software.

UNIT - III: Programming languages (Inst Hrs: 06)

Types of Programming Languages - General Software Features and Trends - Data Processing - Introduction to Database Management Systems **(Assignment)** - Introduction to Telecommunications.

UNIT - IV: Computer Networks **(Inst Hrs: 06)**

Types o-f Networks - Network Topologies - Network Protocols - Network Architecture - Communication Systems **(ICT)** - Internet and World Wide Web: Internet Access and Basics - Internet Protocols - Internet Addressing – WWW – HTML **(Seminar)** - E-mail **(Seminar)** - Introduction to Multimedia

UNIT - V: Applications of Computers **(Inst Hrs: 06)**

Computers In Business and Industry- Computers in Home- Computers in Education and Training- Computers in Entertainment, Science, Medicine And Engineering **(ICT)**.

TEXTBOOK (S):

1. Alexis Leon, Mathews Leon "Fundamentals of Information Technology", Vikas Publications, 1999.

REFERENCE BOOK (S):

1. Dennis P.Curtin, Kim Foley, Kunal Sen, Cathleen Morin "Information Technology the breaking wave", TATA-McGRAW-HILL 2007.
2. V.Rajaraman, "Introduction to Information Technology", PHI Learning Private Limited, 2003.

ONLINE RESOURCE (S):

1. https://www.tutorialspoint.com/data_communication_computer_network

COURSE OUTCOMES:

After the successful completion of the Course the Students shall be able to,

1. Summarize the knowledge about computers and its types **- K2**
2. Exploit the skills about Input, Output and Memory Units **- K3**
3. Acquire the competence of computers and its applications **- K3**
4. Apply the knowledge about various types of programming language **- K3**
5. Show the insight about role of computers in human life **- K2**

Relationship Matrix for CO, PO, PSO

Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	3	2	2	3	2	3	3	3	3	3
CO-2	3	2	3	1	2	3	2	2	2	3
CO-3	3	1	2	1	2	2	2	2	3	3
CO-4	3	3	1	2	3	2	3	2	2	2
CO-5	3	3	2	1	2	2	2	2	2	2

Mean Overall Relationship is 2.28 which is HIGH

Title of the Course : INTERNET SKILL DEVELOPMENT COURSE

Category of the Course : Generic Elective Course

Course Code : U6R2CAGEC2

Nature of the Skill : Employability and Skill development

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week** : 02

Credits : 02 **Total Inst. Hrs** : 30

COURSE OBJECTIVES

C obj - 1. To understand the basics of Internet concepts.

C obj - 2. To understand the web servers, browsers, security.

C obj - 3. To get the knowledge about creating websites and markup languages.

C obj - 4. To get the knowledge about searching and web casting techniques.

C obj - 5. To get the knowledge about network and security programming.

UNIT - I: Introduction to Network and Internet (Inst Hrs: 06)

Basics of Networks – Topologies of Networks - Layering in Networks – Switching in the Network – Bridges, Routers and Gateways – Types of Networks **(ICT)**. Internet: Basics of Internet – Addresses and Names for the Internet, Web Objects and Sites – E Mail **(Seminar)** - WWW – FTP - Telnet.

UNIT - II: Web Servers, Browsers and Security (Inst Hrs: 06)

The Web Server – Proxy Server – The Fast Ready Connection on the Web – Web Browsers – Netscape Communication Suite – Microsoft Internet Explorer **(Seminar)** – The Virus Menace in the Internet – Firewalls – Data Security.

UNIT - III: Creating Websites and Markup Language (Inst Hrs: 06)

The Art of Creating a Web Site – Hypertext and HTML – HTML Document Features – Document Structuring Tags in HTML – Special Tags in HTML **(Assignment)** – Dynamic HTML – XML for Universal Format for the Data on the web – Microsoft Front Page

UNIT - IV: Searching and Web Casting Techniques (Inst Hrs: 06)

Introduction – Search – Subscription – Web Casting **(Assignment)** – Web Casting Channel Push Technology Mode – Search Alerts – Searching Citation –Search Engines – Search Tools **(ICT)** – Using Navigator, Using Internet Explorer, Saving Search Results – Subscribing – Channels.

UNIT - V: Network and Security Programming (Inst Hrs: 06)

Network Programming **(Seminar)** – URL Classes – Socket Classes – Programming for Security – CGI – Four Steps for CGI Script – CGI Script Language **(ICT)** – Scripting Language "Java Script" – Dynamic Page Functionality using Servlets and JSPs – Using ASP, COMs, DCOMs.

TEXTBOOK (S):

1. Raj Kamal, "Internet and Web Technologies" Tata McGraw- Hill Publishing company
   limited, New Delhi

REFERENCE BOOK (S):

1. K.L.James ,"The Internet - A User's Guide", PHI Learning Private Limited 2010.

ONLINE RESOURCE (S):

1. https://www.w3schools.com/

COURSE OUTCOMES:

After the successful completion of the Course the Students shall be able to,

1. Outline about hte Internet and its Applications **- K2**
2. List the skills of Servers, Browsers and Security **- K1**
3. Make use of HTML and XML in designing web pages **- K3**
4. Chose opt words for Searching and utilize web search engine **- K5**
5. Know where to apply the knowledge about network and security programming – **K1,K3**

Relationship Matrix for CO, PO, PSO

Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	3	1	1	2	3	3	2	2	3	3
CO-2	3	3	2	2	2	3	2	2	2	3
CO-3	2	2	1	2	2	2	3	2	2	3
CO-4	3	2	1	2	2	2	2	3	3	3
CO-5	3	2	2	2	3	3	3	3	3	3

Mean Overall Relationship is 2.36 which is HIGH

Title of the Course : COMPUTER APPLICATIONS IN CHEMISTRY

Category of the Course : Generic Elective Course

Course Code : U6R2CAGEC3

Nature of the Skill : Employability

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week** : 02

Credits : 02 **Total Inst. Hrs** : 30

COURSE OBJECTIVES

C obj - 1. To enable the students to learn the basics of computer.

C obj - 2. To understand the concept of operating systems and its types.

C obj - 3. To learn computer network basics.

C obj - 4. To introduce the concept of C programming to the learners.

C obj - 5. To enable the students to apply the concept of C Programming in applications of Chemistry.

UNIT - I: Introduction to Computer (Inst Hrs: 06)

Characteristics of Computers – Organization of A Computer – Secondary Storage Devices – Computer Languages – Low Level, Assembly and High Level Languages – Software – System and Application Software – Applications of Computer (ICT) – Algorithms and Flow Charts.

UNIT - II: Operating system (Inst Hrs: 06)

MS-DOS, Simple DOS Commands – MS-Windows - Components of Windows – Desktop, My Computer, Recycle Bin, Taskbar, My Briefcase and Network Neighborhood – Windows Accessories – Calculator, Games, Windows Media Player, Notepad and Imaging – Windows Explorer. Power Point – Creating a Presentation – Slide Preparation (Seminar).

UNIT - III: Fundamentals of Computer Networks (Inst Hrs: 06)

Importance – Mode of Connections – Protocol – Network Topologies – Bus, Ring And Star Topologies – Network Architecture – Network Components – Hubs , Cables, Repeaters, Routers and Bridges, Internet and its Application: Internet – Meaning – Importance –WWW (Assignment) – Browsing the Internet – Browsing Software – URL Addresses, Search Engines, Exploring Websites and Downloading Materials from Websites, E-Mail – Sending, Receiving and Storing Mail and Chatting.

UNIT - IV: Fundamentals of C (Inst Hrs: 06)

Character Set – Identifiers – Keywords – Data Types – Constants – Variables – Symbolic Constants – Operators – Expressions – Evaluation Of Expressions. Input And Output Functions - getchar – putchar – scanf – printf – gets and puts Functions (ICT).

UNIT – V: Applications of C - Programming: (Inst Hrs: 04)

Basic Structure of C – Programming - Conversion of temperature from Kelvin to Celsius- Calculation of rate constant using first order rate equation- Calculation of root mean square, average and most probable velocities of molecules- Calculation of Bohr radius- pH determination using Henderson equation- Determination of vander Waals constants **(ICT)**

TEXT BOOK (S):

1. E. Balagurusamy “Programming in ANSI C” 6th Ed.,Tata McGraw-Hill – New Delhi.
2. Pundir Ansu Bansal “Computers for Chemists” 9th Ed., Pragati Prakashan Publication, 2011.
3. Andrews Tenenbaum “Computer Networks” 4th Ed., Prentice-Hall of India Pvt.Ltd. New Delhi -110 001.

REFERENCE BOOK (S):

1. Kishor Arora “Computer Application in Chemistry” 1st Ed., Anmol Publications Pvt. Ltd. 2004.
2. K.V.Raman “Computer Chemistry” Tata Mc Graw Hill 2003.

ONLINE RESOURCE (S):

1. https://www.w3schools.in/c-tutorial
2. https://www.tutorialspoint.com/data_communication_computer_network

COURSE OUTCOMES:

After the successful completion of the Course the Students shall be able to,

1. Apply the knowledge about computer in real life **- K3**
2. Understand the need for operating system **- K2**
3. Understand the fundamentals of computer networks **- K2**
4. Understand the basics of the programming language C **- K2**
5. Make use of the applications of 'C' in Chemistry **- K3**

Relationship Matrix for CO, PO, PSO

Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)				
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO-1	3	2	2	1	2	3	2	3	2	2
CO-2	3	1	2	1	2	2	3	3	2	2
CO-3	3	3	3	3	3	3	3	3	3	3
CO-4	3	1	1	1	2	2	1	2	1	2
CO-5	3	2	1	1	3	2	2	2	3	3

Mean Overall Relationship is 2.22 which is HIGH

Title of the Course : GENDER STUDIES

Category of the Course : AECC-3

Course Code : U6R2AECC3

Nature of the Skill : Life Skills

Marks : CIA : 25 + Ext: 75 = 100 **Hrs / Week :** 02

Credits : 01 **Total Inst. Hrs :** 30

UNIT I : (Inst.Hrs : 06)

Concept of Gender: Sex Gender – biological Determinism – Patriarchy – Feminism – Gender Discrimination – Gender Division of Labour – Gender stereotyping – Gender sensitivity Gender Equality – Gender mainstreaming – empowerment.

UNIT II : (Inst.Hrs : 06)

Women's studies Vs Gender studies: UGC's Guidelines – VIII to XI Plans, Gender studies Beijing conference and CEDAW – Exclusiveness and inclusiveness.

UNIT III : (Inst.Hrs : 06)

Areas of Gender discrimination: Family, Sex ratio literacy, Health, Governance, religion Work Vs employment – Market, Media, Politics, Law, Domestic violence, Sexual Harassment, State politics and planning.

UNIT IV : (Inst.Hrs : 06)

Women development and gender empowerment: initiatives, International Women's decade, International women's year, National policy for Empowerment of women, women Empowerment year 2011, Mainstreaming global policies.

UNIT V : (Inst.Hrs : 06)

Women's Movements: In India National / State Commission for Women (NCW), all women police station, Family court, Domestic violence Act, Prevention of Sexual Harassment at work place supreme court guidelines, Maternity Benefit Act, PNDT Act, Hindu Succession Act 2005, Eve teasing prevention Act, Self help groups, 73rd and 74th amendment for PRIS.

REFERENCE

1. Bhasin kamala, Understanding Gender: Gender basics, New Delhi: Women Unlimited, 2004.
2. Rajadurai , S.v, Geetha V, Themes in caste Gender and Religion, Trichy, Bharathidasan University, 2007.
3. Pauldi, A Michele (ed...) Prager guide to the Psychology of Gender.

Relationship Matrix for CO, PO, PSO

Title of the Course : **VALUE EDUCATION**						Course code : **U3R2EGAECC2**					
Course Outcome (CO)	Programme Outcome (PO)					Programme Specific Outcome (PSO)					**Mean Score of COs**
	PO 1	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PSO 1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**	
CO – 1	2	3	3	2	3	3	2	3	2	3	2.6
CO – 2	3	2	3	2	2	3	2	2	2	1	2.2
CO – 3	2	3	2	3	2	2	2	2	2	3	2.3
CO – 4	3	3	3	2	3	2	2	3	2	1	2.4
CO – 5	2	2	3	3	2	2	3	3	3	2	2.5
									Mean Overall Score		**2.40**
									Result		**HIGH**