



SRM
INSTITUTE OF SCIENCE & TECHNOLOGY
(Deemed to be University u/s 3 of UGC Act, 1956)

**BACHELOR OF SCIENCE
IN
COMPUTER SCIENCE**

**Curriculum and Syllabus
(For Students admitted from academic year 2018 – 2019 onwards)**

UNDER CHOICE BASED CREDIT SYSTEM

**DEPARTMENT OF COMPUTER SCIENCE
FACULTY OF SCIENCE AND HUMANITIES
SRM INSTITUTE OF SCIENCE AND TECHNOLOGY
SRM NAGAR, KATTANKULATHUR – 603 203**

Program Educational Objectives (PEOs)

- PEO1. Graduates will have skills and knowledge to excel in their professional career in Computer Science and related disciplines
- PEO2. Graduates will contribute and communicate effectively within the team to grow into leaders
- PEO3. Graduates will practice lifelong learning for continuing professional development
- PEO4. Graduates will have the capability to continue their formal education and successfully complete an advanced degree
- PEO5. Graduates will contribute to the growth of the nation and society by applying acquired knowledge in technical, computing and managerial skills.

Student outcomes (SOs)

The curriculum and syllabus for Bachelor degrees (2018) conform to outcome based teaching learning process. In general, FOURTEEN STUDENT OUTCOMES (a-n) have been identified and the curriculum and syllabus have been structured in such a way that each of the courses meets one or more of these outcomes. Student outcomes describe what students are expected to know and be able to do by the time of graduation. These relate to the skills, knowledge, and behaviors that students acquire as they progress through the program. Further each course in the program spells out clear instructional objectives which are mapped to the student outcomes.

- a. An ability to apply knowledge of computing, mathematics, and basic sciences appropriate to the discipline
- b. An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
- c. An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
- d. An ability to function effectively on teams to accomplish a common goal
- e. An understanding of professional, ethical, legal, security and social issues and responsibilities
- f. An ability to communicate effectively with a range of audiences
- g. An ability to analyze the local and global impact of computing on individuals, organizations, and society
- h. Recognition of the need for and an ability to engage in continuing professional development
- i. An ability to use current techniques, skills, and tools necessary for computing practice.
- j. An ability to use and apply current technical concepts and practices in the core information technologies

- k. An ability to identify and analyze user needs and take them into account in the selection, creation, evaluation, and administration of computer-based systems
- l. An ability to effectively integrate IT-based solutions into the user environment
- m. An understanding of best practices and standards and their application
- n. An ability to assist in the creation of an effective project plan.

**BACHELOR OF SCIENCE
IN
COMPUTER SCIENCE
(For Students admitted from academic year 2018 – 2019)**

CURRICULUM

SEMESTER I

CAREER STREAM TITLE	COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
Language	ULT18101	Tamil - I	4	1	0	5	4
	ULH18101	Hindi – I					
	ULF18101	French – I					
	ULE18101	English –I					
Compulsory Core	UCS18101	Digital Logic Fundamentals	4	0	0	4	4
	UCS18102	Problem Solving Techniques	4	0	0	4	4
Compulsory Core Lab	UCS18103	Digital Logic Fundamentals Laboratory	0	0	3	3	2
	UCS18104	C Laboratory	0	0	3	3	2
Allied	UCS18105	Mathematics – I	4	0	0	4	4
Supportive Course	CAC18101	Soft Skills (Internal Evaluation Only)	2	0	0	2	2
Total			22	2	6	30	26

SEMESTER II

CAREER STREAM TITLE	COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
Language	ULT18201	Tamil - II	4	1	0	5	4
	ULH18201	Hindi – II					
	ULF18201	French –II	4	1	0	5	4
	ULE18201	English –II					
Compulsory Core	UCS18201	Object Oriented Programming Using C++	4	0	0	4	4
	UCS18202	Data Structures	4	0	0	4	4
Compulsory Core Lab	UCS18203	C++ Laboratory	0	0	3	3	2
	UCS18204	Open Office Laboratory	0	0	3	3	2
Allied	UCS18205	Mathematics – II	4	0	0	4	4
Supportive Course	CAC18201	Quantitative Aptitude and Logical Reasoning – I (Internal Evaluation Only)	2	0	0	2	2
Extension Activity	UNS18201	NSS	0	0	0	0	1
	UNC18201	NCC					
	UNO18201	NSO					
	UYG18201	Yoga					
Total			23	2	5	30	27

SEMESTER III

CAREER STREAM TITLE	COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
Compulsory Core	UCS18301	Java Programming	4	1	0	5	4
	UCS18302	Multimedia And Its Applications	4	1	0	5	4
Compulsory Core Lab	UCS18303	Java Programming Laboratory	0	0	4	4	2
	UCS18304	Multimedia Laboratory	0	0	4	4	2
Allied	UCS18305	Statistical Methods	4	1	0	5	4
Skill Based Electives-I	UCS18E51	Software Engineering	3	0	0	3	3
	UCS18E52	Operating System					
	UCS18E53	Computer Organization and Architecture					
Non-major Elective-I	*	Open Electives – I	–	–	–	–	2
Supportive Course	CAC18301	Quantitative Aptitude and Logical Reasoning – II (Internal Evaluation Only)	2	0	0	2	2
Total			18	3	9	30	23

- Theory and Laboratory sessions depend on the subjects opted by the students.

SEMESTER IV

CAREER STREAM TITLE	COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
Compulsory Core	UCS18401	Data Base Management Systems	4	1	0	5	4
	UCS18402	Scripting Languages	4	1	0	5	4
Compulsory Core Lab	UCS18403	Data Base Management Systems Laboratory	0	0	4	4	2
	UCS18404	Scripting LanguagesLaboratory	0	0	4	4	2
Allied	UCS18405	Resource Management Techniques	4	1	0	5	4
Skill Based Electives-II	UCS18E54	Software Project Management	3	0	0	3	3
	UCS18E55	Software Testing					
	UCS18E56	Management Information Systems					
Non-major Elective-II	*	Open Electives – II	-	-	-	-	2
Supportive Course	CAC18401	Verbal Ability and Reasoning(Internal Evaluation Only)	2	0	0	2	2
Total			18	3	9	30	23

- Theory and Laboratory sessions depend on the subjects opted by the students.

SEMESTER V

CAREER STREAM TITLE	COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
Compulsory Core	UCS18501	Advanced Java Programming	4	1	0	5	4
	UCS18502	Open Source Technology	4	1	0	5	4
	UCS18503	Data Communication and Network	4	1	0	5	4
Compulsory Core Lab	UCS18504	Advanced Java Programming Laboratory	0	0	4	4	2
	UCS18505	Open Source Technology laboratory	0	0	4	4	2
Core Elective - I	UCS18E01	Data Mining	4	0	0	4	4
	UCS18E02	Compiler Design					
	UCS18E03	Software Agent					
Supportive	UES18501	Environmental Studies	3	0	0	3	3
Total			19	3	8	30	23

SEMESTER VI

CAREER STREAM TITLE	COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
Compulsory Core	UCS18601	Python	4	1	0	5	4
	UCS18602	Object Oriented Analysis and Design	4	1	0	5	4
Compulsory Core Lab	UCS18603	Python Laboratory	0	0	4	4	2
	UCS18604	Mini Project	1	1	4	6	4
Core Elective -II	UCS18E04	Artificial Intelligence & Expert Systems	4	0	0	4	4
	UCS18E05	E- Commerce					
	UCS18E06	System Software					
Core Elective - III	UCS18E07	Web Intelligence	4	0	0	4	4
	UCS18E08	Cloud Computing					
	UCS18E09	Big Data Analytics					
Supportive Course	CAC18601	Communication Skills (Internal Evaluation Only)	2	0	0	2	2
Total			19	3	8	30	24

Total Credits to be earned for the degree: 146

SEMESTER I

குறியீட்டுஎண்	பாடம்	L	T	P	Total LTP	C
ULT18101	தமிழ் - I	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	இரண்டாயிரம் ஆண்டுகாலத்தமிழின்தொன்மையையும்வரலாற்றையும்அதன்விழுமியங்களையும்பண்பாட்டையும்எடுத்துரைப்பதாகஇப்பாடத்திட்டம்அமைக்கப்பட்டுள்ளது	e	f	h	m	n
2.	காலந்தோறும்தமிழ்இலக்கியம்உள்ளடக்கத்திலும், வடிவத்திலும்பெற்றமாற்றங்கள், அதன்சிந்தனைகள், அடையாளங்கள்ஆகியவற்றைகாலந்தோறும்எழுதப்பட்டஇலக்கியங்களின்வழியாகக்கூறுவதாகவும், மொழியின்கட்டமைப்பைப்புரிந்துகொள்வதாகவும் பாடத்திட்டம்வடிவமைக்கப்பட்டுள்ளது.	e	f	h	n	
3.	வாழ்வியல்சிந்தனைகள், ஒழுக்கவியல்கோட்பாடுகள், சமத்துவம், சூழலியல்எனப்பலகூறுகளைமாணவர்களுக்குஎடுத்துரைக்கும்விதத்தில்இப்பாடத்திட்டம்உருவாக்கப்பட்டுள்ளது.	e	f	d	n	

அலகு - 1

இக்காலக்கவிதைகள் - 1

1. பாரதியார் - கண்ணன்என்சேவகன்
2. பாரதிதாசன் - தமிழ்ப்பேறு
3. அப்துல்ரகுமான் - அவதாரம்
4. மீரா - கனவுகள் + கற்பனைகள் = காகிதங்கள்
5. து. நரசிம்மன் - மன்னித்துவிடுமகனே

அலகு - 2

இக்காலக்கவிதைகள் - 2

1. ராஜாசந்திரசேகர் - கைவிடப்பட்டகுழந்தை
2. அனார் - மேலும்சிலஇரத்தக்குறிப்புகள்
3. சுகிர்தராணி - அம்மா
4. நா.முத்துக்குமார் - தூர்

அலகு - 3

சிற்றிலக்கியம்

1. கலிங்கத்துப்பரணி - பொருடடக்கைவாள்ளங்கே... (பாடல் - 485)
2. அழகர்கிள்ளைவிடுதூது-இதமாய்மனிதருடனே... (கண்ணி - 45)
3. நந்திக்கலம்பகம் - அம்பொன்றுவில்லொடிதல்... (பாடல் - 77)
4. முக்கூடற்பள்ளு -பாயும்மருதஞ்செழிக்கவே... (பாடல் - 47)
5. குற்றாலக்குறவஞ்சி - ஓடக்காண்பதுமே... (பாடல்- 9)

காப்பியங்கள்

மணிமேகலை - உலகவறவிபுக்ககாதை - "மாசுஇல்வால்ஒளி! - இந்நாள்போலும்இளங்கொடிகெடுத்தனை". (28 அடிகள்)

அலகு - 4 - தமிழ்இலக்கியவரலாறு

1) சிற்றிலக்கியம் - தோற்றமும்வளர்ச்சியும், 2) புதுக்கவிதை - தோற்றமும்வளர்ச்சியும், 3) சிறுகதை- தோற்றமும்வளர்ச்சியும், 4) புதினம் - தோற்றமும்வளர்ச்சியும், 5) உரைநடை - தோற்றமும்வளர்ச்சியும்

அலகு -5

மொழிப்பயிற்சி

1.கலைச்சொல்லாக்கம், 2.அகரவரிசைப்படுத்துதல், 3. மரபுத்தொடர் / பழமொழி, 4. கலைவிமர்சனம், 5. நேர்காணல்

உரைநடைப்பகுதி

1. உ.வே.சாமிநாதையர் -சிவதருமோத்திரச்சுவடிபெற்றவரலாறு,
2. தஞ்சாவூர்க்கவிராயர் -கூஜாவின்கோபம்,
3. இரா.பச்சியப்பன் - மாடல்லமற்றையவை

பார்வைநூல்கள்

சுப்பிரமணியம், பி., சிங்களத்தமிழர் அறிவியல், பச்சையம், 1968.
சுப்பிரமணியம், பி. பி., சிங்களத்தமிழர் அறிவியல், பச்சையம், 1989.
சுப்பிரமணியம், பி. பி., சிங்களத்தமிழர் அறிவியல், பச்சையம், 1998,
சுப்பிரமணியம், பி. பி., சிங்களத்தமிழர் அறிவியல், பச்சையம், 2011
சுப்பிரமணியம், சிங்களத்தமிழர் அறிவியல், பச்சையம், 1992.

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
ULH18101	HINDI-I	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES		Student Outcomes				
At the end of this course the learner is expected:						
1.	To express and communicate literature which is part of life	e	f	h	m	n
2.	To incorporate day to day personal and professional life's need to communicate in the language.	e	f			
3.	To help the students to imagine and express their mind through literature	e	f			

UNIT -I - PROSE

(35 Hours)

1. Bade gharkibeti - Premchand
2. Vaishnavkifislan - HarishankarParsai(vyangyakatha)
3. Benamrishta - MridulaGarg
4. Utsah - RamchandarShukla (niband)
5. Puruskar - Jayshankar Prasad
6. Hardam.com - AlkaSinha

UNIT -II- ONE ACT PLAY

(15 Hours)

1. Mahabharat Ki EkSanjh- Bharat BhushanAgrawal
2. Reed Ki Haddi - JagdishChandrMathur

UNIT -III- CORRESPONDENCE

(10 Hours)

1. Official Letter
2. Demi -Official Letter

UNIT -IV- CINEMA

(10 Hours)

1. Panchlight - PhanishwarNathRenu
2. ChandiKaJuta - BalShauriReddi

UNIT -V- TECHNICAL TERMINOLOGY

(5 Hours)

REFERENCES

1. PrayojanMulak Hindi – MadhavSontakke
2. A practical guide to english translation and composition –K.P.Thakur

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

Question Paper Pattern

Second Semester

ULH 18101

HINDI I

TIME : 3HRS

MAX : 100 MARKS

Section –A (40 Marks)

1. Multiple choice question from prose (5X2=10)
(six questions, five to be answered)
2. Technical Terminology (English to Hindi) (5X2=10)
(Six questions, five to be answered)
3. Short question from prose (50 words) (5X4=20)
(Six questions, five to be answered)

Section –B (30 Marks)

4. To 10. Annotation from prose and one act play (5X6=30)
(Seven questions, Five to be answered)

Section –C (30 Marks)

11. Essay question from prose eitheror type
12. Essay question from One Act play eitheror type
13. Official letter, Demi-Official letter and Computer.

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
ULF18101	FRENCH-I	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES		Student Outcomes				
At the end of this course the learner is expected:						
1.	To encourage greater written skills through comprehension writing and composition writing	e	f	h	m	n
2.	Improve their oral and written skills through a combination of theory and practice.	e	f			
3.	Extend and expand their savoir-faire through the acquisition of latest skills and techniques by practical training.	e	f			

Unité-I (15 heures)

Salut-Saluer- Entrer en contact avec quelqu'un – se présenter – s'excuser- *tu* ou *vous* ? Les jours de la semaine – Quelques formules de politesse – L'alphabet – Quelques consignes de classe – Je, tu, vous, il. Elle – Etre – Quelques nationalités – Masculin et féminin –Les nombres de 0 à 10 – Quelques sigles.

Unité-II (15 heures)

Enchanté- Demander de se présenter – Présenter quelqu'un – La négation : ne...pas – Les adjectifs possessifs –Etre, avoir+quelques verbes en –er – C'est, il est – L'interrogation par l'intonation – Quelques professions – Les nombres de 11 à 69 – Oui, non, si. **J'adore !-** Exprimer ses goûts –échanger sur ses projet – Aller – Moi aussi – Nous, ils, elles – La conjugaisons des verbes en –er être et avoir – Faire du, de l', de la +sport – Les nombres après 69 – On=nous – Le futur proche – Quelques indicateurs de temps – Les adjectifs possessifs.

Unité-III (15 heures)

Tu veux bien – Demander à quelqu'un de faire quelque chose – Demander poliment – Parler d'actions passées –Il y a – Les articles définis et indéfinis – Les marques du pluriel des noms – Les pronoms après une préposition (avec lui, chez, moi) – Le passé composé – Pouvoir, vouloir, venir, connaître.

Unité-IV (15 heures)

On se voit quand ? - Proposer, accepter, refuser une invitation – indiquer la date – Prendre et fixer un rendez-vous –Demandez et indiquer l'heure –Les pronoms compléments directs me, te, nous, vous –Pourquoi ? Parce que – Quel(s), Quelle(s) – L'interrogation avec est-ce que – Finir- Savoir – L'heure et la date – Les mois de l'année – Quelques indicateurs de temps

Unité-V (15 heures)

Bonne idée ! – Exprimer son point de vue positif et négatif – s’informer sur le prix – S’informer sur la quantité – Exprimer la quantité – La négation : ne ...pas de – Les articles partitifs – Combien ? –Un peu de, beaucoup de,.... –Qu’est-ce que, combien – offrir, croire – Penser à, penser de – Plaire à – Les couleurs – Le masculin et le féminin des adjectifs – Les pronoms compléments directs le, la, les.

REFERENCES

“**Latitudes-1**” Méthode de français, REGIME MERIEUX, YVES LOISEAU Les éditions Didier, Paris, 2012.

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

**Question Paper Pattern
First Semester
ULF18101 French-I**

Time: 3 hours

Mark: 100

Série – A (40 Mark)

1. Distinguez le masculin et le féminin : (5Mark)
2. Complétez avec les pronoms sujets : (5Mark)
3. Mettez à la forme négative: (5Mark)
4. Complétez avec l’adjectif possessif : (5Mark)
5. Complétez les phrases avec chez ou avec : (5Mark)
6. Ecrivez les heures en toutes lettres : (5Mark)
7. Complétez avec les nationalités: (5Mark)
8. Ecrivez les adjectifs à la forme qui convient : (5Mark)

Série – B (30 Mark)

1. Conjuguez les verbes au futur proche : (5Mark)
2. Quel est le participe passé des verbes suivants : (5Mark)
3. Conjuguez les verbes au présent : (10Mark)
4. Conjuguez les verbes au passé composé : (10Mark)

Série – C (30 Mark)

1. Transformez les phrases avec « Est-ce-que »: (5Mark)
2. Répondez aux questions en utilisant (Oui, non, si) (5Mark)
3. Complétez avec le mot qui convient pour posez une question (5Mark)

4. Lisez le document et répondez aux questions : (5Mark)
 5. Complétez les phrases avec les mots de la liste : (5Mark)
 6. Associez les mots de chaque colonne (5Mark)

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
ULE18101	ENGLISH-I	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES		Student Outcomes				
At the end of this course the learner is expected:						
1.	To enable the students to think in English	e	f	h	m	n
2.	To become aware of the regional literature and the writers.	e	f	d		
3.	To equip students with the awareness and strategies needed to enable the study of English as a lifelong process.	e	f	d		

UNIT – I- POETRY

(15 Hours)

1. YayumNyayum – Kurunthogai 40
2. My Grandmother's House – Kamala Das
3. Transgender – Olivia Kent
4. Obituary – A K Ramanujam

UNIT – II-PROSE

(15 Hours)

1. On Marriages – Nirad C Choudhary
2. Response to Welcome addresses
ii)Why Do We Disagree – Swami Vivekananda
3. I have a dream – Martin Luther King

UNIT –III-SHORT STORY

(15 Hours)

- A Nincompoop – Anton Chekhov
1. The Rat – Ashokamitran
 2. Quantum of Solace – Ian Flemming
 3. Squirrel – Ambai

UNIT – IV- POPULAR LITERATURE

(15 Hours)

1. Shabdo -KaushikGanguli
2. TEDX Talks
3. John Lennon - Imagine
4. Bob Marley - No woman no cry

UNIT –V-LANGUAGE COMPONENT**(15 Hours)**

1. Spot the Errors
2. Jumbled Sentence
3. Homophones & Homonyms
4. Idioms and Phrases
5. Antonyms and Synonyms
6. Story through Images
7. Hints Development
8. Autobiography of Concrete Objects
9. Advertisements
10. Slogan Writing

TEXT BOOKS

Cambridge University Press, Raymond Murphy, Essential Grammar in Use 3rd Edition 2010

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

**Question Paper Pattern
Second Semester
ULE 18101
English I**

Time : 3hrs**Max : 100 Marks****Section –A****(40 Marks)**

1. Multiple choice Language Components Spotting the Errors
(Six question, Five to be answered) (10X1=10)
2. Autobiography of Concrete Objects (Two Passages) (5X2=10)
3. Story through Images (Two Passages) (2 X 10=20)

Section – B**(30 Marks)**

4. To 10. Annotation from Prose, Poetry and Short Story (6X5=30)

Section – C**(30 Marks)**

11. Essay question from Poem either.or type
12. Essay question from Prose...
13. Essay questions from short Stories

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18101	DIGITAL LOGIC FUNDAMENTALS	4	0	0	4	4

INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected :		Student Outcomes				
1	To Understand the concept of digital systems	a	c	b	i	i
2	To operate on various number systems and Simplify Boolean functions.	a	b	i	c	c
3	To Distinguish logical and combinational circuits	a	c	i	c	b
4	To Design counters and understand the working of arithmetic logic and control unit	a	c	i	b	c

UNIT I - NUMBER SYSTEM AND LOGIC GATES (12 Hours)

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

UNIT II - BOOLEAN ALGEBRA (12 Hours)

Boolean Algebra: Laws & Theorems - SOP, POS Methods - Simplification of Boolean Functions - Using Theorems, K-Map, Prime - Implicant Method - Implementation using Universal Gates. Binary Arithmetic: Binary Addition - Subtraction - Various Representations of Binary Numbers - Arithmetic Building Blocks - Adders - Subtracters.

UNIT III - COMBINATIONAL LOGIC (12 Hours)

Combinational Logic: Multiplexers - Demultiplexers - Decoders - Encoders - CodeConverters - Parity Generators & Checkers - PAL - PLA.

UNIT IV - FLIP FLOP (12 Hours)

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

UNIT V - COUNTERS (12 Hours)

Counters: Asynchronous Counters Ripple, Mod, Up-Down Counters- Decoding Gates - Synchronous Counters - Ring, Decade, Presettable, Shift Counters. Memory: Basic Terms & Ideas - Magnetic Memories - Memory Addressing - Types of ROMs - Types of RAMs.

TEXT BOOKS

1. Leach.D.P&Malvino.A.P, (2002), "Digital Principles and Applications", FifthEdition, TMH.(UNIT I,II,III)
2. MorisMano.M,(2001),"Digital Logic and Computer Design", Forth Edition,

REFERENCES

1. Vijayendran. V, (2003), “Digital Fundamentals”, S.V. Publishers.
2. AnanthiShashasaayee, Sheshasaayee.J.G,(2003), “Digital Logic Fundamentals”,First Edition ,Marham Publications.

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18102	PROBLEM SOLVING TECHNIQUES	4	0	0	4	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected		Student Outcomes				
1	To acquire basic knowledge about Programming in C	a	c	i	b	i
2	To gather extensive knowledge in C programming and developing	a	b	i	b	i
3	programming skills	a	c	i	b	i
4	To strengthen the knowledge on structures, arrays etc,of C programming	a	c	i		

UNIT I - INTRODUCTION

(12 Hours)

C fundamentals Character set - Identifier and keywords - data types - constants - Variables - Declarations - Expressions - Statements - Arithmetic, Unary, Relational and logical , Assignment and Conditional Operators –Libraryfunctions.

UNIT II - CONTROL STRUCTURES

(12 Hours)

Data input output functions - 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 - FUNCTIONS

(12 Hours)

Functions -Definition - prototypes - Passing arguments - Recursion.Storage Classes - Automatic, External, Static, Register Variables.

UNIT IV - ARRAYS**(12 Hours)**

Arrays - Defining and Processing - Passing arrays to functions - Multi-dimension arrays - Arrays and String. Structures - User defined data types - Passing structures to functions - Self-referential structures - Unions - Bit wiseoperations.

UNIT V - POINTERS**(12 Hours)**

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

TEXT BOOKS

1. Ashok N.Kamthane ,(2006), "Programming with ANSI and Turbo C" , Second Edition ,Pearson Education. (UNIT I – III)
2. Deitel.H.M. &Deitel.P.J, (2001), "How to Program C", Prentice Hall India. (UNITIV, V)

REFERENCES

1. Balagurusamy.E, (2008), "Programming in ANSI C" , Second Edition, Tata McGraw Hill.
2. KamthaneAshok.N, (2013), "Programming in C", 2nd Edition, Pearson Education.

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSECODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18103	DIGITAL LOGIC FUNDAMENTALS LABORATORY	0	0	3	3	2

INSTRUCTIONAL OBJECTIVES		Student Outcomes				
At the end of this course the learner is expected:						
1.	To acquire knowledge about basic logic gates.	a				
2.	To develop the skills in writing assembly programs.			c	e	
3.	To develop the skill for error corrections in the micro level.		b			i

LIST OF EXPERIMENTS

1. Verification of Boolean Theorems using Digital Logic Gates 4
2. Design and Implementation of Combinational Circuits using Basic Gates for Arbitrary Functions, Code Converters, Etc
3. Design and Implementation of 4-Bit Binary Adder / Subtractor using Basic Gates and MSI Devices
4. Design and Implementation of Parity Generator / Checker using Basic Gates and MSI Devices.
5. Design and Implementation of Magnitude Comparator.
6. Design and Implementation of Application using Multiplexers/Demultiplexers.
7. Design and Implementation of Shift Registers.
8. Design and Implementation of Synchronous and Asynchronous Counters.

Course Nature : Practical						
Assessment Method (Max.Marks: 100)						
In Semester	Assessment Tool	Observation Note Book	Output Result in time	Model Examination	Regularity and Discipline	Total
		Marks	10	10	20	10
End Semester	Assessment Tool	Record Note Book	Program Writing	Debugging	Result / Output	Total
	Marks	10	10	15	15	50
Total						100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18104	C LABORATORY	0	0	3	3	2

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To acquire knowledge about basic Programming skills in C	a				
2.	To develop the skills in writing C program using the features for solving different problems			c	e	
3.	To develop the skill for error corrections while executing the programs		b			i

LIST OF EXPERIMENTS

1. Program to check whether a number is positive or negative or zero using if statement.
2. Program to check vowel or consonant using switch case statement.
3. Program to check whether a number is prime or not using while statement.
4. Program to generate multiplication table using do while statement.
5. Program to check the given string is palindrome or not using for statement.
6. Program to display Fibonacci series.
7. Program to search an element in an array using linear search method.
8. Program to find the smallest and largest number among 'n' numbers.
9. Program to sort elements in an array.
10. Program to add two matrices.
11. Program for manipulating the strings using string handling functions.
12. Program to find the sum of 'n' numbers by making function.
13. Program to calculate factorial of a number using recursion.
14. Program to generate the mark sheet of the student using structure.
15. Program to copy the content of one file to other file.

Course Nature : Practical

Assessment Method (Max.Marks: 100)

In Semester	Assessment Tool	Observation Note Book	Output Result in time	Model Examination	Regularity and Discipline	Total
	Marks	10	10	20	10	50
End Semester	Assessment Tool	Record Note Book	Program Writing	Debugging	Result / Output	Total
	Marks	10	10	15	15	50
Total						100

COURSE	COURSE TITLE	L	T	P	Total	C
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CODE					LTP	
UCA18105 / UCS18105	MATHEMATICS-I	4	0	0	4	4

Common to BCA / B.Sc (Computer Science)

INSTRUCTIONAL OBJECTIVES		Student Outcomes				
At the end of this course the learner is expected:						
1.	To apply basic concepts for clear understanding of mathematical principles	a	b	e	i	b
2.	To solve practical problems	a	b			

UNIT -I- SETS, RELATIONS AND FUNCTIONS

Sets: sets, representation of sets, types of sets, operation on sets, Venn diagram.

Relation: Types of relation, equivalence relation.

Function: types of functions, composite of two functions, composite of three functions

UNIT -II-MATHEMATICAL CONNECTIVES

Logic - Statements, connectives, conjunction, disjunction, negation, tautology, contradiction, logical equivalence, tautological implications, arguments, validity of arguments – Normal forms – Principal disjunctive normal form - Principle conjunctive normal form.

UNIT - III-THEORY OF EQUATIONS

Polynomial equations, irrational roots, complex roots, (up to third order equations only) - Reciprocal equations, Approximation of roots of a polynomial equation by Newton's and Horner's methods.

UNIT -IV - MATRICES

Symmetric, Skew symmetric, Hermitian, Skew Hermitian, Orthogonal, Unitary matrices – Cayley Hamilton Theorem – Eigen values – Eigen vectors – solving the equations using Cramers rule.

UNIT - V-DIFFERENTIATION

Simple problems only – maxima and minima of functions of single variable – Radius of curvature (Cartesian co– ordinate) – partial differentiation – Euler's theorem.

TEXT BOOKS

1. Veerarajan, T. (2006) Discrete Mathematics, 7th Edition, Tata-Macgrawhill, New Delhi.
2. Singaravelu, A. (2011) ALLIED MATHEMATICS, 3rd Edition, Meenakshi Agency, Chennai.

Treatment as in: DISCRETE MATHEMATICS by Veerarajan, T.

Unit I: Chapter2 (pg.no: 51-70), Chapter4 (pg.no: 182-186) of

Unit II: Chapter 1(pg.no: 1-14)

Treatment as in: ALLIED MATHEMATICS by Singaravelu, A.

Unit III: Chapter 3(3.1 – 3.18, 3.36 – 3.60)

Unit IV: Chapter2 (2.1-2.22, 2.68-2.140)

Unit V: Chapter 5(5.1 – 5.12, 5.31 – 5.35, 5.52-5.60)

REFERENCES

1. Vittal, P.R. (2013) Allied Mathematics, 4th Edition Reprint, Margham Publications, Chennai.
2. Venkatachalapathy, S.G. (2007) Allied Mathematics, 1st Edition Reprint, Margham Publications, Chennai.

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
CA18101	SOFT SKILLS	2	0	0	2	2

To enhance holistic development of students and improve their employability skills

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes					
1.	To acquire inter personal skills and be an effective goal oriented team player	d	e	f	h	m	n
2.	To develop professionalism with idealistic, practical and moral values	d	e	f	h	m	n
3.	To acquire communication and problem solving skills	d	e	f	h	m	n
4.	To re-engineer their attitude and understand its influence on behavior	d	e	h			

UNIT- I- ATTITUDE (6 Hours)

Who am I? SWOT analysis, Importance of self confidence and self esteem, Factors influencing attitude, Challenges and lessons from attitude

UNIT- II – COMMUNICATION (6 Hours)

Practice activities (JAM, spin a story, diagram description, etc...), Activities for evaluation (Extempore, speaking news, book review)

UNIT -III – GOAL SETTING (6 Hours)

SMART goals, Blue print for success, Short term, Long term, Life time goals, Value of time, Diagnosing time management, Prioritizing work

UNIT IV – PUBLIC SPEAKING (6 Hours)

Activities for evaluation (Surveying and reporting, Debate, Group discussion)

UNIT V – CREATIVITY (6 Hours)

Out of box thinking, lateral thinking

REFERENCES

1. Covey Sean, Seven habits of highly effective teens, New York, Fireside Publishers, 1998.
2. Carnegie Dale, How to win friends and influence people, New York, Simon and Schuster, 1998.
3. Thomas A Harris, I am ok, you are ok, New York, Harper and Row, 1972.

SEMESTER II

குறியீட்டு எண்	பாடம்	L	T	P	Total LTP	C
ULT18201	தமிழ் - II	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	இரண்டாயிரம் ஆண்டுகாலத்தமிழின்தொன்மையையும் வரலாற்றையும் அதன் விழுமியங்களையும் பண்டையம் எடுத்துரைப்பதாக இப்பாடத்திட்டம் அமைக்கப்பட்டுள்ளது.	e	f	h	m	n
2.	காலந்தோறும் தமிழ் இலக்கியம் உள்ளடக்கத்திலும், வடிவத்திலும் பெற்ற மாற்றங்கள், அதன் சிந்தனைகள், அடையாளங்கள் ஆகியவற்றை காலந்தோறும் எழுதப்பட்ட இலக்கியங்களின் வழியாகக் கூறுவதாகவும், மொழியின்கட்டமைப்பைப் புரிந்து கொள்வதாகவும் பாடத்திட்டம் வடிவமைக்கப்பட்டுள்ளது.	e	f	d		
3.	வாழ்வியல் சிந்தனைகள், ஒழுக்கவியல் கோட்பாடுகள், சமத்துவம், சூழலியல் எனப் பலகூறுகளை மாணவர்களுக்கு எடுத்துரைக்கும் விதத்தில் இப்பாடத்திட்டம் உருவாக்கப்பட்டுள்ளது.	e	f	n		

அலகு - 1

1. எட்டுத்தொகை : 1. குறுந்தொகை (பாடல் - 130), 2. நற்றிணை (பாடல் - 27), 3. அகநானூறு (பாடல் - 86)
2. பத்துப்பாட்டு - சிறுபாணாற்றுப்படை (அடிகள் - 126-143)
3. பதினெண் கீழ்க்கணக்கு : திருக்குறள்- வெகுளாமை (அதிகாரம் 31), காதல்சிறப்புரைத்தல் (அதிகாரம் 113)

அலகு - 2

1. எட்டுத்தொகை : 1. ஐங்குறுநூறு (பாடல் - 203), 2. கலித்தொகை - பாலைத்திணை (பாடல் - 9), 3. புறநானூறு (பாடல்- 235)
2. பத்துப்பாட்டு - முல்லைப்பாட்டு (அடிகள் - 6 - 21)

3. பதினெண்கீழ்க்கணக்கு - 1. நாலடியார்- நல்லார்எனத்தான் (221), 2. திரிகடுகம் - கோலஞ்சிவாமும்குடியும் (33),
3. இனியவைநாற்பது - குழவிதளர்நடை (14), கார்நாற்பது - நலமிகுகார்த்திகை (26), 5. களவழிநாற்பது - கவளங்கொள்யாணை (14)

அலகு - 3

சைவம் - பன்னிருதிருமுறைகள்

1. திருஞானசம்பந்தர் - வேயுறுதோளிபங்கள் (இரண்டாம் திருமுறை)
2. திருநாவுக்கரசர் - மனமெனும்தோணி (நான்காம்திருமுறை)
3. சுந்தரர் - ஏழிசையாய்இசைப்பயனாய் (ஏழாம் திருமுறை)
4. மாணிக்கவாசகர் - ஆதியும்அந்தமும்இல்லா (திருவெம்பாவை)
5. திருமூலர் - அன்பு சிவம் இரண்டு (திருமந்திரம்)

வைணவம் - நாலாயிரத்திவ்யப்பிரபந்தம்

1. பேயாழ்வார் - திருக்கண்டேன்பொன்மேனி ...
2. பெரியாழ்வார் - கருங்கண்டோகைமயிற்சீலி...
3. தொண்டரடிப்பொடிஆழ்வார்-பச்சைமாமலைபோல்...
4. ஆண்டாள் - கருப்பூரம்நாறுமோ? கமலப்பூ ...
5. திருமங்கையாழ்வார் - வாடினேன்வாடிவருந்தினேன்

இஸ்லாமியம்

சீறாப்புராணம் -மானுக்குப் பிணை நின்ற படலம் - - 5 பாடல்கள்(பாடல்எண்கள் : 61 - 65)

கிறித்துவம்

இராட்சண்ய யாத்ரீகம் - கடைதிறப்புப்படலம் - 5 பாடல்கள் (பாடல்எண்கள் : 3,9,10,15,16)

அலகு - 4

தமிழ்இலக்கியவரலாறு

1. சங்கஇலக்கியங்கள், 2. நீதிஇலக்கியங்கள், 3.பக்திஇலக்கியங்கள், 4. காப்பியங்கள்

அலகு - 5

சிறுகதைகள்

1. புதுமைப்பித்தன் - அகலிகை
2. ந.பிச்சமூர்த்தி - வேப்பமரம்
3. அகிலன் - ஒருவேளைச்சோறு
4. ஜி. நாகராஜன் - பச்சக்குதிரை
5. கி.ராஜநாராயணன் - கதவு
6. சா.கந்தசாமி - தக்கையின்மீதுநான்குகண்கள்
7. ஆண்டாள்பிரியதர்ஷினி - மாத்திரை
8. வண்ணதாசன் - ஒருஉல்லாசப்பயணம்
9. சு. தமிழ்ச்செல்வன் - வெயிலோடுபோய்
10. பாரததேவி - மாப்பிள்ளைவிருந்து

பார்வைநூல்கள்

1. அரசு, வீ., இருபதாம்நூற்றாண்டுச்சிறுகதைகள்நூறு, அடையாளம்பதிப்பகம், திருச்சி, 2013
2. அருணாசலம், ப., பக்திஇலக்கியங்கள், பாரிநிலையம், சென்னை, 2010
3. தமிழண்ணல், புதியநோக்கில்தமிழ்இலக்கியவரலாறு, மீனாட்சிபுத்தகநிலையம், மதுரை, 2000
4. பாக்யமேரி, வகைமைநோக்கில்தமிழ்இலக்கியவரலாறு, என்.சி.பி. எச். பதிப்பகம், சென்னை, 2011
5. பசுபதி, ம.வே. செம்மொழித்தமிழ்இலக்கணஇலக்கியங்கள், த□□□ப்பல்கலைக்கழகம், தஞ்சாவூர், 2010.

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
ULH18201	HINDI-II	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES		Student Outcomes				
At the end of this course the learner is expected:						
1.	To express and communicate literature which is part of life	e	f	h	m	n
2.	To incorporate day to day personal and professional life's need to communicate in the language.	e	f			
3.	To help the students to imagine and express their mind through literature	e	f			

UNIT -I- POETRY

(30 Hours)

1. Kabir, Tulsī, Rahim, Biharī
2. Kaidī Aur Kokila - Makhan Lal Chaturvedi
3. Abaurnahi - Om Prakash Valmiki
4. Premkarog - Kunwar Narayan
5. Maagaon me hai - Divik Ramesh
6. Adhiknayahotahun - Liladhar Mandloi

UNIT – II - STORY

(25 Hours)

1. Vaishnavi - Yashpal
2. Dopahar Ka Bhojan - Amarkant
3. Jungle - Chitra Mudgal
4. Kinare Se Door - Rakesh Bihari
5. Precious Baby - Anita Nair

UNIT – III

(10 Hours)

1. Administrative Words, Anuvad : Anuvad Ki Parishbhasha Evam Bhed

UNIT – IV

(10 Hours)

1. Anuvad : English To Hindi

REFERENCE

1. Prayojan Mulak Hindi – Madhav Sontakke
2. A practical guide to English translation and composition – k.p. Thakur

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

**Question Paper Pattern
Second Semester
ULH18201
HINDI-II**

Time : 3hrs

Max : 100 Marks

Section –A

(40 Marks)

1. Multiple choice question from prose
(six questions, five to be answered)

(5X2=10)

2. Technical Terminology (English to Hindi)
(Six questions, five to be answered)

(5X2=10)

3. Short question from prose (50 words)
(Six questions, five to be answered)

(5X4=20)

Section –B

(30 Marks)

4. To 10. Annotation from prose and one act play
(Seven questions, Five to be answered)

(5X6=30)

Section –C

(30 Marks)

11. Essay question from prose eitheror type

12. Essay question from One Act play eitheror type

13. Official letter, Demi-Official letter and Computer.

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
ULF18201	FRENCH-II	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES		Student Outcomes				
At the end of this course the learner is expected:						
1.	Improve their oral and written skills through a combination of theory and practice.	e	f	h		
2.	Consolidate the knowledge of theoretical aspects of French grammar with examples provided from different angles: from present day literature, day to day conversation.	e	f	M		

Unité-I

(15 heures)

C'est où ? – Demander et indiquer une direction – Localiser (près de, en face de,...)
 - L'impératif – Quelques prépositions de lieu- Les articles contractés au, à la – Le passé composé et l'accord du participe passé avec être –Les nombres ordinaux – Ne...plus, ne ... jamais – Les adjectifs numéraux ordinaux – Faire.

Unité-II

(15 heures)

N'oubliez pas ! - Exprimer l'obligation ou l'interdit – Conseiller – En dans les constructions avec de – Quelque chose, rien – Quelqu'un, personne – Il faut, devoir – Qui, que, où – Les pronoms compléments indirects (me, te, lui, leur...). **Belle vue sur la mer !** – Décrire un lieu – Situer – se situer dans le temps – La place des adjectifs – Des, De devant un adjectif – Le genre des noms de pays – Les prépositions et les noms de villes, de pays, de continents – Tout(e) (s), tous – Y, pronoms complément – Les adjectifs démonstratifs.

Unité-III

(15 heures)

Quel beau voyage !- Raconter – Décrire les étapes d'une action – Exprimer l'intensité et la quantité – Interroger- Les verbes pronominaux – à la pièce, au kilo – un sachet de, un litre de ... -d'abord, puis ... - peu, assez, trop... - En pronom complément – L'interrogation par l'inversion et révision de l'interrogation – Partir.

Unité-IV

(15 heures)

Oh !joli !- Décrire quelqu'un – comparer – Exprimer l'accord ou le désaccord – Se situer dans le temps –L'imparfait – L'imparfait ou le passé composé – la description d'une personne.

Unité-V**(15 heures)**

Et après ? - Parler de l'avenir- Exprimer des souhaits – Décrire quelqu'un- S'en aller, partir, quitter – Les indicateurs de temps (en, dans) – Le futur simple – Le subjonctif présent- La place des pronoms à l'impératif.

Référence

“**Latitudes-1**” Méthode de français, REGIME MERIEUX, YVES LOISEAU Les éditions Didier, Paris, 2012.

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

**Question Paper Pattern
Second Semester
ULF18201 French-II**

Time: 3 hours**Max: 100 Marks****Série – A****(40 Mark)**

1. Complétez par une préposition : (à, de) (5Mark)
2. Complétez les phrases avec une préposition de lieu : (5Mark)
3. Complétez avec « qql' un, personne, qql chose, rien : (5Mark)
4. Répondez aux questions en utilisant le pronom COI : (5Mark)
5. Remplacez les mots soulignés par un pronom « Y » : (5Mark)
6. Reliez les deux phrases avec « qui, que, où » : (5Mark)
7. Complétez avec l'adjectif démonstratif : (5Mark)
8. Chassez l'intrus : (5Mark)

Série – B**(30 Mark)**

1. Conjuguez les verbes à l'impératif : (5Mark)
2. Mettez les verbes au passé composé : (5Mark)
3. Conjuguez les verbes à l'imparfait: (10Mark)
4. Conjuguez les verbes au futur simple: (10Mark)

Série – C**(30 Mark)**

1. Donnez les conseils en utilisant les verbes « devoir » « falloir » : (5Mark)
2. Complétez les phrases avec tout, tous, toute ou toutes: (5Mark)
3. Transformez les questions sur le même modèle : (5Mark)
4. Lisez le document suivant et répondez aux questions : (5Mark)
5. Complétez les phrases avec les mots de la liste : (5Mark)
6. Associez les mots de chaque colonne (5Mark)

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
ULE18201	ENGLISH-II	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES		Student Outcomes				
At the end of this course the learner is expected:						
1.	To enable the students to think in English	e	f	h	m	n
2.	To become aware of the world literature and the writers	e	f	d		
3.	To equip students with the awareness and strategies needed to enable the study of English as a lifelong process.	e	f	d		

UNIT – I-POETRY**(15 Hours)**

1. The Unknown citizen – Auden
2. Nada KondroKadaKondro- PuraNaanooru 187
3. On being Trans- Lee Mokobe
4. Girl Child – PawaniMathur

UNIT – II- PROSE**(15 Hours)**

1. Men and Women – Virginia Woolf
2. Farewell Speech of Mark Antony – William Shakespeare
3. The Autobiography of an unknown Indian –NiradC.Chaudhuri

UNIT- III- SHORT STORIES AND PLAY**(15 Hours)**

1. A Wrong Man in Worker's Paradise – Rabindranath Tagore
2. Refund – Karen E.Bender
3. Paper Money – RaziaFasih Ahmad
4. Karukku - Bama

UNIT- IV - POPULAR LITERATURE**(15 Hours)**

1. Paul Simon –The Sound of Silence

2. Tedx Talks – If I had a daughter
3. John Lennon – I have a dream
4. Pink Floyd – Brick in the Wall

UNIT- V- LANGUAGE COMPONENT

(15 Hours)

1. Spot the Errors & Punctuation
2. Antonyms and Synonyms
3. Parts of speech
4. Articles
5. Vowels
6. Road Mapping
7. Movie Review
8. Crossword Puzzles
9. Open ended Stories
10. Quiz

TEXT BOOKS

1. Cambridge University Press, Raymond Murphy, Essential Grammar in Use 3rd Edition 2010

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

**Question Paper Pattern
Second Semester
ULE 18201
English II**

Time : 3hrs

Max : 100 Marks

Section –A

(40 Marks)

1. Multiple choice Language Components Spotting the Errors
(Six question, Five to be answered) (10X1=10)
2. Open ended stories (Two Passages) (5X2=10)
3. Road mapping/ movie review (Two Passages) (2 X 10=20)

Section – B

4.To 10. Annotation from Prose, Poetry and Short Story

(30 Marks)**(6X5=30)****Section – C**

11. Essay question from Poem eitheror type

12. Essay question from Prose...

13. Essay questions from short Stories/ Play

(30 Marks)

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18201	OBJECT ORIENTED PROGRAMMING USING C++	4	0	0	4	4

	INSTRUCTIONAL OBJECTIVES	Students Outcome				
	At the end of this course the learner is expected					
1	To learn the concepts of class & objects.	a				
2	To perform Inheritance, Overloading of operators, functions, constructors and File Handling		b	k		
3	To do effective file management.				i	l

UNIT I - INTRODUCTION TO OOPS**(12 Hours)**

Principles of Object Oriented Programming (OOP) : Evolution of C++ -Programming Paradigms - Key Concepts of OOP - Advantages of OOP - Usage of OOP and C++.Input and Output in C++-Streams-Stream classes Unformatted console I/O operations-Member functions of iostream class-manipulators-manipulators with parameters

UNIT II - INTRODUCTION TO C++**(12 Hours)**

Introduction to C++; Tokens, Keywords, Identifiers, Variables, Operators, Expressions and Control Structures: If,If..Else, Switch - Repetitive Statements- for, while, do..while- Pointers and arrays

UNIT III - FUNCTIONS, CLASSES AND OBJECTS**(12 Hours)**

Functions in C++ - Main Function - Function Prototyping - Parameters Passing in Functions - Values Return by Functions - inline Functions - Function Overloading Classes and Objects; Constructors and Destructors; and Operator Overloading - Type of Constructors

UNIT IV - INHERITANCE AND POLYMORPHISM**(12 Hours)**

Inheritance: Single Inheritance - Multilevel inheritance Hierarchical Inheritance - Hybrid Inheritance. Pointers Polymorphism- Multiple inheritances -- Virtual Functions and

UNIT V - FILES

(12 Hours)

Working with Files: Classes for File Stream Operations - Opening and Closing a File - End-of-File Detection - File Pointers - Updating a File - Error Handling during File Operations - Command-line Arguments

TEXT BOOKS

1. Ashok N.Kamthane,(2006), "Object Oriented Programming with ANSI & Turbo C ++", First edition ,Pearson Education. (UNIT - I , II)
2. Balagurusamy.E, (2008), "Object Oriented Programming with C++", Tata McGraw-Hill Publication. (UNIT III – V)

REFERENCE

1. Herbert Schildt, (2003), "C++: The Complete Reference", Tata McGraw publication.

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18202	DATA STRUCTURES	4	0	0	4	4

INSTRUCTIONAL OBJECTIVES		Student Outcomes				
At the end of this course, the learner is expected :						
1	To learn Several data structure concepts like stack, queue, linked list, trees and graphs	a	c			
2	To learn the Applications of data structures	a	b	i	c	l
3	To improve the Problem solving quality using data structure techniques	a	c	i		

UNIT I - INTRODUCTION

(12 Hours)

Introduction to theory of data structures – Complexity – Asymptotic Notation – Algorithm Analysis - Recursion – Introduction to Linear data structures – Array Operations – pointers and Arrays – Introduction to Lists and Linked Lists

UNIT II - STACK AND QUEUES

(12 Hours)

Introduction to stacks – Representation of Stacks through Array and Lists – Applications of Stacks – Introduction to Queues – Representation of Queues – Circular Queues – Double Ended Queues – priority Queues – Applications of Queues

UNIT III - TREES

(12 Hours)

Introduction - Non Linear data Structures – Binary Trees – Types of Trees – Properties of Binary Trees – Representation of Binary Trees – Binary Tree Traversal – Applications of Binary Tree – AVL Trees – Representation – Operations – Expression Trees

UNIT IV - SEARCHING AND SORTING

(12 Hours)

Introduction – Efficiency of Sorting Algorithm – Bubble Sort – Selection Sort – Quick Sort – Insertion Sort – Merge Sort – Binary Tree Sort – Radix sort – Shell sort – Heap sort – Searching: Binary Search – Indexed Sequential Search

UNIT V - GRAPHS

(12 Hours)

Introduction – Terms Associated with graphs – sequential representation of Graphs – Linked Representation – Traversal of Graphs – Spanning Trees – Shortest path – Applications of Graphs

TEXT BOOK

1. Instructional Software Research and Development (ISR D) Group , (2006), "Data Structures Using C" , First edition, TMH Education Private Limited.(UNIT I – V)

REFERENCES

1. Weiss Mark Allen, (2006), "Data Structure and algorithm analysis", Pearson Education.
2. Ellis Horowitz, Sahni, Dinesh Mehta, (1999), "Fundamentals of Data Structures in C++", Golgotha publication, New Delhi.

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18203	C++ LABORATORY	0	0	3	3	2

INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected :		Student Outcomes				
1	To understand basics of programming language	a	c		K	I
2	To implement object oriented concepts	a	b	i		
3	To create programs using classes	a	c	i		

1. Write a C++ program to implement the concept of classes and object
2. Create a class 'staff', to create different objects and to test the functioning of member functions, constructors and Destructors.\
3. write a C++ program to implement the concept Arrays of Objects
4. Create Class 'student', create an array of students, find out the student who get the first rank
5. Write a C++ program to implement operator overloading to perform complex arithmetic
6. Write a C++ program to implement the concept of Inheritance
 - a. Create a class 'College', create another class 'department' by using 'college' as a base class, and verify the functions in the derived and base classes. Also to verify by keeping the two functions with same name (one in the base class and another in derived class)
7. Write a C++ program to handle the error using Exception Handling.
8. Write a C++ program to implement stack using array.
9. Write a C++ program to implement Queue using array.
10. Write a C++ program to convert the infix to postfix expression.

11. Write a C++ program for inorder, preorder and post order tree traversals.
12. Write a C++ program for sorting the given set of elements using selection and bubble sort.

Course Nature : Practical						
Assessment Method (Max.Marks: 100)						
In Semester	Assessment Tool	Observation Note Book	Output Result in time	Model Examination	Regularity and Discipline	Total
	Marks	10	10	20	10	50
End Semester	Assessment Tool	Record Note Book	Program Writing	Debugging	Result / Output	Total
	Marks	10	10	15	15	50
Total						100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18204	OPEN OFFICE LABORATORY	0	0	3	3	2

INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected :		Student Outcomes				
1	To format and create word document using open office	a	c			
2	To create worksheets and presentations.	a	b	i	b	i
3	To learn basic operations in Linux environment	a	c	i		

1. To open a new open office document and perform the following operations in it.
 - i. Text Alignment
 - ii. Change line spacing to 1.5
 - iii. Place a box to the entire text
 - iv. Add the bullets and numbering
 - v. Change type of font types and sizes
 - vi. Insert the symbols
2. To prepare an advertisement to a company with the following specifications
 - i. Attractive Page Border.
 - ii. Design the name of company using WordArt.
 - iii. Use ClipArt

Using of OpenOffice writer.
3. To design a Visiting Card for a company following specification
 - i. Size of the Visiting Card 4" X 3".

Name of the company with a WortArt.

Using of OpenOffice writer.
4. To perform Table Creation, Formatting and Conversion using OpenOffice.org.
5. To perform mail merge and letter preparation using OpenOffice.org.
6. To draw a flow chart for a given problem in the OpenOffice.org.
7. To perform the formula editor in OpenOffice.org Calc .
8. To perform the insertion of objects, graphics and protecting the document InOpenOffice.org Calc
9. To Draw a line, XY, bar and pie chart for a given user data in OpenOffice.org Calc
10. To perform the sorting and import/export features in OpenOffice.org Calc.
10. Creating An Impress Presentation using wizard
11. Create a presentation on Tourism of a place using different template, colorschemaand text formats

12. Create a presentation about your college and department using animations and soundeffects.Add OLE object to your presentation.

Course Nature : Practical						
Assessment Method (Max.Marks: 100)						
In Semester	Assessment Tool	Observation Note Book	Output Result in time	Model Examination	Regularity and Discipline	Total
		Marks	10	10	20	10
End Semester	Assessment Tool	Record Note Book	Program Writing	Debugging	Result / Output	Total
		Marks	10	10	15	15
Total						100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCA18205 / UCS18205	MATHEMATICS-II	4	0	0	4	4

Common to BCA / B.Sc (Computer Science)

INSTRUCTIONAL OBJECTIVES		Student Outcomes			
At the end of this course the learner is expected:					
1.	To apply Mathematical techniques for clear understanding of Mathematical principles	a	b	e	b
2.	To solve practical problems	a	b		

UNIT- I

Integral calculus- polynomial and irrational function – partial fraction (Simple algebraic functions only) - Bernoulli's formula – reduction formula- $\int \sin^n x dx$ -

$$\int \cos^n x dx - \int_0^{\frac{\pi}{2}} \sin^n x dx - \int_0^{\frac{\pi}{2}} \cos^n x dx$$

UNIT- II

Trigonometry – Expansion of $\sin n\theta$, $\cos n\theta$ and $\tan n\theta$ – expansion of $\sin^n \theta$ and $\cos^n \theta$ - Expansion of $\sin^n \theta \cdot \cos^n \theta$

UNIT – III

Differential Equation: Second order Differential Equations with constant coefficients.

Problem based on R.H.S: $0, e^{ax}, \sin ax, \cos ax, x$.

UNIT – IV

Laplace Transformation – basic properties and simple problems –

$$L[e^{at} f(t)] = L[tf(t)] =$$

$$L[e^{at} tf(t)] = L\left[\frac{f(t)}{t}\right]$$

UNIT – V

Inverse Laplace transformation – Simple Problems based on Inverse Laplace Transformation - multiplied by 's'- multiplied by '1/s'- 'Partial Fraction Method'.

Text Book: '

1. Singaravelu, A. (2011) ALLIED MATHEMATICS, 3rd Edition, Meenakshi Agency, Chennai.

Treatment as in: ALLIED MATHEMATICS by Dr.A. Singaravelu.

Unit I: Chapter7 (7.1 – 7.85) (Simple Algebraic functions only), (7.87 – 7.95)

Unit II: Chapter6 (6.1 – 6.24)

Unit III: Chapter8 (8.41 – 8.50), (8.54 – 8.65), (8.70 – 8.86)

Unit IV: Chapter10 (10.1 – 10.27), (10.36 – 10.47)

Unit V: Chapter10 (10.64 – 10.82), (10.90-10.95)

REFERENCES

1. Vittal, P.R. (2013) Allied Mathematics, 4th Edition Reprint, Margham Publications, Chennai.
2. Venkatachalapathy, S.G.(2007)Allied Mathematics, 1st Edition Reprint, Margham Publications, Chennai.
3. Manickavasagam Pillai, T.K. and Narayanan, S.(2013) Ancillary Mathematics, Reprint, S.Viswanathan Printers & Publishers Pvt. Ltd.Chennai

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
CAC18201	QUANTITATIVE APTITUDE AND LOGICAL REASONING-I	2	0	0	2	2

COURSE OBJECTIVE

To enhance holistic development of students and improve their employability skills

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes					
1.	To improve aptitude, problem solving skills and reasoning ability of the students	a	b	i	j	m	n
2.	To help them qualify the written test of competitive exams, campus placements and PSUs	a	b	i	j	m	n
3.	To collectively solve problems in teams and groups	a	b	d	i	j	m
4.	To adopt new techniques in solving problem	a	b	h	i	j	m

UNIT – I

(6 Hours)

Numbers: Classification of numbers – Test of divisibility – Unit digit – HCF and LCM – Remainder theorem – Progression – Simplification – Averages – Combined mean (simple problems)

UNIT – II

(6 Hours)

Simple interest and compound interest – Word problems

UNIT – III

(6 Hours)

Problems related to permutation and combination – Probability (simple problems)

UNIT – IV

(6 Hours)

Reasoning (Analytical and logical): Odd man out – Word series – Number series – Direction test – Blood relationship – Coding and decoding – Seating arrangements

UNIT – V

Problems related to clocks and calendar

REFERENCES

1. Dinesh Khattar-The Pearson guide to quantitative aptitude for competitive examinations.
2. Dr. Agarwal.R.S – Quantitative Aptitude for Competitive Examinations, S.Chand and Company Limited
3. AbhijitGuha, Quantitative Aptitude for Competitive Examinations, Tata Mcgraw Hill, 3rd Edition
4. Edgar Thrope, Test Of Reasoning for Competitive Examinations, Tata Mcgraw Hill, 4th Edition
5. <http://fw.freshersworld.com/placementweek/papers.asp>

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UNS18201/ UNC18201/ UNO18201/ UYG18201	NATIONAL SERVICE SCHEME (NSS)/ NATIONAL CADET CORPS (NCC)/ NATIONAL SPORTS ORGANIZATION (NSO) / YOGA	0	0	0	0	1

PURPOSE

To imbibe in the minds of students the concepts and benefits of NCC/NSS/NSO/YOGA and make them practice the same

INSTRUCTIONAL OBJECTIVES

At the end of this course the learner is expected:

INSTRUCTIONAL OBJECTIVES	Student Outcomes
1. To enable the students to gain knowledge about NCC/NSS/NSO/YOGA and put the same into practice	e l k

Course Nature : Practical (Fully internal)

Assessment Method (Max.Marks: 100)

In Semester	Activity	Total
	Participation, involvement and contribution of the students activities scheduled	100

SEMESTER III

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18301	JAVA PROGRAMMING	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected :		Student Outcomes				
1	To understand the principles and concepts of object oriented programming	a	c			
2	To Store and retrieve the information from Files.	a	b	i	k	l
3	To learn multithreading concepts	a	c	i		

UNIT I - INTRODUCTION TO JAVA (12 Hours)

The Genesis of Java- Buzzwords- Object oriented Concept- Lexica Issues- Data types and variables- Arrays- Operators

UNIT II - OBJECT ORIENTED CONCEPTS (12 Hours)

Control Statements Selection- Control Statement Iteration and jump Statement-Introducing classes- Class fundamentals- The General form of a class- Declaring Objects- Assigning object reference variables.

UNIT III - METHODS AND CLASSES (12 Hours)

Introducing method – Constructors- The this Keyword- Garbage Collection- Finalize() method- Overloading methods- Overloading constructors- Using objects as parameters- Returning Objects- Recursion- Introducing access control- introducing final- Nested and Inner Classes- String class- command-Line arguments.

UNIT IV - INHERITANCE & EXCEPTION HANDLING (12 Hours)

Inheritance Basics- using Super- method Overriding - abstract classes- Using final with Inheritance- Object class- Packages-Interfaces-Exception handling fundamentals- types- Using try, catch, throw, throws and finally exceptions.

UNIT V - MULTITHREADING, APPLLET AND STRING HANDLING (12 Hours)

Java thread model -creating thread-Thread priorities-synchronization-Inter-thread communication-Deadlock- Applet fundamentals- string constructors- string operations- character Extraction- string comparison- searching strings- modifying a string.

TEXT BOOK

1. Naughton and Schildt.H, (2007), "Java 2-The complete reference", Fifth Edition, McGraw Hill.(UNIT I – V).

REFERENCES

1. Arnold and Gosling.J, (2000), "The java programming language", Second edition Addison Wesley.
2. Art Gittleman, (2002), "Ultimate Java Programming", First edition, Wiley Publications.

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18302	MULTIMEDIA AND ITS APPLICATIONS	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES		Student Outcomes				
At the end of this course, the learner is expected :						
1	To Understand the concept of multimedia and it's hardware	a	c			
2	To Understand the concept of multimedia software	a	b	i	l	m
3	To do Efficient in authoring tools , image processing.	a	c	i		

UNIT I - INTRODUCTION

(12 Hours)

What is Multimedia: Definitions – CD ROM and the multimedia Highway- where to use Multimedia – Introduction to making multimedia: The stage of project – what you need– Multimedia skills and Training: The team

UNIT II - MULTIMEDIA HARDWARE**(12 Hours)**

Macintosh and Windows Production Platforms: Macintosh versus PC – the Macintosh platform – The windows multimedia PC Platform – Hardware peripherals: Connections – Memory and storage devices – input devices – output hardware – communication devices

UNIT III - MULTIMEDIA SOFTWARE**(12 Hours)**

Basic Tools: Text editing and word processing tools – OCR Software – painting and drawing tools – 3D modeling and animation tools – Image editing tools- Sound editing tools – Animation video and Digital Movie Tools – Making instant Multimedia: Linking multimedia objects – Office suites

UNIT IV - AUTHORING TOOLS AND TEXT**(12 Hours)**

Types of Authoring Tools – Card and page based – Icon based – Time Based – Object Oriented Authoring Tools – Text: The power of meaning – About fonts and Faces – Using text in multimedia – computer and text – Font editing and designing tools – Hypermedia and hypertext.

UNIT V - IMAGES AND ANIMATION**(12 Hours)**

Images: Before you start to create – making still images – color – Image file formats – Animation: Principles of Animation – Making animations that work – Video: Using video – How video works – Broadcast video standards – video tips – Recording formats – Digital video

TEXT BOOK

1. Tay Vaughan, (1999), "Multimedia: Making it Work", Fourth Edition, TMH, NewYork. (UNIT I – V)

REFERENCE

1. UrbashiMitra, (2004), "Introduction to Multimedia Systems" Academic Press.

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSE	COURSE TITLE	L	T	P	Total	C
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CODE					LTP	
UCS18303	JAVA PROGRAMMING LABORATORY	0	0	4	4	2

INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected :		Student Outcomes				
1	To understand the principles and concepts of object oriented programming	a	c			
2	To Store and retrieve the information from Files.	a	b	i	i	m
3	To learn multithreading concepts	a	c	i		

1. Program to illustrate the use of classes and objects
2. Program to illustrate the use of String Class
3. Program to illustrate the use of final and static keyword
4. Program to illustrate the use of inheritance
5. Program to illustrate the use of interfaces
6. Program to illustrate the use of packages
7. Program to illustrate the use of multithreading
8. Program to illustrate the use of Exception handling
9. Program to illustrate the use of Utility classes
10. Program to create and read file.
11. Program to create applet and pass parameter to it
12. Program to illustrate handling of mouse event

Other than these, possible lab exercises related to syllabus can also be included.

Course Nature : Practical						
Assessment Method (Max.Marks: 100)						
In Semester	Assessment Tool	Observation Note Book	Output Result in time	Model Examination	Regularity and Discipline	Total
	Marks	10	10	20	10	50
End Semester	Assessment Tool	Record Note Book	Program Writing	Debugging	Result / Output	Total
	Marks	10	10	15	15	50
Total						100

COURSE	COURSE TITLE	L	T	P	Total	C
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CODE					LTP	
UCS18304	MULTIMEDIA LABORATORY	0	0	4	4	2

INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected :		Student Outcomes				
1	To create animations effects using flash	a	c			
2	To apply various effects in images using photoshop	a	b	i	b	m
3	To create multi media applications	a	c	i		

FLASH

1. Drawing a Semi Circle by snap tool
2. Drawing a 24 spokes on a wheel
3. Placing a text along a curved path
4. Changing on objects shape using shape tweening
5. Changing on objects shape using text tweening
6. Changing on objects shape using motion tweening
7. Slide show presentation (minimum 5 slides)
8. Creating an application to show the masking effect in Flash
9. Creating an application to water masking

PHOTOSHOP

1. Working with the clone stamp tool
2. Drawing Watch using custom shape
3. Testing lab mode
4. Using multichannel mode
5. Using the sponge Tool
6. Antique framing
7. Isolating a Complex Image
8. Removing an element from an image Adjusting the focus

Course Nature : Practical						
Assessment Method (Max.Marks: 100)						
In Semester	Assessment Tool	Observation Note Book	Output Result in time	Model Examination	Regularity and Discipline	Total
	Marks	10	10	20	10	50
End Semester	Assessment Tool	Record Note Book	Program Writing	Debugging	Result / Output	Total
	Marks	10	10	15	15	50
Total						100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
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UCA18305 / UCS18305	STATISTICAL METHODS	4	1	0	5	4
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Common to BCA/B.Sc(Computer Science)

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To provide a strong foundations in the principles of statistics.	b	e			
2.	To apply Statistical techniques for solving real life problems	a	b	e		

UNIT –I

Nature and scope of statistical methods and their limitations - Classification, Tabulation - Diagrammatic representation of various types of statistical data - Frequency curves and O gives - Lorenz curve.

UNIT - II

Measures of Central tendency – Arithmetic mean, Median, Mode – Merits and demerits - graphical solution of Median and Mode.

UNIT - III

Measures of Dispersion – Range, Mean Deviation, Quartile Deviation, Standard Deviation, Coefficient of Variation and their properties – merits and demerits.

UNIT – IV

Correlation - Definition-Uses- Scatter diagram –Types – Karl Pearson’s Correlation Co-efficient-Spearman’s Rank Correlation Co-efficient -Regression equations – Regression coefficient – properties – Simple problems.

UNIT - V

Definition of t, F and Chi-Square distribution and its applications – Small sample test – Test for single mean and two mean – Testing independent of attributes - Testing the equality of variance – Definition of ANOVA(one way) – properties.

TEXT BOOK

- Pillai, R.S.N, Bagavathi, V. (2009), Statistics, Theory and Practice, 7th Edition, S.ChandLtd, NewDelhi.

Treatment as in: Statistics, Theory Practice by Pillai, R.S.N, Bagavathi, V.

Unit I: Chapter1, 2,6,7 and Chapter8 pg.no: 100-110

Unit II: Chapter9 pg.no: 125-172

Unit III: Chapter 10

Unit IV: Chapter11 pg.no: 338-354, Chapter12 pg.no: 398-420 and Chapter13 pg.no: 465-510

Unit V: Chapter8 (pg.no: 447-468) of Veerarajan, T.(2008), Probability, Statistics and Random Processes, 3rd Edition, Tata MC Graw hill Publishing Company, New Delhi

REFERENCES

1. Gupta, S.P. (2011) ,Applied Statistical Methods ,4thEdition,Sultan Chand & Sons, New Delhi.
2. Ken Black, (2013), Business Statistics for Contemporary Decision Making, 7th Edition, John Wiley Publications.

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
		Marks	10	10	20	5	5
End Semester Weightage							50
Total							100

Skill Based Electives-I

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18E51	SOFTWARE ENGINEERING	3	0	0	3	3

INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected :		Student Outcomes				
1	To classify the various Software Process Models	a	c			
2	To appreciate SQA and SCM principle	a	b	i		
3	To build an Analysis Model and subsequently architect a suitable design	a	c	i		
4	To understand Testing Strategies and Testing Tactics				m	n

UNIT I - THE PRODUCT AND THE PROCESS (9 Hours)

The Evolving Role of Software– Software Characteristics– Software Applications– Software: A Crisis on the Horizon?- Software Myths- Software Engineering: A Layered Technology– The Software Process– Software Process Models– The Linear Sequential Model– The Prototyping Model- The RAD Model- Evolutionary Software Process Models- Component-Based Development.

UNIT II - SYSTEM ENGINEERING AND ANALYSIS CONCEPTS (9 Hours)

Computer-Based Systems– The System Engineering Hierarchy – Business Process Engineering: An Overview– Product Engineering: An Overview– Requirements Engineering– System Modeling– Requirement Analysis- Requirements Elicitation for Software- Software Prototyping- Specification- Specification Review.

UNIT III - ANALYSIS MODELING AND DESIGN CONCEPTS (9 Hours)

Data Modeling – Data Flow Diagrams – Behavioral Modeling – The Mechanics of Structured Analysis – The Data Dictionary – Software Design and Software Engineering – The Design Process – Design Principles – Design Concepts – Effective Modular Design – Design Heuristics for effective Modularity – The Design Model – Design Documentation.

UNIT IV - SOFTWARE QUALITY ASSURANCE AND SCM (9 Hours)

Quality Concepts– Software Quality Assurance– Software Reviews– Formal Technical Reviews– Formal Approaches to SQA – Statistical Software Quality Assurance– Software Reliability– Software Configuration Management- The SCM Process- Identification of Objects in the Software Configuration- SCM Standards.

UNIT V - SOFTWARE TESTING TECHNIQUES (9 Hours)

Software Testing Fundamentals– Test Case Design- White-Box Testing– Basis Path Testing– Control Structure Testing – Black-Box Testing– A Strategic Approach to

Software Testing– Unit Testing – Integration Testing– Validation Testing– System Testing.

TEXT BOOK

1. Roger S. Pressman, (2001), “Software Engineering “,Fifth edition, McGraw-Hill Higher Education-A Division of The McGraw-Hill Companies. (UNIT I – V)

REFERENCE

1. Ian Sommerville, (2008),“Software Engineering”,9th edition, Pearson Education India

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18E52	OPERATING SYSTEM	3	0	0	3	3

INSTRUCTIONAL OBJECTIVES		Student Outcomes				
At the end of this course, the learner is expected :						
1	To learn different types of Operating Systems	a	c			
2	To Perform Scheduling and memory management.	a	b	i	l	k
3	To Handle Components of Operating System and deadlocks	a	c	i		

UNIT I - INTRODUCTION (9 Hours)

Definition – Mainframe system – Desktop Systems – Multiprocessor systems – Distributed systems – clustered systems – Real time and Hand held systems – System components – Os Services – System Calls – Programs – Structures

UNIT II - PROCESSES & SCHEDULING (9 Hours)

Process concepts – Process Scheduling – operation on Process – Cooperating process – IPC – CPU Scheduling: Basic Concepts – Scheduling criteria – Scheduling algorithms – Multiprocessor Scheduling – Real time Scheduling

UNIT III - PROCESS SYNCHRONIZATION**(9 Hours)**

Background – The critical Section problem – synchronization hardware – semaphores– Classic Problems of Synchronization - critical Regions – Monitors - OS Synchronization

UNIT IV - DEADLOCKS**(9 Hours)**

System model – Deadlock Characterization – Methods for Handling Deadlocks – Deadlock prevention – Deadlock Avoidance – Deadlock Detection and Recovery from Deadlock

UNIT V - MEMORY MANAGEMENT**(9 Hours)**

Swapping – Contiguous memory Allocation – Paging – segmentation – segmentation with paging – Demand Paging – Process creation – Page Replacement – Thrashing

TEXT BOOK

1. Abraham Silberschatz, Peter Baer Galvin & Greg Gagne, (2006), "Operating System Concepts", Sixth Edition , John Wiley & Sons, Inc.(UNIT I – V).

REFERENCE

1. MilankovicM , (1992), "Operating System concepts and Design", 2nd edition, Tata Mcgraw hill.

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18E53	COMPUTER ORGANIZATION AND ARCHITECTURE	3	0	0	3	3

INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected :		Student Outcomes				
1	To Understand the concept of digital systems	a	c			
2	To Understand the concept of Microprocessor	a	b	i		
3	To Write own Assembly level programming	a	c	i		
4	To do Efficient I/O and memory management				l	k

UNIT I - MICROPROCESSOR (9 Hours)

Introduction to Micro Computers, Microprocessors and Assembly Languages – Micro Processor Architecture and its operations – 8085 MPU – 8085 Instruction Set and Classifications.

UNIT II - ASSEMBLY LEVEL PROGRAMS (9 Hours)

Writing assembly level programs – Programming techniques such as looping, counting and indexing addressing modes – Data Transfer Instructions– arithmetic and Logic Operations – Dynamic Debugging.

UNIT III - COUNTERS (9 Hours)

Counters and time delays – Hexadecimal counter – Modulo 10 counter – Pulse Timings for Flashing lights – Debugging Counter and Time delay program – stack – subroutine – conditional call and return instructions.

UNIT IV - I/O ORGANIZATION (9 Hours)

Peripheral Devices – Input-Output Interface – Asynchronous Data Transfer: Handshaking – Serial Transfer – Communication Interface – Modes of Transfer – Priority Interrupt – DMA – Serial Communication

UNIT V - MEMORY ORGANIZATION (9 Hours)

Main memory- Auxiliary Memory – Associative Memory – Cache Memory – Virtual Memory – Memory Management Hardware.

TEXT BOOKS

- Morris M Mano,(2008), “Computer System Architecture”, Third Edition,Prentice Hall of India. (UNIT I , II)
- Gaonkar. R. S, (2002), “Microprocessor Architecture. Programming and Applications with 8085/8080A”, Fifth edition, Wiley Eastern limited. (UNIT III-V)

REFERENCE

1. Sunil Mathur, (2010), "Microprocessor 8085 and Its Interfacing", PHI Learning Pvt. Ltd.

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
CAC18301	QUANTITATIVE APTITUDE AND LOGICAL REASONING-II	4	1	0	5	4

COURSE OBJECTIVE

To enhance holistic development of students and improve their employability skills

INSTRUCTIONAL OBJECTIVES		Student Outcomes					
At the end of this course the learner is expected:							
1.	To improve aptitude, problem solving skills and reasoning ability of the student	a	b	i	j	m	n
2.	To help them qualify the written test of competitive exams, campus placements and PSUs	a	b	i	j	m	n
3.	To collectively solve problems in teams and group	a	b	d	i	j	m
4.	To adopt new techniques in solving problem	a	b	h	i	j	m

UNIT – I

Percentage - Profit or loss - Discount

UNIT – II

Ratio, proportion - Mixtures and solutions

UNIT – III

Time and work - Time, Speed and distance; Problems related to pipes and cisterns, Problems related to train, Problems related to boats and streams, Problems related to races

UNIT – IV

Set theory - Geometry and mensuration - Cubes

UNIT – V

Data sufficiency - Data interpretation

REFERENCES

1. Dinesh Khattar-The Pearson Guide to QUANTITATIVE APTITUDE for competitive examinations.
2. Dr. Agarwal.R.S – Quantitative Aptitude for Competitive Examinations, S.Chand and Company Limited
3. AbhijitGuha, Quantitative Aptitude for Competitive Examinations, Tata Mcgraw Hill, 3rd Edition
4. Edgar Thrope, Test Of Reasoning for Competitive Examinations, Tata Mcgraw Hill, 4th Edition
5. <http://fw.freshersworld.com/placementweek/papers.asp>

SEMESTER IV

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18401	DATA BASE MANagementsYSTEMS	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected :		Student Outcomes				
1	To understand the fundamentals of data models and conceptualize a database system using ER diagram	a	c			
2	To make a study of SQL and relational database design.	a	b	i	j	l
3	To know about data storage techniques and database architecture	a	c	i		

UNIT I - INTRODUCTION

Database System Applications - File systems versus Database systems – Data Models – DBMS Architecture – Data Independence – Data Modeling using Entity – Relationship Model – Enhanced E-R Modeling.

UNIT II - RELATIONAL MODEL AND QUERY EVALUATION

Relational Model Concepts – Relational Algebra – SQL – Basic Queries – Complex SQL Queries – Views – Constraints – Functional Dependencies – Normal Forms – 1NF – 2NF-3NF-BCNF – 4NF-5NF.

UNIT III - TRANSACTION PROCESSING

Transaction Processing – Properties of Transactions - Serializability – Transaction support in SQL - Locking Techniques – Time Stamp ordering – Validation Techniques – Granularity of Data Items – Recovery concepts – Shadow paging – Log Based Recovery.

UNIT IV - FILES AND INDEXING

File operations – Hashing Techniques – Indexing – Single level and Multi-level Indexes – B+ tree – Static Hashing - Indexes on Multiple Keys.

UNIT V - DATABASE SYSTEM ARCHITECTURE

Distributed databases - Centralized systems - Motivation of distributed databases concepts-Types of distributed systems- Distributed Query processing - Introduction to Object oriented databases- Features-Object identity- Object containment - Inheritance-OODBMS and ORDBMS

TEXT BOOKS

1. Abraham Silberschatz, Henry F. Korth, S. Sudharshan, "Database System Concepts", Sixth Edition, Tata McGraw Hill, 2010

REFERENCES

- 1 Elmasri and Navathe, "Fundamentals of Database Systems", 3/e, Pearson Education, 2003
- 2 Peter Rob, Carlos Coronel, "Database systems- Design Implementation and Management", Thomson 7/e.
- 3 C.J Date, "An Introduction To Database Systems", 7/e, Pearson Education, 2003.
- 4 Bipin C. Desai. "An Introduction to Database Systems", Galgotia Publications, 2001

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18402	SCRIPTING LANGUAGES	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES		Student Outcomes				
At the end of this course, the learner is expected :						
1	To classify the various Scripting Languages	a	c			
2	To understand DOM and XML	a	b	i	j	k
3	To create a webpage	a	c	i		

UNIT I - INTRODUCTION TO HTML

(15 Hours)

Introduction to HTML: Internet basics- formatting text in HTML-lists- Adding graphics to HTML-Internal and external linking in HTML- frames and framesets- creating tables.

UNIT II - HTML FORMS AND CSS (15 Hours)

HTML forms-Cascading Style Sheet: HTML CSS-Inline styles- creating style sheets with the style elements- Building a web page

UNIT III - DOM AND INTRODUCTION TO JAVA SCRIPT (15 Hours)

DOM model: Understanding DOM model. Objects in HTML, Browser, object, window, history, location, navigator, document object. Java Script: Introduction to scripting-operators: logical-Increment and decrement operators- control structures.

UNIT IV - FUNCTIONS, ARRAYS AND OBJECTS (15 Hours)

Functions: Definition-scope rules-recursion-Arrays: Declaring arrays- passing array to function-sorting arrays-object: math object-string object-data object- boolean object and number object, Handling event using java script.

UNIT V - INTRODUCTION TO XML (15 Hours)

XML-XML overview-features-HTML XML-processing instructions-application of XML-COMMENTS-XML names space – schema-Document Type Definition (DTD)Extensible style language(XSL).

TEXT BOOKS

1. Ivan Bayross, (2005), "web enables commercial application development using HTML, DHTML java script, perl CGI", BPB Publications, New Delhi. UNIT (I – III).
2. Deitel.H.M, Nieto.T.R, (2012), "Internet and world wide web How to program", Fifth Edition, Prentice Hall of Indian Pvt, Ltd, New Delhi. (UNIT IV- V)
3. Williamson, (2001), "Xml: The Complete Reference", Tata McGraw-Hill Education.

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18403	DATABASE MANAGEMENT SYSTEM LABORATORY	0	0	4	4	2

INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected :		Student Outcomes				
1	To Know various commands in SQL	a	c			
2	To understand database operations	a	b	i	l	j
3	To create simple data manipulation programs using PL/SQL	a	c	i		

1. **Table creation** – Minimum 10 database tables.
2. **INSERTION AND DATA RETRIEVAL**
 - a) Insert and Save Records in the database tables.
 - b) Data Retrieval using SELECT-WHERE, RELATIONAL OPERATOR, ARITHMETIC OPERATOR and use of ORDERBY, DISTINCT, BETWEEN, IN, DUAL and LIKEoperator.
3. **FUNCTIONS**
 - a) Date Functions, Numeric Functions, Character Functions, Conversion Functions.
 - b) Group Functions, Set Functions.
4. **ALTER, UPDATE, DELETE, SUBQUERY AND JOINS**
 - a) Use of ALTER, UPDATE, DELETE and DROP Commands.
 - b) Using SUBQUERY and JOINS (Equi Join, Non-Equi Join, Outer Join, Self Join) in data retrieval.
 - c) Create Views, Sequences and Constraints related Query.

PL/SQL

1. Make use of COMMIT, ROLLBACK, and SAVEPOINT in a PL/SQL Block.
2. Create a PL/SQL Script to convert temperature in Fahrenheit into Celsius, and vice versa.
3. Calculate the sum of the even integers between 1 and 100.
4. Create a PL/SQL block to find ODD or EVEN NUMBER by using Searched CASE Statements.
5. Calculate a factorial of given number by using FOR loop.
6. Program development using BUILT –IN Exceptions, USER defined Exceptions, RAISE- APPLICATION ERROR.
7. Programs development using creation of procedures, passing parameters IN and OUT of PROCEDURES.
8. Program development using creation of stored functions, invoke functions in SQL Statements and write complex functions.
9. Program development using creation of package specification, package bodies, private objects, package variables and cursors and calling stored packages.
10. Develop programs using CURSORS-Declaring, Opening, Fetching, and Closing

aCursor, including the use of CURSOR attributes.

- Develop Programs using BEFORE and AFTER Triggers, and INSTEAD OF Triggers.

Course Nature : Practical						
Assessment Method (Max.Marks: 100)						
In Semester	Assessment Tool	Observation Note Book	Output Result in time	Model Examination	Regularity and Discipline	Total
	Marks	10	10	20	10	50
End Semester	Assessment Tool	Record Note Book	Program Writing	Debugging	Result / Output	Total
	Marks	10	10	15	15	50
Total						100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18404	SCRIPTING LANGUAGES LABORATORY	0	0	4	4	2

INSTRUCTIONAL OBJECTIVES		Student Outcomes				
At the end of this course, the learner is expected :						
1	To Know various tags in HTML	a	c			
2	To understand DOM and XML	a	b	i	j	m
3	To create simple web pages	a	c	i		

LIST OF PROGRAMS

- Create Application form using various text formats.
- Create SRM UNIVERSITY website using HTML tags.
- Create a table using HTML.
- Display your information using form controls.
- Create style sheets with the style elements.
- Create calculator format using java script.
- Create an array of 10 numbers and sort them using javascript.
- String manipulation using string object.
- Add a simple script using Click event.
- Create Employee details using schemas.
- Create our department details using CSS.
- create Payroll system using XSL.
- Changing image using mouseover event.

14. Create a website for a newspaper.
15. Design and apply your application form for course enrolment using javascript.

Course Nature : Practical						
Assessment Method (Max.Marks: 100)						
In Semester	Assessment Tool	Observation Note Book	Output Result in time	Model Examination	Regularity and Discipline	Total
	Marks	10	10	20	10	50
End Semester	Assessment Tool	Record Note Book	Program Writing	Debugging	Result / Output	Total
	Marks	10	10	15	15	50
Total						100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCA18405 / UCS18405	RESOURCE MANAGEMENT TECHNIQUES	4	1	0	5	4

Common to BCA / B.Sc (Computer Science)

INSTRUCTIONAL OBJECTIVES		Student Outcomes				
At the end of this course the learner is expected:						
1.	To apply Operations research methods for decision making process.	b	e			
2.	To apply Opeartions research techniques for solving real life problems	a	b			

UNIT – I

Basics of Operations Research (OR): Characteristics of O.R – Importance of O.R in Industry – O.R and Decision making – Role of computers in O.R.

UNIT – II

Linear programming: Formulations and Graphical solutions, Canonical & Standard form of Linear Programming problems. Algebraic solution: Simplex Method

UNIT – III

Transportation model: Definition – formulation and solution of transportation models – Initial Basic feasible solution by the methods of North west corner, the row – minima, column – minima, matrix minima(Least cost method) and Vogel's approximation method – Assignment problem by Hungarian method .

UNIT – IV

Sequencing problem: Processing n jobs through 2 machines – Processing n jobs through 3 machines – Processing n jobs through m machines – Processing 2 jobs through m machines.

UNIT – V

Theory of Games: Characteristics – Pure Strategies – Saddle Point – Value of the game – Mixed Strategies – Rules of Dominance – Two Persons Zero Sum Game – Graphical Solutions of 2 x M and N x 2 game (excluding LPP) – Limitations.

TEXT BOOK

1. Sundaresan, V, Ganapathy Subramanian, K.S. and Ganesan,K(2011),Resource Management Techniques, A.R.Publications-Nagapattinam.

Treatment as in : Resource Management Techniques by Prof.V.Sundaresan, K.S.Ganapathy Subramanian, K. Ganesan.

Unit I: Chapter 1 (1.1 to 1.8)

Unit II: Chapter 2, Chap 3 (3.1.1 to 3.1.4, 3.2.1)

Unit III: Chapter 7(7.1), Chap 8.

Unit IV: Chapter 14

Unit V: Chapter 16(16.1 to 16.7, except 16.5),

REFERENCES

1. Vittal, P.R. (2003), Operations Research, Margham Publications, Chennai.
2. KantiSwarup, Gupta, P.K. and Manmohan(2006),Operations Research,12th Edition-Sultan Chand & Sons, New Delhi.

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

Skill Based Electives-II

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18E54	SOFTWARE PROJECT MANAGEMENT	3	0	0	3	3

INSTRUCTIONAL OBJECTIVES		Student Outcomes				
At the end of this course, the learner is expected :						
1	To get an overview of Software project management	a	c			
2	To acquire knowledge about software managing	a	b	i	k	m

	process					
3	To understand Cocomo model and discipline of software management	a	c	i		

UNIT I - FUNDAMENTALS OF SOFTWARE PROJECT MANAGEMENT (9 Hours)

Conventional software management - Evolution of software economics - Improving software economics - Conventional versus modern software project

UNIT II - SOFTWARE MANAGEMENT PROCESS FRAMEWORK (9 Hours)

Lifecycle phases - Artifacts of the process - Model based software architectures - Workflows of the process - Checkpoints of the process.

UNIT III - SOFTWARE MANAGEMENT DISCIPLINES (9 Hours)

Iterative process planning - Organisation and responsibilities - Process automation - Process control and process instrumentation - Tailoring the process.

UNIT IV - MANAGED AND OPTIMIZED PROCESS (9 Hours)

Data gathering and analysis - Principles of data gathering - Data gathering process - Software measures - Data analysis - Managing software quality - Defect prevention.

UNIT V - CASE STUDIES (9 Hours)

COCOMO cost estimation model - Change metrics - CCPDS-R.

TEXT BOOKS

- Walker Royce,(2004), "Software Project Management - A Unified Framework", Pearson Education.(UNIT I – III)
- Humphrey Watts,(1989), "Managing the Software Process", Addison Wesley. (UNIT IV – V)

REFERENCE

- Humphrey Watts, (1989), "Managing the Software Process", Addison Wesley.

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
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UCS18E55	SOFTWARE TESTING	3	0	0	3	3
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INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected :		Student Outcomes				
1	To understand the Software Testing Concepts	a	c			
2	To implement the Software Quality and Control Concepts	a	b	i		
3	To Design the Test cases and to get familiarity over Automated Testing tools	a	c	i	n	m

UNIT I - INTRODUCTION TO SOFTWARE TESTING (9 Hours)

Introduction to software testing-The Psychology of Testing-The Economics of Testing -Software Testing Principles-Inspections and Walkthroughs-Code Inspections -An Error checklist for Inspections-White-box testing-Error guessing

UNIT II –UNIT ,MODULE , HIGHER- ORDER TESTING &DEBUGGING (9 Hours)

Test-Case Design - 1 -Test-Case Design – 2-Incremental Testing-Top-down versus Bottom- up Testing-Function Testing- System Testing -Acceptance Testing- Installation Testing-Debugging.

UNIT III -THE REALITIES OF SOFTWARE TESTING & TESTING THE SOFTWARE

(9 Hours)

SDLC Models -STLC Model -Software Testing Terms and Definitions-Testing Fundamentals-Dynamic Black-Box Testing – 1-Dynamic Black-Box Testing – 2-Equivalence Partitioning-Data Testing-State Testing.

UNIT IV - APPLYING TESTING SKILLS

(9 Hours)

Configuration Testing -Compatibility Testing-Usability Testing-Testing the Documentation-Testing the Documentation – 2-Web Site Testing – 1-Web Site Testing – 2-Testing for Software Security

UNIT V - AUTOMATED TESTING AND TEST TOOLS & BUG REPORTING

(9Hours)

Automated Testing and Test Tools: -benefits-Test Tools-Software Test Automation-Bug Bashes and Beta Testing-Writing and Tracking

TEXT BOOKS

1. Glenford J. Myers,(2008), “The Art of Software Testing”, Second Edition,JohnWiley&Sons, New Delhi. (UNIT I –III)
2. Ron Patton, (2007) , “Software Testing”, Second Edition, SAMS Techmedia
3. William E.Perry, (2000), “Effective Methods for Software Testing”, Second edition, John Wiley & Sons, New Delhi.
4. Boris Beizer, (1995), “Black-Box Testing: -Techniques for Functional Testing of Software and Systems”, Second edition, John Wiley & Sons, New Delhi.

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18E56	MANAGEMENT INFORMATION SYSTEM	3	0	0	3	3

INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected :		Student Outcomes				
1	To get an overview of MIS infrastructure	a	c			
2	To acquire knowledge about Computer hardware.	a	b	i		
3	To understand service and Data Communication it infrastructure	a	c	i	l	m

UNIT I - MIS AN OVERVIEW

(9 Hours)

Introduction – definition – framework for MIS organization – system approach – meaning and objectives of MIS – disadvantages of information system – approaches of MIS development – constraints in developing an MIS – computer based information system – information system for decision making – transaction processing systems – intelligent support system.

UNIT II - COMPUTER HARDWARE AND SOFTWARE FOR INFORMATION SYSTEM

(9 Hours)

Computer Hardware : Introduction – basics of data representation – types of computer – basic components of computer system. Computer Software : Introduction – programmer – languages – classification of software – role of software in languages – classification of software – role of software in problem solving – criteria for investment in hardware and software.

UNIT III - DATA COMMUNICATION SYSTEM

(9 Hours)

Introduction – telecommunication system – data communication hardware – data communication software – communication network – distributed systems – topology of computer network – protocols and network architecture open systems interconnection (OSI) – network management.

UNIT IV - DECISION SUPPORT SYSTEM

(9 Hours)

Introduction – definitions – evolution of DSS – objectives of DSS – classification of DSS – characteristics – components of a DSS – functions of a DSS – Development of DSS – group decision support systems – relationship between MISS and DSS – DSS measures of success in organizations – applications of a DSS – TPS – MIS – DSS and EISS.

UNIT V - DEVELOPMENT OF MIS

(9 Hours)

Development of Long Range Plans of MIS - Ascertaining the class of Information - Determining the Information Requirement - Development and Implementation of MIS Management of Quality in MIS - Organisation for development of MIS - MIS : the factors for Success and Failure

TEXT BOOKS

1. Gupta.A.K,(2000), "Management InformationSystem",FirstEdition,S.Chands Company Ltd.(UNIT I – II)
2. Kenneth C.Laudon and Jane P.Laudon,(2013), "Management Information Systems-Managing the Digital Firm", Pearson Education Asia. (UNIT III – V)

REFERENCE

1. Sadagopan.S,(2002), "Management Information Systems" ,PHI Learning Pvt.Ltd

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
CAC18401	VERBAL ABILITY and REASONING	2	0	0	2	2

INSTRUCTIONAL OBJECTIVES		Student Outcomes				
At the end of this course the learner is expected:						
1.	To enable the students understand the syntax of English and develop their lexical skills	d	f	h	n	
2.	To develop comprehension and interpretation skills	d	e	f	h	n
3.	To enhance vocabulary skills and improve repertoire of words	d	f	h	m	n
4.	To help the students succeed in competitive exams and placements	j	m	n		

UNIT –I

Spotting error, Change of speech, Change of voice

UNIT –II

Synonyms, Antonyms, Idioms, Phrasal verbs, One word substitution

UNIT-III

Sentence improvement, Sentence completion (Grammar based)

UNIT-IV

Sentence completion (Vocabulary based), Odd word

UNIT-V

Reading comprehension, Word analogy, Para jumble

REFERENCES

1. Hari Mohan Prasad and MeenakshiUpadhyay, Objective English for Competitive Examinations, McGraw Hill Education.
2. Norman Lewis, Word Power Made Easy New Revised and Expanded Edition, Goyal publication, 2011
3. Raymond Murphy, Intermediate English Grammar, Cambridge University Press, 2007

SEMSTER V

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18501	ADVANCED JAVA PROGRAMMING	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected :		Student Outcomes				
1	To be familiarize with RMI and JSP	a	c			
2	To understand the Java Servlets and Database connectivity	a	b	i	m	l
3	To know more about the Enterprise Java Bean (EJB) Programming	a	c	i		

UNIT I – RMI and DATABASE ACCESS

Remote method invocation : Overview of RMI – Developing an RMI Application – RMI over IIOp.Database Access : Overview of JDBC, JDBC Drivers, Connecting to a Database, Statement Interfaces, ResultSets, Using MetaData.

UNIT II - SERVLET PROGRAMMING

Servlet – Introduction – Types : Generic Servlet, HttpServlet – Servlet Life Cycle – Servlet Classes: Servlet, ServletRequest, ServletResponse, ServletContext, ServletConfig – Single Thread Model – Session Tracking: Cookies, URL Rewriting, Hidden Fields, The Session API

UNIT III - JSP and XML 12 Hours

JSP: JSP Overview, How JSP works, Components of a JSP page, Implicit objects, RequestDispatching: Anatomy of Request Processing, Include Directive, JSP: include Action, Forwarding Requests, RequestDispatcher Object, Model1 Vs Model2, JSP Actions.

UNIT IV - ENTERPRISE APPLICATIONS

EJB Architecture: Logical Architecture, Software Architecture,EJB Session Beans: constraints on session beans, Life Cycle with example- EJB Entity Beans: When to use Entity Bean, Entity Bean Life Cycle, Message Driven Beans: Life Cycle.

UNIT V - INTEGRATING SERVLETS AND JSP: MVC ARCHITECTURE

Understanding the need for MVC – frameworks, implementing MVC with request dispatcher – defining Beans to represent the data, writing servlets to handle requests, populating Beans, storing the results, forwarding the requests, summarizing the MVC code, interpreting relative URL, three data sharing approaches, forwarding requests

from JSP pages -Connection -Associating the JDBC/ODBC Bridge with the Database
 -Statement Objects – Result Set.

TEXT BOOKS:

1. Elliotte Rusty Harold, (2013), “Java Network Programming”, O’Reilly Publishers. (For Unit I to III)
2. Antonio Goncalves, (2010), “Beginning Java EE 6 Platform with GlassFish 3”, Apress, Second Edition. (For Units IV to V)

REFERENCES:

1. Phil Hanna, “JSP: The Complete Reference”, Osborne/Tata McGraw-Hill
2. Ed Roman,(2009), “Mastering Enterprise Java Beans”, John Wiley and Sons Inc.
3. Tom Valesky, (2008), “Enterprise Java Beans”, Addison-Wesley.
4. Marty Hall, Larry Brown, (2004), “Core Servlets and Java Server Pages”, II Edition, Pearson Education.

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18502	OPEN SOURCE TECHNOLOGY	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected :		Student Outcomes				
1	To create dynamic Web pages and web platform Applications	a	c			
2	To create and to use Graphical, Database objects for interactive web applications such as Cloud solutions	a	b	i	m	j

UNIT I - BASICS OF PHP (15 Hours)

Introduction to PHP – what does PHP Do? – a brief history of PHP – language basics – lexical structure – data types – variables – expressions and operators – flow control statements – including code – embedding PHP in web pages.

UNIT II - FUNCTIONS & STRINGS (15 Hours)

Functions & Strings: Calling a function – defining a function – variable scope – function parameters – return values – variable functions – anonymous functions. Strings: Accessing individual characters – cleaning strings – encoding and escaping – comparing strings – manipulating and searching strings – regular expression.

UNIT III - ARRAYS & OBJECTS (15 Hours)

Arrays and Objects : Indexed Vs associative arrays – identifying elements of an array – storing data **in arrays** – multidimensional arrays – extracting multiple values – converting between arrays and variables – traversing arrays – sorting. Objects: Creating an object – accessing properties and methods – declaring a class – introspection.

UNIT IV - MYSQL AN OVERVIEW (15 Hours)

Introduction – connecting to and disconnecting from the server – Entering queries – Creating and using a database – Creating and selecting a database – creating a table – loading data into a table – Retrieving information from a table – selecting all data – selecting particular rows – selecting particular columns – sorting rows – date calculations – working with NULL values – pattern matching – counting rows – using more than one tables.

UNIT V - MYSQL DATABASES IN PHP**(15 Hours)**

Introduction – connecting to a MySQL database – querying the database – Retrieving and displaying the results – modifying data – deleting data. Designing simple applications.

TEXT BOOKS

1. RasmusLerdorf, Kevin Tatroe, Bob Kaehms, RicMcGredy (2002), ProgrammingPHP, O'REILLY(SPD). (Unit I,II& III)
2. Lee Babin, Nathan A. Good, Frank M. Kromann, Jon Stephens (2005), "PHP 5Recipes, A problem solution approach", après.(Unit IV & V)

REFERENCE

1. VikramVaswani (2008), PHP: A BEGINNER'S GUIDE, McGraw-Hill

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18503	DATA COMMUNICATION AND NETWORK	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected :		Student Outcomes					
1	To get a general overview of "Computer Networks	a	c				
2	To know the functions of Data link layer	a	b	i			
3	To understand network layer functions and protocols used in it.	a	c	i			
4	To learn about transport layer, session, presentation and application layer				m	l	

UNIT – I**(15 Hours)**

Data Communication – Communication model – concept and terminology – analog and Digitaldata transmission – Channel capacity – Data Communication networking.

UNIT – II**(15 Hours)**

Networks – Protocols and Standard – Line configuration Topology – Transmission Mode –Categories of networks – Internet works.

UNIT – III (15 Hours)

The OSI Model – Functions of the layers – TCP/IP Protocol suite – Signals – Analog and Digital Signals – Periodic and a periodic Signals – Analog Signals – Digital Signal – Data Transmission –Data Terminal Equipment – Data Circuit Terminals equipment – Modems.

UNIT – IV (15 Hours)

Transmission media – Guided Media – Unguided Media – Transmission Impairments– Media Comparison – Multiplexing – FDM – TDM-WDM. Error Detection and Correction – Types of errors – Detection – Vertical Redundancy Check (VRC) – Longitudinal Redundancy Check(LRC) – Cyclic Redundancy Check (CRC). Check sum – Error Correction.

UNIT V (15 Hours)

Switching – Circuit Switching – Packet Switching – Message Switching – Networking and internetworking Devices – Repeaters – Bridges – Routers – Gateways. Routing Algorithm –Distance Vector Routing – Link Stat Routing – Data Link Control – Line discipline –FlowControl. 20

TEXT BOOKS

1. Behrouz A. Forouzan, (2002), “Data Communications and Networks” –Second Edition, Tata McgrawHill Edition. Unit (I – III)
2. William Stallings, (2006), “Data and Computer Communication”, 7th Edition, Pearson Education. Unit (IV – V)

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18504	ADVANCED JAVA PROGRAMMING LABORATORY	0	0	4	4	2

INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected :		Student Outcomes				
1	To create simple web applications	a	c			
2	To understand the Java Servlets and Database connectivity	a	b	i		
3	To know more about the Enterprise Java Bean (EJB) Programming	a	c	i	l	m

1. Create distributed applications using RMI.
2. Create applications which can demonstrate the use of JDBC for Database Connectivity.
3. Develop Web Applications Using Servlet
4. Program that demonstrates the use of session management in Servlet..
5. Web Applications using JSP
6. Create a JSP based Web application which allows the user to edit his/her database Information.
7. An EJB application that demonstrates Session Bean.
8. An EJB application that demonstrates Entity Bean.
9. MVC Architecture
 - (i) Implementing MVC with Request Dispatcher
 - (ii) Data Sharing Approaches

Other than these possible related lab exercises

Course Nature : Practical								
Assessment Method (Max.Marks: 100)								
In Semester	Assessment Tool	Observation Note Book	Output Result in time	Model Examination	Regularity and Discipline	Total		
	Marks	10	10	20	10	50		
End Semester	Assessment Tool	Record Note Book	Program Writing	Debugging	Result / Output	Total		
	Marks	10	10	15	15	50		
Total						100		
COURSE CODE	COURSE TITLE			L	T	P	Total LTP	C
UCS18505	OPEN SOURCE TECHNOLOGY			0	0	4	4	2

LABORATORY					
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INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected :		Student Outcomes				
1	To create simple programs in PHP	a	c			
2	To develop web pages using PHP	a	b	i		
3	To create and use data objects in web applications using PHP and MYSQL	a	c	i	k	n

LIST OF EXPERIMENTS

1. Creating simple webpage using PHP
2. Use of conditional statements in PHP
3. Use of looping statements in PHP
4. Creating different types of arrays
5. Usage of array functions
6. Creating user defined functions
7. Creating simple applications using PHP
8. Creating simple table with constraints
9. Insertion, Updation and Deletion of rows in MYSQL tables
10. Searching of data by different criteria
11. Sorting of data
12. Working with string and date functions
13. Database connectivity in PHP with MySQL

Any Application Using PHP and MySQL based on syllabus can be included.

Course Nature : Practical						
Assessment Method (Max.Marks: 100)						
In Semester	Assessment Tool	Observation Note Book	Output Result in time	Model Examination	Regularity and Discipline	Total
	Marks	10	10	20	10	50
End Semester	Assessment Tool	Record Note Book	Program Writing	Debugging	Result / Output	Total
	Marks	10	10	15	15	50
Total						100

CORE ELECTIVE – I

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18E01	DATA MINING	4	0	0	4	4

INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected :		Student Outcomes				
1	To learn about data in details	a	c			
2	To learn the importance of data mining	a	b	i		
3	To understand the concept and stages of data mining	a	c	i	m	n

UNIT I - INTRODUCTION (12 Hours)

Introduction: What is data mining, What is not data mining, Challenges, Other issues
Data: Types of data, Data quality, Data preprocessing

UNIT II- CLASSIFICATION (12 Hours)

Classification: Problem definition, General approach, Decision tree induction, Rule based classifiers, Nearest neighbour classifiers, Bayesian classifiers, Artificial neural networks, Model evaluation

UNIT III – ASSOCIATION (12 Hours)

Association analysis: Problem definition, Frequent itemset generation, Rule generation, Challenges, Interestingness measures, Generalization of association patterns

UNIT IV – CLUSTERING (12 Hours)

Cluster analysis: Introduction, Similarity and distance, Density, Characteristics of clustering algorithms, Hierarchical clustering, Density based clustering, Scalable clustering algorithms, Cluster evaluation.

UNIT V – VISUALIZATION (12 Hours)

Visualization: Introduction, General concepts, Visualization techniques

TEXT BOOKS

1. Introduction to Data Mining by Pang-Ning Tan, Michael Steinbach, and Vipin Kumar, 2005, ISBN: 0321321367
2. Data Mining: Concepts and Techniques by Jiawei Han and Micheline Kamber, 2000, ISBN: 1558604898

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18E02	COMPILER DESIGN	4	0	0	4	4

INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected		Student Outcomes				
1	To Understand the concept of system software	a	c			
2	To Understand the concept of working of compiler	a	b	i		
3	To do Efficient in authoring tools ,processing.	a	c	i	j	m

UNIT I - INTRODUCTION (12 Hours)

Introduction to Compilers – Programming Languages.

UNIT II- FINITE AUTOMATA (12 Hours)

Finite Automata and Lexical Analysis – The Syntactic Specification of Programming Language.

UNIT III - PARSER (12 Hours)

Basic Parsing Techniques – Automatic construction of Efficient parser.

UNIT IV - TRANSLATOR (12 Hours)

Syntax Directed Translation – Symbol Table.

UNIT V -CODE OPTIMIZATION (12Hours)

Error Detection and recovery – Code optimization – Loop Optimization.
Text Book.

TEXT BOOK

- Principles of Compilers Design – V. Aho , D .Ullman – Narosa Publishing House

REFERENCES

- Allen I. Holub, (2003), "Compiler Design in C", Prentice Hall of India.
- Fischer.C.N and LeBlanc.R.J,(2003), "Crafting a compiler with C", Benjamin Cummings.
- Bennet.J.P,(2003), "Introduction to Compiler Techniques", Second Edition, Tata McGraw-Hill.

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In	Assessment	Cycle	Cycle	Model	Assignment	Attendance	Total

Semester	Tool	Test I	Test II	Examination			
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18E03	SOFTWARE AGENTS	4	0	0	4	4

INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected :		Student Outcomes				
1	To classify the various Software agent design	a	c			
2	To appreciate agent communication and collaboration.	a	b	i		
3	To understand Mobile agents	a	c	i	l	m

UNIT I -AGENT AND USER EXPERIENCE (12 Hours)

Interacting with Agents - Agent From Direct Manipulation to Delegation - Interface Agent Metaphor with Character - Designing Agents - Direct Manipulation versus Agent Path to Predictable

UNIT II - AGENTS FOR LEARNING IN INTELLIGENT ASSISTANCE (12 Hours)

Agents for Information Sharing and Coordination - Agents that Reduce Work Information Overhead - Agents without Programming Language - Life like Computer character - S/W Agents for cooperative Learning - Architecture of Intelligent Agents

UNIT III - AGENT COMMUNICATION AND COLLABORATION (12 Hours)

Overview of Agent Oriented Programming - Agent Communication Language - Agent Based Framework of Interoperability

UNIT IV- AGENT ARCHITECTURE (12 Hours)

Agents for Information Gathering - Open Agent Architecture - Communicative Action for Artificial Agent.

UNIT V - MOBILE AGENTS (12 Hours)

Mobile Agent Paradigm - Mobile Agent Concepts -Mobile Agent Technology - Case Study: Tele Script, Agent Tel

TEXT BOOKS

1. Jeffrey M.Bradshaw,(2000), "Software Agents", MIT Press. Unit (I – IV)

- William R. Cockayne, Michael Zyda, (1998), "Mobile Agents", Prentice

REFERENCES

- Russel&Norvig, (2002), "Artificial Intelligence: A Modern Approach", Prentice Hall, 2nd Edition.
- Joseph P.Bigus& Jennifer Bigus, (1997), "Constructing Intelligent agents with Java: A Programmer's Guide to Smarter Applications", Wiley.

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
		Marks	10	10	20	5	5
End Semester Weightage							50
Total							100

COURSE CODE	COURSE TITLE	L	T	P	Total LTP	C
UES18501	ENVIRONMENTAL STUDIES	3	0	0	3	3

INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected :		Student Outcomes				
1	To enable the students	a	c			
2	To gain knowledge on the importance of natural resources and energy	a	b	i		
3	To understand the structure and function of an ecosystem.	a	c	i		
4	To understand the causes of types of pollution and disaster management.					
5	To observe and discover the surrounding environment through field work.					

UNIT- I- INTRODUCTION TO NATURAL RESOURCES/ENERGY

Natural Resources – Definition – Scope and Importance – Need for Public Awareness – Renewable and Non-renewable Resources: Natural resources and associated problems. Forest resources and over-exploitation – Water resources and over-utilization – Mineral resource extraction and its effects - Food resources - food problems and Modern agriculture - Energy resources and its future.

UNIT – II- ECOSYSTEMS

Concept of an ecosystem-structure and function of an ecosystem-producers, consumers and decomposers- ecological succession- food chains(any 2 Examples)- food webs(any 2 Examples)-ecological pyramids.

UNIT -III- ENVIRONMENTAL POLLUTION /DISASTER MANAGEMENT

Definition-causes, effects and control measures of : Air, Water and Soil pollution- e-waste management- Disaster management: Natural and man made-food/earthquake/cyclone, tsunami and landslides.

UNIT – IV- SOCIAL ISSUES AND THE ENVIRONMENT

Sustainable development- Climate change: global warming, acid rain, ozone layer depletion and nuclear radiation- Environment Protection Act (any 2) air, water, wildlife and forest.

UNIT -V- HUMAN POPULATION AND THE ENVIRONMENT

Population growth, variation among nations - Population explosion—Family Welfare Programme - Environment and human health - Human rights - Value education - HIV/AIDS - Women and Child Welfare - Role of Information Technology in environment and human health.

FIELD WORK

Students will visit any one of the following place of interest and submit a written report by the end of the semester:

1. Visit to a hospital/industry/canteen for solid waste management
2. Visit to a chemical industry to study about the practices followed there for waste disposal
3. Visit to Vandalur zoo for study of animal conservation/plants- flora and fauna
4. Study of simple ecosystems-lake/hill slopes
5. Naming the trees in the campus at SRM
6. Study of common plants, insects, birds in the neighbourhood
7. Study of common diseases and their prevention
8. Optional: Street plays and rally for awareness of obesity/diabetes/ vitamin D deficiency/health issues/ waste management/ solid waste management/ no plastics/ energy consumption/wild life protection.

E-BOOK

BharuchaErach, The Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad – 380013, India, Email:mapin@icenet.net (R)

REFERENCES

1. BharuchaErach, (2013), Textbook of Environmental Studies for Undergraduate Courses (Second edition). Telangana, India: Orient BlackSwan.
2. BasuMahua, Savarimuthu Xavier, (2017), SJ Fundamentals of Environmental Studies. Cambridge, United Kingdom: Cambridge University Press.
3. Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.
4. De A.K., Environmental Chemistry, Wiley Eastern Ltd.

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

SEMSTER VI

COURSECODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18601	PYTHON	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected :		Student Outcomes				
1	To learn syntax of Python language	a	c			
2	To create dynamic applications in Python	a	b	i		
3	To implement object oriented concepts using Python	a	c	i	j	l

UNIT I - INTRODUCTION

(15 Hours)

Introduction to Python - The concept of data types; variables, assignments; immutable variables; numerical types; arithmetic operators and expressions; comments in the program; understanding error messages. Conditions, boolean logic, logical operators; ranges; Control statements: if-else, loops (for, while); short-circuit (lazy) evaluation.

UNIT II - STRINGS AND TEXT FILES

(15 Hours)

Manipulating files and directories, os and sys modules; text files: reading/writing text and numbers from/to a file; creating and reading a formatted file (csv or tab-separated). String manipulations: subscript operator, indexing, slicing a string; strings and number system: converting strings to numbers and vice versa. Binary, octal, hexadecimal numbers

UNIT III - LISTS, TUPLES AND DICTIONARIES

(15 Hours)

Basic list operators, replacing, inserting, removing an element; searching and sorting lists; dictionary literals, adding and removing keys, accessing and replacing values; traversing dictionaries.

UNIT IV - DESIGN WITH FUNCTIONS

(15 Hours)

Hiding redundancy, complexity; arguments and return values; formal vs actual arguments, named arguments. Program structure and design. Recursive functions. Classes and OOP: classes, objects, attributes and methods; defining classes; design with classes, data modelling; persistent storage of objects

UNIT V - OOPS CONTINUED

(15 Hours)

Inheritance, polymorphism, operator overloading (`_eq_`, `_str_`, etc); abstract classes; exception handling, try block. Graphical user interfaces; event-driven programming paradigm; tkinter module, creating simple GUI; buttons, labels, entry fields, dialogs; widget attributes - sizes, fonts, colors layouts, nested frames.

TEXTBOOK

1. Kenneth A. Lambert, The Fundamentals of Python: First Programs, 2011, Cengage Learning, ISBN: 978-1111822705

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSECODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18602	OBJECT ORIENTED ANALYSIS AND DESIGN	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected :		Student Outcomes				
1	Develop a working understanding of normal object-oriented analysis and design processes	a	c			
2	Develop an appreciation for and understanding of the risks inherent to large-scale software development	a	b	i		
3	Develop an understanding of the application of OOAD practices from a software project	a	c	i	m	n

UNIT I - MODELING IN GENERAL

(15 Hours)

Object Oriented development – Evidence for Usefulness of Object Oriented development - Modeling Concepts: Modeling – Abstraction - The Three Models – Overview of Unified Modeling Language and introduction to UML diagrams

UNIT II - CLASS MODELING

(15 Hours)

Object and Class Concepts – Link and Association Concepts - Inheritance - Sample Class Model - Navigation of Class Models - Advanced Class Modeling: Advanced Object & Class Concepts - Association Ends -N-ary Associations– Aggregation - Abstract Classes - Multiple Inheritance –Metadata – Reification –Constraints - Derived Data – Packages.

UNIT III - DYNAMIC MODELING

(15 Hours)

State Modeling: Events – States – Transitions & Conditions - State diagrams – StateDiagram Behavior - Advanced State Modeling: Nested State Diagrams - Nested States - Signal Generalization – Concurrency - Sample State Model - Relation of Class & State Models - Interaction Modeling: Use Case Models - Sequence Models - Activity Models - Advanced Interaction Modeling: Use Case Relationships - Procedural Sequence Models - Special Constructs for Activity Models.

UNIT IV – PROCESS MODELING

(15 Hours)

Process Overview: Development Stages - Development Life Cycle -System Conception: Devising a System Concept - Elaborating a Concept- Preparing aproblem Statement - Domain Analysis: Overview of Analysis - Domain Class Model - Domain State Model - Domain Interaction Model - Iterating the Analysis - Application Analysis: Application Interaction Model -Application Class Model - State Model – Operations.

UNIT V - SYSTEM DESIGN

(15 Hours)

System Design: Overview of System Design - Estimating performance - Making a Reuse plan - Breaking a System into Subsystems - Identifying Concurrency-Allocation of Subsystems - Management of Data Storage - Handling Global Resources - Choosing a Software Control Strategy - Handling Boundary Conditions - Setting Trade-off Priorities - Common Architectural Styles - Architecture of the ATM System - Class Design: Bridging the Gap - Realizing Use Cases - Designing Algorithms - Recursing Downward – Refactoring - Design Optimization - Reification of Behavior - Adjustment of Inheritance – Organizing Class Design.

TEXTBOOKS

1. Michael Blaha and James Rumbaugh, (2012), “Object-Oriented Modeling andDesign with UML”,II edition, Prentice Hall of India Private Limited, New Delhi. (For Units I to III)
2. Ali Bahrami,(1999), “Object-oriented Systems Development using UML”, McGraw Hill, Boston. (For Units IV to V) .

REFERENCES

1. Michael Blaha and James Rumbaugh , (2006), “Object-Oriented Modeling and Design with UML”, Prentice Hall of India Private Limited, New Delhi.
2. Grady Booch,RobertA.Maksimchuk,MichaelW.Engle, (2010), “Object-Oriented Analysis and Design with Applications”, 3rd Edition.

Course Nature : Theory
Assessment Method (Max.Marks: 100)

In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSECODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18603	PYTHON LABORATORY	0	0	4	4	2

INSTRUCTIONAL OBJECTIVES		Student Outcomes				
At the end of this course, the learner is expected :						
1	To create dynamic applications using Python	a	c			
2	To implement object oriented concepts with Python	a	b	i	j	m

1. Write a Python code to display system information using `pywhois`.
2. The Magic 8 Ball is a toy used for fortune-telling or seeking advice.
3. Check whether a number is prime or not
4. Make a Simple Calculator
5. Find the Factorial of a Number
6. Python Program to Generate a Random Number
7. Python Program to Display the multiplication Table
8. Python Program to Convert Decimal to Binary, Octal and Hexadecimal
9. Python Program to Transpose a Matrix
10. Python Program to Multiply Two Matrices
11. Python Program to Check Whether a String is Palindrome or Not
12. Python Program to Sort Words in Alphabetic Order
13. Python Program for Inheritance.
14. Python Program for Operator overloading.
15. Python Program for Exception Handling.

Course Nature : Practical						
Assessment Method (Max.Marks: 100)						
In Semester	Assessment Tool	Observation Note Book	Output Result in time	Model Examination	Regularity and Discipline	Total
	Marks	10	10	20	10	50
End Semester	Assessment Tool	Record Note Book	Program Writing	Debugging	Result / Output	Total
	Marks	10	10	15	15	50
Total						100

COURSECODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18604	MINI PROJECT	1	1	4	6	4

INSTRUCTIONAL OBJECTIVES		Student Outcomes				
At the end of this course, the learner is expected :						
1	To implement the concepts studied in the course	a	c			
2	To understand the software development process.	a	b	i	n	m

The project work is implementation of their study of previous semester subjects. Training for the students to develop application based on the software development stages followed in the IT industry.

Review

Tentative Dates

First Review

In 4 Weeks but within schedule of 1st Assessment

Second Review

In 10 Weeks but within schedule of 2nd Assessment

Third Review

In 18 Weeks but within schedule of 3rd Assessment

Viva – Voce

End of the Semester

Course Nature :Project						
Assessment Method (Max.Marks: 100)						
In Semester	Assessment Tool	Review I	Review II	Review III	Regularity and Discipline	Total
	Marks	10	10	20	10	50
End Semester	Assessment Tool	Report Presentation	Analysis	Findings and Conclusion	Viva - Voce	Total
	Marks	10	10	15	15	50
Total						100

CORE ELECTIVE – II

COURSECODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18E04	ARTIFICIAL INTELLIGENCE & EXPERT SYSTEMS	4	0	0	4	4

INSTRUCTIONAL OBJECTIVES		Student Outcomes				
At the end of this course, the learner is expected :						
1	To learn the basics of designing intelligent agents that can solve general purpose problems	a	c			
2	To Represent and process knowledge	a	b	i		
3	To Plan and act, reason under uncertainty and can learn from experiences.	a	c	i	k	l

UNIT I - PROBLEM SOLVING (12 Hours)

Introduction – Agents – Problem formulation – uninformed search strategies – heuristics – informed search strategies – constraint satisfaction

UNIT II - LOGICAL REASONING (12 Hours)

Logical agents – propositional logic – inferences – first-order logic – inferences in firstorder logic – forward chaining – backward chaining – unification – resolution

UNIT III – PLANNING (12 Hours)

Planning with state-space search – partial-order planning – planning graphs – planning and acting in the real world

UNIT IV – LEARNING (12 Hours)

Learning from observation - Inductive learning – Decision trees – Explanation based learning – Statistical Learning methods - Reinforcement Learning

UNIT V – INTRODUCTION TO EXPERT SYSTEM (12 Hours)

Introduction to Expert System What are Expert Systems, Features of Expert System, features of good Expert System, Role of human in Expert System, Expert System organization, Difference between expert system and conventional program, Basic activities of expert system and the areas in which they solve problems, Prospector systems-features, working

TEXT BOOKS

1. Russel.SandNorvig,P, (2003), “Artificial Intelligence – A Modern Approach”,Second Edition, Pearson Education. Unit (I, II)
2. Stamatios V. Kartalopolous, “Understanding Neural Network and Fuzzy Logic”, PHI Pvt Ltd. Unit (I – III)
3. KishanMehrotra, “Elements of ANN” ,IIEdition, Penram International Publishing (I)Pvt. Ltd.Unit (IV – V)

REFERENCES

1. David Poole, Alan Mackworth,Randy Goebel,(2004),“ComputationalIntelligence : a logical approach”, Oxford University Press.
2. Luger.G,(2002), “Artificial Intelligence: Structures and Strategies for complex problem solving”, Fourth Edition, Pearson Education.
3. Nilsson.J,(1998), “Artificial Intelligence: A new Synthesis”, Elsevier Publishers.

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSECODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18E05	E-COMMERCE	4	0	0	4	4

INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected :		Student Outcomes				
1	To understand about Business of internet	a	c			
2	To appreciate EDI & E-Payment	a	b	i		
3	To know about internet security and e-commerce ethics	a	c	i	m	n

UNIT I - INTRODUCTION (12 Hours)

History of E- Commerce - Overview of E- Commerce framework - E- Business models - Network infrastructure - Role of Internet - E- commerce and World Wide Web.

UNIT II - E-COMMERCE (12 Hours)

Consumer oriented E- Commerce applications - Mercantile process models; Electronic Payment Systems - Digital Token based EPS - Smart cards - Credit cards - Risks - designing EPS.

UNIT III - ORGANIZATIONAL COMMERCE AND EDI (12 Hours)

Electronic Data Interchange - EDI applications in Business - EDI and e Commerce - EDI standardization and implementation - Internet based EDI.

UNIT IV - SECURITY (12 Hours)

Internet security standards - secure electronic payment protocols ; cryptography and authentication - security issues - encryption techniques.

UNIT V - E-PAYMENT MECHANISMS AND E-COMMERCE ETHICS (12 Hours)

E-commerce payment mechanisms -SET protocol - electronic check - electronic cash; E-commerce ethics, regulations and social responsibility.

TEXT BOOKS

1. Ravi Kalakota and Andrew B Whinston, (1999), "Frontiers of Electronic Commerce", Pearson Education Asia,.(Unit I,II & III)
2. Marilyn Greenstein and Todd M Feinman , (2000), "Electronic commerce: Security, Risk Management and Control" Tata McGraw-Hill,.(Unit IV & V)

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSECODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18E06	SYSTEM SOFTWARE	4	0	0	4	4

INSTRUCTIONAL OBJECTIVES		Student Outcomes				
At the end of this course, the learner is expected :						
1	To classify the various Sytem Software	a	c			
2	To build an assembler and complier	a	b	i		
3	To understand Linkers and loaders	a	c	i	k	l

UNIT-I - INTRODUCTION (12 Hours)

Introduction - System Software - Components of System Software Evolution by System Software – Model of Computer System; Introduction to Software Processors.

UNIT-II- ASSEMBLERS (12 Hours)

Assemblers: Elements of Assembly Language Programming - Over View of the Assembly Process - Design of Two Pass Assembler - A Single Pass Assembler for the IBM PC - Macros And Macro Processors.

UNIT-III- COMPILERS (12 Hours)

Compilers: Aspects of Compilation - Overview of the Compilation Process - Programming Languages Grammars – Scanning:- Parsing - Storage Allocation - Compilation of Expressions and Control Structures - Code Optimization – Compiler Writing Tools, Software Process for Interactive Environment

UNIT-IV- LOADERS AND LINKERS (12 Hours)

Loaders and Linkage Editors: Loading, Linking and Relocation – Program – Relocatability - Overview of the Editing - A Linkage Editor for the IBM PC - Linking for Program over-lays

UNIT-V - SOFTWARE TOOLS (12 Hours)

Software tools: Spectrum of software tools - Text editors - Interpreters and program generators - Debug monitors - Programming environments.

TEXT BOOK

Dhamdhare,(1991), "Introduction to system software" ,6th Edition, McGraw Hill. Unit (I – V)

REFERENCE

Leland L.Beck ,(2007), "An Introduction to System Programming" , III edition, Addison Wesley.

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

CORE ELECTIVE – III

COURSECODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18E07	WEB INTELLIGENCE	4	0	0	4	4

INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected :		Student Outcomes				
1	Leveraging intelligent web applications.	a	c			
2	Analyzing web applications in the real world.	a	b	i		
3	Building intelligence in your web	a	c	i	j	k

UNIT I – INTRODUCTION

(12 Hours)

Introduction to Web Intelligence -What is Web Intelligence?-Benefits of Intelligent Web-Ingredients of Web Intelligence-Topics of Web Intelligence-Related Technologies

UNIT II – INFORMATION RETRIEVAL**(12 Hours)**

Introduction to Information Retrieval - Document Representation - Retrieval Models - Evaluation of Retrieval Performance

UNIT III – SEMANTIC WEB**(12 Hours)**

Introduction -The Layered-Language Model - Metadata and Ontologies- Ontology Languages for the Web -Web Usage Mining : Web-Log Processing - Analyzing Web Logs - Applications of Web Usage Mining : Clustering of Web Users - Classification Modeling of Web Users.

UNIT IV - WEB CONTENT MINING**(12 Hours)**

Introduction - Web Crawlers-Search Engines-Personalization of Web ContentMultimedia Information Retrieval.

UNIT V - WEB STRUTURE MINING**(12 Hours)**

Modeling Web Topology - PageRank Algorithm - Hyperlink-Induced Topic Search (HITS) -o Random Walks on the Web - Social Networks

TEXT BOOK

1. Akerkar, R. &Lingras, P. (2008).Building an Intelligent Web: Theory and Practice.Jones and Bartlett Publishers, Sudbury, Massachusetts. ISBN-13: 978-0-7637-4137-2

REFERENCE

1. Witten, Ian H. & Frank, E. (2005). Data Mining: Practical Machine Learning Tools and Techniques. 2nd Edition, Morgan Kaufman. ISBN 0120884070,9780120884070

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSECODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18E08	CLOUD COMPUTING	4	0	0	4	4

INSTRUCTIONAL OBJECTIVES		Student Outcomes				
At the end of this course, the learner is expected :						
1	To classify the various Cloudcomputing applications	a	c			
2	To build an architecture of Cloud computing	a	b	i		
3	To understand Cloud computing standards	a	c	i	m	n

UNIT – I

(12 Hours)

Introduction to Cloud Computing, Definition, Characteristics, Components, Cloud provider, SAAS, PAAS, IAAS and Others, Organizational scenarios of clouds, Administering & Monitoring cloud services, benefits and limitations, Deploy application over cloud, Comparison among SAAS, PAAS, IAAS Cloud computing platforms: Infrastructure as service: Amazon EC2, Platform as Service: Google App Engine, Microsoft Azure, Utility Computing, Elastic Computing

UNIT – II

(12 Hours)

Introduction to Cloud Technologies, Study of Hypervisors Compare SOAP and REST Webservices, AJAX and mashups-Web services: SOAP and REST, SOAP versus REST, AJAX: asynchronous 'rich' interfaces, Mashups: user interface services Virtualization Technology: Virtual machine technology, virtualization applications in enterprises, Pitfalls of virtualization Multitenant software: Multi-entity support, Multi-schema approach, Multitenance using cloud data stores, Data access control for enterprise applications

UNIT – III

(12 Hours)

Data in the cloud: Relational databases, Cloud file systems: GFS and HDFS,

BigTable, HBase and Dynamo. Map-Reduce and extensions: Parallel computing, The map-Reduce model, Parallel efficiency of Map-Reduce, Relational operations using Map-Reduce, Enterprise batch processing using Map-Reduce, Introduction to cloud development, Example/Application of Mapreduce, Features and comparisons among GFS,HDFS etc, Map-Reduce model

UNIT – IV

(12 Hours)

Cloud security fundamentals, Vulnerability assessment tool for cloud, Privacy and Security in cloud -Cloud computing security architecture: Architectural Considerations- General Issues, Trusted Cloud computing, Secure Execution Environments and Communications, Micro-architectures; Identity Management and Access control Identity management, Access control, Autonomic Security Cloud

computing security challenges: Virtualization security management virtual threats, VM Security Recommendations, VM-Specific Security techniques, Secure Execution Environments and Communications in cloud.

UNIT – V

(12 Hours)

Issues in cloud computing, Implementing real time application over cloud platform Issues in Intercloud environments, QOS Issues in Cloud, Dependability, datamigration, streaming in Cloud. Quality of Service (QoS) monitoring in a Cloud computing environment. Cloud Middleware. Mobile Cloud Computing. Inter Cloud issues. A grid of clouds, Sky computing, load balancing, resource optimization, resource dynamic reconfiguration, Monitoring in Cloud

TEXT BOOK

1. Judith Hurwitz, Bloor.R, Kanfman.M, Halper.F, (2010), “Cloud Computing for Dummies” ,Wiley India Edition.Unit (I – V)
2. GautamShroff, (2010), “Enterprise Cloud Computing” ,CambridgeUniversity press.
3. Ronald Krutz and Russell Dean Vines,(2010), “Cloud Security”,Wiley-Indiapvt. Ltd.

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
		Marks	10	10	20	5	5
End Semester Weightage							50
Total							100

COURSECODE	COURSE TITLE	L	T	P	Total LTP	C
UCS18E09	BIG DATA ANALYTICS	4	0	0	4	4

INSTRUCTIONAL OBJECTIVES At the end of this course, the learner is expected :		Student Outcomes				
1	To understand the basics of Hadoop, MapReduce, Pig Latin.	a	c			
2	To understand how the analysis of data derives from the statement of a research problem or hypothesis and the availability of empirical data.	a	b	i		
3	Gain experience looking at analytics from a strategic perspective.	a	c	i	k	m

UNIT I - INTRODUCTION TO BIG DATA (12 Hours)

Introduction to BigData Platform – Challenges of Conventional Systems - Intelligent data analysis Nature of Data - Analytic Processes and Tools - Analysis vs Reporting - Modern Data Analytic Tools

UNIT II - STATISTICAL DATA ANALYSIS (12 Hours)

Parameter and Statistic- Sampling Distribution- Meaning-Standard Error and its uses.Tests of Significance- Null and Alternative Hypotheses.Type-I and Type-II Error-Critical Region and Level of Significance. One tailed and Two tailed Tests. Critical values or Significant values. Tests of Significance for Large Samples- Test of Significance for Single Proportion- Test of Significance for Difference of Proportions-Test of Significance for Single Mean- Test of Significance for Difference of Means.Chi-Square Distribution – Definition- Applications of Chi-Square Distribution-To test the goodness of fit.- To test the independence of Attributes.Student's "t" - Distribution-Definition- Applications of Student's "t" –Distribution- To test for Single Mean- To test for Difference of Means- Paired t-test for Difference of MeansF-Distribution- Definition- To Test for Equality of Two Population variances.Meaning of Resampling and its uses. Basic ideas of Randomization, Exact Test, Cross ValidationJackknife and Bootstrap.Prediction Error and its uses.

UNIT III - HADOOP (12 Hours)

History of Hadoop- The Hadoop Distributed File System – Components of Hadoop-Analyzing the Data with Hadoop- Scaling Out- Hadoop Streaming- Design of HDFS-Java interfaces to HDFS- How Map Reduce Works-Anatomy of a Map Reduce Job run-Failures-Job Scheduling-Shuffle and Sort – Task execution – Map Reduce Features.

UNIT IV - HADOOP ENVIRONMENT(12 Hours)

Setting up a Hadoop Cluster - Cluster specification - Cluster Setup and Installation - Hadoop Configuration-Security in Hadoop - Administering Hadoop – HDFS - Monitoring-Maintenance

UNIT V - FRAMEWORKS

(12 Hours)

Applications on Big Data Using Pig and Hive – Data processing operators in Pig – Hive services – HiveQL – Querying Data in Hive - fundamentals of HBase and ZooKeeper.

TEXT BOOKS

1. Michael Berthold, David J. Hand, (2007), “Intelligent Data Analysis”, Springer.(For Unit I to III)
2. Tom White (2012), “ Hadoop:The Definitive Guide” Third Edition, O’reillyMedia (For Unit IV to V)

REFERENCES

1. AnandRajaraman and Jeffrey David Ullman, (2012), “Mining of Massive Datasets”, Cambridge University Press.
2. Viktor Mayer, Schonberger, Kenneth Cukier,(2013), “Blg Data : A Revolution That Will Transform How We Live, Work and Think”,Houghton Mifflin

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semester	Assessment Tool	Cycle Test I	Cycle Test II	Model Examination	Assignment	Attendance	Total
	Marks	10	10	20	5	5	50
End Semester Weightage							50
Total							100

COURSECODE	COURSE TITLE	L	T	P	Total LTP	C
CAC18601	COMMUNICATION SKILLS	2	0	0	2	2

COURSE OBJECTIVE

To inculcate professional ethics and improve employability skills

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes					
1.	To actively participate in formal discussions and manifest professional skills such as working in team, empathy, communicating appropriately and assertiveness	d	e	f	h	m	n
2.	To foster problem solving and decision making skills through case studies on work ethics, decision making, organizational behavior etc.,	d	e	f	h	m	n
3.	To build confidence to face audience and overcome stage fear with necessary training in public speaking and presentation skills	d	e	f	h	m	n
4.	To develop written business communication skills	d	e	f	h	m	n

UNIT –I

Etiquettes- social, professional, communication, dinning and grooming etiquettes

UNIT –II

Interpersonal skills- Empathy, Managing conflicts, Effective decision making

UNIT-III

Team work- Role of leader and effective leadership, Role of team members and team ethics, Case study analysis (in teams) to understand team dynamics

UNIT-IV

Professional writing- Report, Letter, Summary and e-mail

UNIT-V

Presentation skills- Importance of verbal and non-verbal communication, Body language, Use of appropriate language

REFERENCES

1. 'How to deliver a presentation' By Paul Newton; e-book
2. 'A-Z of Presentation' By Eric Garner; e-book
3. 'Emotional Intelligence' By Daniel Coleman

CDC ASSESSMENT TOOLS – V SEMSTERS

YEAR	SEMESTER	CODE	ACTIVITIES	MARKS	TOTAL
I	1	CAC18101	Class Room Activities	20 marks	100 marks
			Communication Activities	50 marks	
			LMS	20 marks	
			Participation	10 marks	
	2	CAC18201	Assignment 1	20 marks	100 marks
			Assignment 2	20 marks	
			Surprise Test 1	25 marks	
			Surprise Test 2	25 marks	
			Participation	10 marks	
	II III	3	CAC18301	Assignment 1	20 marks
Assignment 2				20 marks	
Surprise Test 1				25 marks	
Surprise Test 2				25 marks	
Participation				10 marks	
4		CAC18401	Assignment 1	20 marks	100 marks
			Assignment 2	20 marks	
			Surprise Test 1	25 marks	
			Surprise Test 2	25 marks	
			Participation	10 marks	
6		CAC18601	E mail drafting	20 marks	100 marks
			Case study analysis	25 marks	
			Presentation	25 marks	
			Professional writing	20 marks	
			Participation	10 marks	