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

BACHELOR OF COMPUTER APPLICATIONS

Curriculum and Syllabus

(For Students admitted from academic year 2018 – 2019 onwards)

UNDER CHOICE BASED CREDIT SYSTEM

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

BACHELOR OF COMPUTER APPLICATIONS
(For Students admitted from academic year 2018 – 2019 onwards)
CURRICULUM

SEMESTER I							
Career Stream Title	**Course Code**	**Course Title**	**L**	**T**	**P**	**L+T+P**	**C**
Language	ULT18101	Tamil - I	4	1	0	5	4
	ULH18101	Hindi – I					
	ULF18101	French – I					
	ULE18101	English –I	4	1	0	5	4
Compulsory Core	UCA18101	Digital Logic Fundamentals	4	0	0	4	4
	UCA18102	Programming In C	4	0	0	4	4
Compulsory Core Lab	UCA18103	Open Office Using Linux Laboratory	0	0	3	3	2
	UCA18104	Programming In C Laboratory	0	0	3	3	2
Allied	UCA18105	Mathematics – I	4	0	0	4	4
Supportive Course **(Internal Evaluation)**	CAC18101	Soft Skills	2	0	0	2	2
Total			**22**	**2**	**6**	**30**	**26**
SEMESTER II							
Career Stream Title	**Course Code**	**Course Title**	**L**	**T**	**P**	**L+T+P**	**C**
Language	ULT18201	Tamil - II	4	1	0	5	4
	ULH18201	Hindi – II					
	ULF18201	French –II					
	ULE18201	English –II	4	1	0	5	4
Compulsory Core	UCA18201	Web Technology	4	0	0	4	4
	UCA18202	Object Oriented Programming Using C++	4	0	0	4	4
Compulsory Core Lab	UCA18203	Object Oriented Programming Laboratory	0	0	3	3	2
	UCA18204	Web Technology Laboratory	0	0	3	3	2
Allied	UCA18205	Mathematics – II	4	0	0	4	4

Supportive Course **(Internal Evaluation)**	CAC18201	Quantitative Aptitude and Logical Reasoning – I	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**	**L+T+P**	**C**
Compulsory Core	UCA18301	Programming In Java	4	1	0	5	4
	UCA18302	Relational Database Management	4	1	0	5	4
Compulsory Core Lab	UCA18303	Programming In Java Laboratory	0	0	4	4	2
	UCA18304	Relational Database Management Laboratory	0	0	4	4	2
Allied	UCA18305	Statistical Methods	4	1	0	5	4
Skill Based Electives-I	UCA18E51	Fundamentals of Data structures	3	0	0	3	3
	UCA18E52	Statistical Package for Social Sciences (SPSS)					
	UCA18E53	Business Intelligence					
Non-Major Elective		Open Elective-I	2	0	0	2	2
Supportive Course **(Internal Evaluation)**	CAC18301	Quantitative Aptitude and Logical Reasoning – II	2	0	0	2	2
Total			**19**	**3**	**8**	**30**	**23**

SEMESTER IV							
Career Stream Title	**Course Code**	**Course Title**	**L**	**T**	**P**	**L+T+P**	**C**
Compulsory Core	UCA18401	Multimedia and Animation	4	1	0	5	4
	UCA18402	Windows Programming Using VB .Net	4	1	0	5	4
Compulsory Core Lab	UCA18403	Multimedia and Animation Laboratory	0	0	4	4	2
	UCA18404	Windows Programming Using VB .Net Laboratory	0	0	4	4	2
Allied	UCA18405	Resource Management Techniques	4	1	0	5	4
Skill Based Electives-II	UCA18E54	Design and Analysis of Algorithm	3	0	0	3	3
	UCA18E55	Linux Administration					
	UCA18E56	Introduction to Financial Accounting					
Non-Major Elective		Open Elective-II	2	0	0	2	2
Supportive Course **(Internal Evaluation)**	CAC18401	Verbal Ability and Reasoning	2	0	0	2	2
Total			**18**	**3**	**9**	**30**	**23**
SEMESTER V							
Career Stream Title	**Course Code**	**Course Title**	**L**	**T**	**P**	**L+T+P**	**C**
Compulsory Core	UCA18501	Computer Networks	4	1	0	5	4
	UCA18502	PHP and MYSQL Programming	4	1	0	5	4
	UCA18503	Operating System	4	1	0	5	4
Compulsory Core Lab	UCA18504	Computer Networks Laboratory	0	0	4	4	2
	UCA18505	PHP and MYSQL Programming Laboratory	0	0	4	4	2
Core Elective - I	UCA18E01	Software Engineering and Testing	4	0	0	4	4
	UCA18E02	Management Information System And ERP					

	UCA18E03	Knowledge Management					
Supportive Course	UES18501	Environmental Studies	3	0	0	3	3
	UCA18506	**Corporate Internship**	**-**	**-**	**-**	**-**	**2**
Total			**19**	**3**	**8**	**30**	**25**
SEMESTER VI							
Career Stream Title	**Course Code**	**Course Title**	**L**	**T**	**P**	**L+T+P**	**C**
Compulsory Core	UCA18601	Object Oriented Analysis And Design	4	1	0	5	4
	UCA18602	E-Commerce	4	1	0	5	4
Compulsory Core Lab	UCA18603	Object Oriented Analysis and Design Laboratory	0	0	4	4	2
	UCA18604	Project Work	0	2	4	6	4
Core Elective – II	UCA18E04	Cryptography & Network Security	4	0	0	4	4
	UCA18E05	Data mining and Warehousing					
	UCA18E06	Service Oriented Architecture					
Core Elective – III	UCA18E07	Introduction to Mobile Application Development	4	0	0	4	4
	UCA18E08	Python Programming					
	UCA18E09	Artificial Intelligence					
Supportive Course **(Internal Evaluation)**	CAC18601	Communication Skills	2	0	0	2	2
Total			**18**	**4**	**8**	**30**	**24**

Total Credits to be earned for the degree: 148

Program Educational Objectives (PEOs)

- PEO1. Graduates will have skills and knowledge to excel in their professional career in Computer Applications 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, TWE:VE STUDENT OUTCOMES (a-k) 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.

FIRST SEMESTER

குறியீட்டு எண்	பாடம்	L	T	P	L+T+P	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 ஆண்டுகாலத் தமிழின் தொன்மையையும் வரலாற்றையும் அதன் விழுமியங்களையும் பண்பாட்டையும் எடுத்துரைப்பதாக இப்பாடத்திட்டம் அமைக்கப் பட்டுள்ளது.	e	f	h	m	n
2.	காலந்தோறும் தமிழ் இலக்கியம் உள்ளடக்கத்திலும், வடிவத்திலும் பெற்ற மாற்றங்கள், அதன் சிந்தனைகள், அடையாளங்கள் ஆகியவற்றை காலந்தோறும் எழுதப்பட்ட இலக்கியங்களின் வழியாகக் கூறுவதாகவும், மொழியின் கட்டமைப்பைப் புரிந்து கொள்வதாகவும் பாடத்திட்டம் வடிவமைக்கப்பட்டுள்ளது.	e	f	h	n	
3.	வாழ்வியல் சிந்தனைகள், ஒழுக்கவியல் கோட்பாடுகள், சமத்துவம், சூழலியல் எனப் பல கூறுகளை மாணவர்களுக்கு எடுத்துரைக்கும் விதத்தில் இப்பாடத்திட்டம் உருவாக்கப்பட்டுள்ளது.	e	f	d	n	

அலகு – 1

இக்காலக் கவிதைகள் - 1

1. பாரதியார் – கண்ணன் என் சேவகன்
2. பாரதிதாசன் – தமிழ்ப்பேறு
3. அப்துல் ரகுமான் – அவதாரம்
4. மீரா – கனவுகள் +கற்பனைகள் = காகிதங்கள்
5. து. நரசிம்மன் – மன்னித்துவிடு மகனே

அலகு – 2

இக்காலக் கவிதைகள் - 2

1. ராஜா சந்திரசேகர் – கைவிடப்பட்ட குழந்தை
2. அனார் – மேலும் சில இரத்தக் குறிப்புகள்

3. சுகிர்தராணி – அம்மா

4. நா.முத்துக்குமார் – தூர்

அலகு – 3

சிற்றிலக்கியம்

1. கலிங்கத்துப் பரணி – பொருதடக்கை வாள் எங்கே… (பாடல் - 485)

2. அழகர்கிள்ளை விடு தூது – இதமாய் மனிதருடனே… (கண்ணி – 45)

3. நந்திக் கலம்பகம் – அம்பொன்று வில்லொடிதல்… (பாடல் – 77)

4. முக்கூடற் பள்ளு – பாயும் மருதஞ் செழிக்கவே… (பாடல் – 47)

5.குற்றாலக் குறவஞ்சி – ஓடக் காண்பதுமே… (பாடல் - 9)

காப்பியங்கள்

மணிமேகலை – உலகவறவி புக்க காதை – "மாசுஇல் வால்ஒளி! - இந்நாள் போலும் இளங்கொடி கெடுத்தனை" . (28 அடிகள்)

அலகு – 4 – தமிழ் இலக்கிய வரலாறு

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

அலகு -5

மொழிப்பயிற்சி :

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

உரைநடைப் பகுதி :

1. உ.வே.சாமிநாதையர் – சிவதருமோத்திரச் சுவடி பெற்ற வரலாறு,

2. தஞ்சாவூர்க் கவிராயர் –கூஜாவின் கோபம்,

3. இரா.பச்சியப்பன் – மாடல்ல மற்றையவை

பார்வை நூல்கள்

1. *கைலாபதி, க., தமிழ் நாவல் இலக்கியம் ,குமரன் பதிப்பகம், வடபழனி. 1968.*
2. *சுந்தரராஜன், பெ.கோ ., சிவபாதசுந்தரம், சோ., தமிழில் சிறுகதை வரலாறும் வளர்ச்சியும், க்ரியா, சென்னை, 1989.*
3. *பரந்தாமனார், அ.கி., நல்ல தமிழ் எழுத வேண்டுமா, பாரி நிலையம், சென்னை, 1998,*

4. *பாக்யமோரி, வகைமை நோக்கில் தமிழ் இலக்கிய வரலாறு, என்.கி.பி. எச். பதிப்பகம், சென்னை, 2011*

5. *வல்லிக்கண்ணன், புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும், அன்னம், சிவகங்கை, 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	L+T+P	C
ULH 18101	HINDI – I	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To express and communicate literature which is part of life	e	f	h	m	n
2.	To incorporate day to day personal and professionl 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 Ghar Ki Beti - Premchand
2. Vaishnav Ki Fislan (Vyangya Katha) - Harishankar Parsai
3. Benam Rishta - Mridula Garg
4. Utsah - Ramchandar Shukla (Niband)
5. Puruskar - Jayshankar Prasad
6. Hardam.Com - Alka Sinha

UNIT II - ONE ACT PLAY **(15 hours)**

1. Mahabharat Ki Ek Sanjh - Bharat Bhushan Agrawal
2. Reed Ki Haddi - Jagdish Chandr Mathur

UNIT III - CORRESPONDENCE **(10 hours)**

1. Official Letter
2. Demi-Official Letter

UNIT IV - CINEMA **(10 hours)**

1. Panchlight - Phanishwar Nath Renu
2. Chandi Ka Juta - Bal Shauri Reddi

UNIT V - TECHNICAL TERMINOLOGY **(5 hours)**

REFERENCES

1. Prayojan Mulak Hindi – Madhav Sontakke
2. A Practical Guide To English Translation And Compostition – 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%**

Course Code	Course Title	L	T	P	L+T+P	C
ULF18101	FRENCH-I	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
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'intoSnation – Quelques professions – Les nombres de 11 à 69 – Oui, non, si. **J'adore !**- Exprimer ses gouts –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.

Référence

1. "**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%**

Course Code	Course Title	L	T	P	L+T+P	C
ULE18101	ENGLISH-I	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
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. Yayum Nyayum – 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)**

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

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

1. Shabdo -Kaushik Ganguli
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 BOOK

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%**

Course Code	Course Title	L	T	P	L+T+P	C
UCA18101	DIGITAL LOGIC FUNDAMENTALS	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 Boolean algebra to express and simplify logic expressions	a	d			
2.	To gather extensive knowledge in design of sequential and combinational digital systems	a	d			
3.	To strengthen the knowledge on logic circuits to hardware description language to design digital systems.	c	b	l		

UNIT I - NUMBER SYSTEMS **(12 Hours)**

Introduction- Conversion from one base to another-Complements- Boolean algebra & properties of Boolean algebra- Logic Gates.

UNIT II – BOOLEN FUNCTIONS **(12 Hours)**

Boolean functions, Karnaugh map(upto 5 Variables) - SOP-POS- Mc-Clausky Tabulation methods.

UNITI III – FLIP-FLOPS **(12 Hours)**

Sequential logic circuits - RS & JK Flip-Flops – D&T Flip-Flops-Triggering of flips.

UNIT IV – REGISTERS AND COUNTERS **(12 Hours)**

Registers – Shift Registers- Counters & Ripple Counters - Synchronous Counters- Design of Counters

UNIT V – ADDERS & SUBTRACTORS **(12 Hours)**

Adders& Subtractors- Encoders-Decoders-Multiplexer – Demultiplexer

TEXT BOOK

1. Mano M.M. (1994), "*Digital Logic and Computer Design*", Prentice Hall of India,.

REFERENCE

1. Bartee T.C. (1991), *'Computer Architecture and logical Design*', McGraw Hill,

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semest	Assessm ent Tool	Cycle Test I	Cycle Test II	Model Examina	Assignm ent	Atten danc	Total

er				**tion**		**e**	
	Marks	**10**	**10**	**20**	**5**	**5**	**50%**
End Semester Weightage							**50%**
Total							**100%**

Course Code	Course Title	L	T	P	L+T+P	C
UCA18102	PROGRAMMING IN C	4	0	0	4	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To acquire knowledge about basic Programming skills	a	c			
2.	To strengthen the knowledge on structures, arrays etc., of C programming	a	b	i		
3.	To develop program using the features in C Language for problem solving.	a	c	i		

UNIT I - OVERVIEW OF C **(12 Hours)**

Introduction- Importance of C- Basic Structure of C program- Tokens-Variables- Data types- Operators and Expression- Managing Input and Output Operators.

UNIT II - CONDITIONAL STATEMENTS **(12 Hours)**

If statement- switch statement- goto statement- while statement- do statement-for statement- continue statement- break statement.

UNIT III - ARRAYS AND FUNCTIONS **(12 Hours)**

One dimensional array- Two dimensional array- Multidimensional array-Built in functions (Library functions): String Handling functions-User defined functions.

UNIT IV - STRUCTURES, UNIONS AND POINTERS **(12 Hours)**

Structure definition- Arrays of structures- Structures and functions- Unions- Understanding pointers- Declaring and initializing pointers- Pointers and arrays- Pointers and functions- Pointers and structures.

UNIT V - FILE MANAGEMENT **(12 Hours)**

Defining and Opening a file- Closing a file- Input output operations on files-Error Handling during I/O operations- Command line arguments.

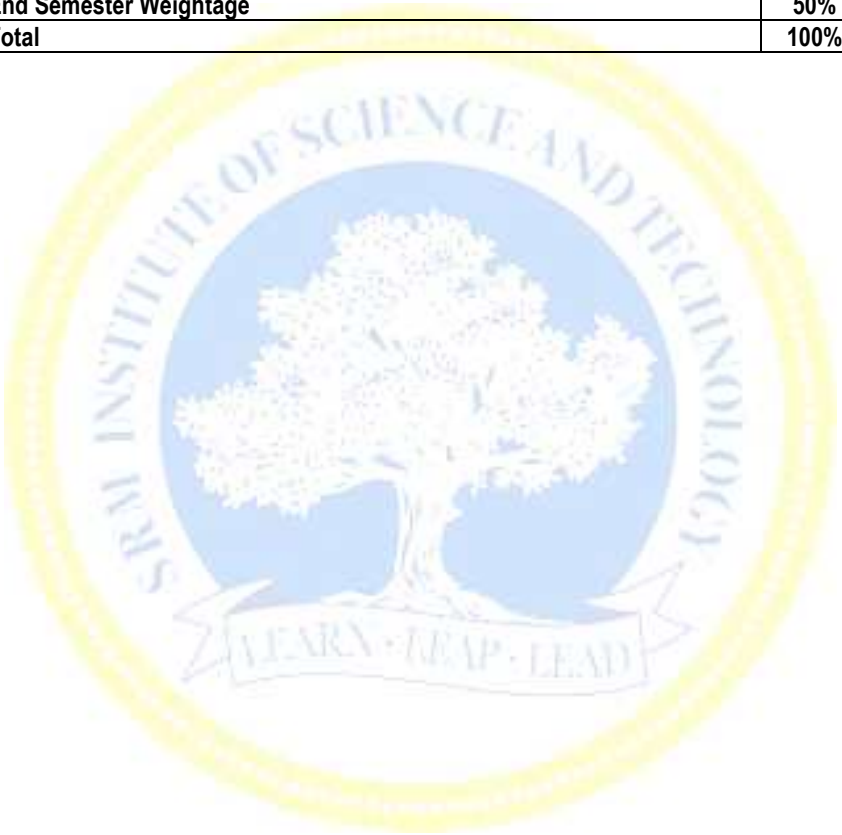
TEXT BOOK

1. Balagurusamy.E (2008), *"Programming in ANSI C"* , Second Edition, Tata McGraw Hill.

REFERENCES

1. Kamthane Ashok.N (2013), *"Programming in C"*, 2nd Edition, Pearson Education.
2. Yashvant P. Kanetkar (2008*), "Let us C",* 8th Edition, Infinity science 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 Code	Course Title	L	T	P	L+T+P	C
UCA18103	OPEN OFFICE USING LINUX 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 working skills in Open Office	a				
2.	To develop the skills in preparing documents, Work books and presentations			c	e	
3.	To develop the skill for performing the manipulations with documents, Work books and presentations		b			

LIST OF EXPERIMENTS

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

   Using of OpenOffice writer.
3. To design a Visiting Card for a company following specification
   1) Size of the Visiting Card 4" X 3".
   2) Name of the company with a WortArt.
   3) 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 in OpenOffice.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.

11. Creating An Impress Presentation using wizard
12. Create a presentation on Tourism of a place using different template, color schema and text formats
13. Create a presentation about your college and department using animations and sound effects.Add OLE object to your presentation.

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

Course Code	Course Title	L	T	P	L+T+P	C
UCA18104	PROGRAMMING IN 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			

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

Total	**100**

Course Code	Course Title	L	T	P	L+T+P	C
UCA18105/ UCS18105	MATHEMATICS – I	4	0	0	4	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To apply basic concepts for clear understanding of mathematical principles	a	b	e		
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, composit``e 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	L+T+P	C
CAC18101	SOFT SKILLS	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 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.

Course Nature : Theory (Internal)						
Assessment Method (Max.Marks: 100)						
In Semester	**Assessment Tools**	**Class Room Activities**	**Communication Activities**	**LMS**	**Participation**	**Total**
	Marks	**20**	**50**	**20**	**10**	**100**

SEMESTER II

குறியீட்டு எண்	பாடம்	L	T	P	L+T+P	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 ஆண்டுகாலத் தமிழின் தொன்மையையும் வரலாற்றையும் அதன் விழுமியங்களையும் பண்பாட்டையும் எடுத்துரைப்பதாக இப்பாடத்திட்டம் அமைக்கப் பட்டுள்ளது.	e	f	h	m	n
2.	காலந்தோறும் தமிழ் இலக்கியம் உள்ளடக்கத்திலும், வடிவத்திலும் பெற்ற மாற்றங்கள், அதன் சிந்தனைகள், அடையாளங்கள் ஆகியவற்றை காலந்தோறும் எழுதப்பட்ட இலக்கியங்களின் வழியாகக் கூறுவதாகவும், மொழியின் கட்டமைப்பைப் புரிந்து கொள்வதாகவும் பாடத்திட்டம் வடிவமைக்கப்பட்டுள்ளது.	e	f	d		
3.	வாழ்வியல் சிந்தனைகள், ஒழுக்கவியல் கோட்பாடுகள், சமத்துவம், சூழலியல் எனப் பல கூறுகளை 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 (அதிகாரம்31), காதல் சிறப்புரைத்தல் (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. **பதினெண் கீழ்க்கணக்கு -** 1. நாலடியார் - நல்லார் எனத்தான் (221), 2. திரிகடுகம் - கோலஞ்சி வாழும் குடியும் (33),

   3. இனியவை நாற்பது - குழவி தளர்நடை (14), கார் நாற்பது - நலமிகு கார்த்திகை (26), 5. களவழி நாற்பது - கவளங்கொள் யானை (14)

அலகு - 3

சைவம் – பன்னிரு திருமுறைகள்

1. திருஞானசம்பந்தர் - வேயுறு தோளிபங்கன் (இரண்டாம் திருமுறை)
2. திருநாவுக்கரசர் - மனமெனும் தோணி (நான்காம் திருமுறை)
3. சுந்தரர் - ஏழிசையாய் இசைப்பயனாய் (ஏழாம் திருமுறை)
4. மாணிக்கவாசகர் - ஆதியும் அந்தமும் இல்லா (திருவெம்பாவை)
5. திருமூலர் - அன்பு சிவம் இரண்டு (திருமந்திரம்)

வைணவம் – நாலாயிரத் திவ்யப் பிரபந்தம்

1. பேயாழ்வார் - திருக்கண்டேன் பொன்மேனி ...
2. பெரியாழ்வார் - கருங்கண் தோகை மயிற் பீலி...
3. தொண்டரடிப்பொடி ஆழ்வார் - பச்சைமாமலை போல்...
4. ஆண்டாள் - கருப்பூரம் நாறுமோ? கமலப்பூ ...
5. திருமங்கையாழ்வார் - வாடினேன் வாடி வருந்தினேன்

இஸ்லாமியம்

சீறாப்புராணம் - மானுக்குப் பிணை நின்ற படலம் **-** – 5 பாடல்கள் (பாடல் எண்கள் : 61 - 65)

கிறித்துவம்

இரட்சண்ய யாத்ரீகம் – கடைதிறப்புப் படலம் **–** 5 பாடல்கள் (பாடல் எண்கள் : 3,9,10,15,16)

அலகு – 4

தமிழ் இலக்கிய வரலாறு

1. சங்க இலக்கியங்கள், 2. நீதி இலக்கியங்கள், 3.பக்தி இலக்கியங்கள், 4. காப்பியங்கள்

அலகு – 5

சிறுகதைகள்

1. புதுமைப்பித்தன் – அகலிகை
2. ந.பிச்சமூர்த்தி – வேப்பமரம்
3. அகிலன் – ஒரு வேளைச் சோறு
4. ஜி. நாகராஜன் – பச்சக் குதிரை
5. கி.ராஜநாராயணன் – கதவு
6. சா.கந்தசாமி – தக்கையின் மீது நான்கு கண்கள்
7. ஆண்டாள் பிரியதர்ஷினி – மாத்திரை
8. வண்ணதாசன் – ஒரு உல்லாசப் பயணம்

9. சு. தமிழ்ச்செல்வன் – வெயிலோடு போய்

10. பாரததேவி – மாப்பிள்ளை விருந்து

பார்வை நூல்கள்

1. *அரசு, வீ., இருபதாம் நூற்றாண்டுச் சிறுகதைகள் நூறு, அடையாளம் பதிப்பகம், திருச்சி, 2013*
2. *அருணாசலம், ப., பக்தி இலக்கியங்கள், பாரி நிலையம், சென்னை, 2010*
3. *தமிழண்ணல், புதிய நோக்கில் தமிழ் இலக்கிய வரலாறு, மீனாட்சி புத்தக நிலையம், மதுரை, 2000*
4. *பாக்யமேரி, வகைமை நோக்கில் தமிழ் இலக்கிய வரலாறு, என்.சி.பி. எச். பதிப்பகம், சென்னை, 2011*
5. *பசுபதி, ம.வே. செம்மொழித்தமிழ் இலக்கண இலக்கியங்கள், தமிழ்ப் பல்கலைக்கழகம், 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	L+T+P	C
ULH 18201	HINDI-II	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To express and communicate literature which is part of life	e	f	h	m	n
2.	To incorporate day to day personal and professionl 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 **(30hours)**

1. Kabir, Tulsi, Rahim, Bihari
2. Kaidi Aur Kokila - Makhan Lal Chaturvedi
3. Ab Aur Nahi - Om Prakash Valmiki
4. Prem Ka Rog - Kunwar Narayan
5. Maa Gaon Me Hai - Divik Ramesh
6. Adhik Naya Hota Hun - 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. Adminstrative Words, Anuvad : Anuvad Ki Parisbhasha Evam Bhed

UNIT – IV **(10 hours)**

1. Anuvad : English To Hindi

REFERENCE

1. Prayojan Mulak Hindi – Madhav Sontakke
A Practical Guide To English Translation And Compostition – K.P. Thakur

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Semest	Assessm ent Tool	Cycle Test I	Cycle Test II	Model Examina	Assignm ent	Atten danc	Total

er				tion		e	
	Marks	10	10	20	5	5	50%
End Semester Weightage							50%
Total							100%

Course Code	Course Title	L	T	P	L+T+P	C
ULF18201	FRENCH-II	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
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

1. "**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%**

Course Code	Course Title	L	T	P	L+T+P	C
ULE18201	ENGLISH - II	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
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 Kondro Kada Kondro- Pura Naanooru 187
3. On being Trans- Lee Mokobe
4. Girl Child – Pawani Mathur

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 –Nirad C.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 – Razia Fasih 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 BOOK

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%**

Course Code	Course Title	L	T	P	L+T+P	C
UCA18201	WEB TECHNOLOGY	4	0	0	4	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To enrich the knowledge of scripting languages		a			
2.	To introduce advance HTML tags			l		
3.	To enable the learner to become a Web Designer				f	i

UNIT I - CSS **(12 Hours)**

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

UNIT II - DOM **(12 Hours)**

DOM model: Understanding DOM model. Objects in HTML, Browser, object, window, history, location, navigator, document object.

UNIT III - INTRODUCTION TO JAVA SCRIPT **(12 Hours)**

Java Script: Introduction to scripting-operators: logical-Increment and decrement operators- control structures.

UNIT IV - FUNCTIONS, ARRAYS AND OBJECTS **(12 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 **(12 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 enabled commercial application development using HTML, DHTML java script, peal CGI*", 3rd Edition, BPB Publications, New Delhi. (Unit I & II)

2. Deitel H M, Nieto T.R. (2011) "*Internet and world wide web How to program*", Fifth Edition, Prentice Hall of Indian Pvt. Ltd, New Delhi.(Unit III, IV,V)

REFERENCE

1. Deitel, Nieto,lin, Sadhu (2005), "*XML How to program*", 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	L+T+P	C
UCA18202	OBJECT ORIENTED PROGRAMMING USING C++	4	0	0	4	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To introduce the concepts of Object Oriented Programming.	**a**				
2.	To learn the concepts of class & objects		**c**			
3. .	To become a Software Developer			**l**	**k**	

UNIT I - PRINCIPLES OF OBJECT ORIENTED PROGRAMMING (12 Hours)

Object Oriented Programming Paradigms- basic concept of OOPS- benefits of OOP-what is C++-simple C++ program-structure of C++ program- creating a source file – compiling and linking.

UNIT II - TOKENS, EXPRESSION AND CONTROL STRUCTURES (12 Hours)

Tokens-keywords-identifiers and constants-basic data types-user defined data types-derived data types-type compatibility-declaration of variables-dynamic initialization of variables-reference variables-operators in C++-manipulators-type cast operator-implicit conversion-operator overloading-control structures.

UNIT III - CLASS AND OBJECTS (12 Hours)

Functions in C++- function overloading-Specifying a class- defining member function-arrays within a class-arrays of objects- objects as function arguments- friendly functions-constructor and destructor

UNIT IV - INHERITANCE, POINTER, VIRTUAL FUNCTION AND POLYMORPHISM (12 Hours)

Single inheritance-multilevel-multiple inheritance-hierarchical-hybrid-virtual base class-abstract classes-pointers-this pointer-virtual functions-pure virtual functions.-operator over loading- rules for operator overloading

UNIT V - MANAGING CONSOLE I/O OPERATIONS (12 Hours)

C++ streams- streams classes-unformatted I/O operations-formatted console I/O operations-managing output with manipulators- exception handling- basics of exception handling.

TEXT BOOK

1. Balagurusamy.E (2008), "Object Oriented Programming with C++", Tata McGraw-Hill Publication.

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	L+T+P	C
UCA18203	OBJECT ORIENTED PROGRAMMING 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			

LIST OF EXPERIMENTS

Write C++ program

1. To implement the concept of classes and object with member functions, constructors and Destructors.
2. To implement the concept Arrays of Objects
3. To implement function overloading .
4. To implement friend function.
5. To implement the concept of Single Inheritance
6. To implement the concept of Multilevel Inheritance
7. To implement the concept of Multiple Inheritance
8. To implement the concept of Hybrid Inheritance
9. To implement operator overloading (Unary and Binary operators).
10. To implement Virtual function
11. To implement Stream related operations
12. To handle the error using Exception Handling.

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

Course Code	Course Title	L	T	P	L+T+P	C
UCA18204	WEB TECHNOLOGY 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 basicHTML tags and Web page design	a				l
2.	To enrich the knowledge of scripting languages.	a				
3.	To enable the learner to become a Web Designer.			f	i	

LIST OF EXPERIMENTS

1. Create a web page with table content.
2. Create a web site using links for text and images.
3. Display your bio-data using form controls.
4. Using frames, create web page for a travel agency.
5. Create a a style sheet and apply the styles in a web page.
6. Create an application to work with Document Object Model.
7. Calculate factorial of a number using function.
8. Create our department details using CSS.
9. Create calculator format using java script.
10. Create an array of 10 numbers and sort them using java script.
11. String manipulation using string object.
12. Create a web page which displays the mouse co-ordinates and image co-ordinates.
13. Create Employee details using schemas.
14. Create Payroll system using XSL.

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

Course Code	Course Title	L	T	P	L+T+P	C
UCA18205/ UCS18205	MATHEMATICS-II	4	0	0	4	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To apply Mathematical techniques for clear understanding of Mathematical principles	a	b	e		
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 nθ, cos nθ and tan nθ – expansion of $Sin^n\theta$ and $Cos^n\theta$ - Expansion of $Sin^n\theta.Cos^n\theta$

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	L+T+P	C
CAC18201	QUANTITATIVE APTITUDE AND LOGICAL REASONING – I	2	0	0	2	2

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	n
4.	To adopt new techniques in solving problem	a	b	h	i	j	m	n

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. Abhijit Guha, 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 Nature : Theory (Internal only)							
Assessment Method (Max.Marks: 100)							
In Sem ester	**Assessment Tools**	**Assign ment 1**	**Assign ment 2**	**Surprise Test 1**	**Surprise Test 2**	**Atten dance**	**Total**
	Marks	**20**	**20**	**25**	**25**	**10**	**100**

UNC18201/ UNS18201/ UNO18201/ UYG18201	**NATIONAL CADET CORPS (NCC)/ NATIONAL SERVICE SCHEME (NSS)/ NATIONAL SPORTS ORGANIZATION (NSO) / YOGA**	**L**	**T**	**P**	**C**
		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:		**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	L+T+P	C
UCA18301	PROGRAMMING IN JAVA	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				
2.	To learn multithreading concepts	a				
3.	To enable the learner to become a Java Programmer.		e	l	k	

UNIT I - INTRODUCTION TO JAVA (15 Hours)

The Genesis of Java- Buzzwords- Object oriented Concepts- Lexical Issues- Data types and variables- Arrays- Operators - Control Statements: Selection- Iteration and jump Statement.

UNIT II - CLASSES AND METHODS (15 Hours)

Introducing classes - Class fundamentals - Declaring Objects - Assigning object reference variables. Introducing method – Constructors- The this Keyword- Garbage Collection- Finalize() method- Overloading methods- Using objects as parameters- Argument Passing - Returning Objects- Recursion – static and final keyword - Nested and Inner Classes - String Class - Command Line arguments.

UNIT III - INHERITANCE, PACKAGES, INTERFACES (15 Hours)

Inheritance Basics - using Super- method Overriding – Dynamic method dispatch - abstract classes- Using final with Inheritance – Packages – Access Protection – Importing packages –Interfaces.

UNIT IV - EXCEPTION HANDLING, MULTITHREADING, APPLET (15 Hours)

Exception handling fundamentals- Types- Using try, catch, throw, throws and finally - Java thread model – Creating a Thread – Creating multiple threads - Thread priorities – synchronization - Inter-thread communication - Applet Basics – Applet Skeleton – HTML applet tag – Passing parameters to applet

UNIT V - I/O STREAMS, UTILITY CLASSES, EVENT HANDLING (15 Hours)

I/O Streams: Byte Streams – Character Streams – Reading and Writing Files –– Legacy Classes and Interface: Vector, Stack, The Enumeration Interface - Utility classes: String Tokenizer, Date, Calendar, GregorianCalendar, Random, Scanner – Introduction to Event Handling : Event Classes – Event Listener Interfaces

TEXT BOOK

1. Herbert Schildt, (2007), "*Java : The Complete Reference*", Seventh Edition, McGraw Hill.

REFERENCES

1. Arnold and J.Gosling (2000), "*The Java Programming Language*", Second edition, Addision Wesley.
2. Art Gittleman (2002), " *Ultimate Java Programming*", 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	L+T+P	C
UCA18302	RELATIONAL DATABASE MANAGEMENT	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To gain knowledge in the areas of database design and SQL programming.	a	c			
2.	To understand relational database technology and designing database for building applications for the current trend.	a	c	i		
3.	To analyze a business situation and build suitable database applications.	a	c	i		

UNIT I - INTRODUCTION (15 Hours)

Data- Database – DBMS-File Processing System Vs DBMS- - Data Independence-Data Catalog-Three schema Architecture of a database-Functional components of DBMS - ER Model: Entity - Attributes and its Type -Entity and Relationship ship-Design Issues of ER Model - Constraints.

UNIT II - STRUCTURED QUERY LANGUAGE (SQL) (15 Hours)

Overview of SQL, Data Definition Commands, Set operations, Aggregate function, Null values, Data Manipulation commands, Data Control commands, Views in SQL, Nested and Complex queries

UNIT III - RELATIONAL–DATABASE DESIGN (15 Hours)

Relational–Database Design: Design guidelines for relational schema, Function dependencies, Normal Forms- 1NF, 2 NF, 3NF, BCNF and 4NF. Integrity and Security in Database: Domain Constraints, Referential integrity.

UNIT IV - TRANSACTIONS MANAGEMENT (15 Hours)

Transactions Management: Transaction concept, Transaction states, ACID properties, Implementation of Atomicity and Durability, Concurrent Executions, Serializability, Recoverability, Implementation of isolation.

UNIT V - CONCURRENCY CONTROL & PHYSICAL STORAGE MEDIA (15 Hours)

Concurrency Control: Lock-based, Timestamp-based, Validation-based protocols, Deadlock handling, Recovery System: Failure Classification, Storage structure. Overview of Physical Storage Media: Magnetic Disks – RAID – Tertiary storage – File

Organization – Organization of Records in Files – Indexing and Hashing –Ordered Indices– Static Hashing – Dynamic Hashing.

TEXT BOOKS

1. Abraham Silberschatz, Henry F. Korth, Sudharshan S., (2006), "Database System Concepts", Fifth Edition, Tata McGraw Hill.(Unit I, IV & V)
2. Date C.J., Kannan A., Swamynathan S., (2006), "An Introduction to Database Systems", Eighth Edition, Pearson Education.(Unit II & III)

REFERENCE

1. Ramez Elmasri, Shamkant B. Navathe (2007), "Fundamentals of Database Systems", Fourth Edition , Pearson / Addision 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	L+T+P	C
UCA18303	PROGRAMMING IN JAVA LABORATORY	0	0	4	4	2

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

LIST OF EXPERIMENTS

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

Course Code	Course Title	L	T	P	L+T+P	C
UCA18304	RELATIONAL DATABASE MANAGEMENT LABORATORY	0	0	4	4	2

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

LIST OF EXPERIMENTS

SQL:

1. TABLE CREATION:

a) Create table CUST based on the following details

Name	Type	Remark
CID	VARCHAR2(6)	PRIMARY KEY
CNAME	VARCHAR2(10)	
CCITY	VARCHAR2(8)	

b) Create table PROD based on the following details

Name	Type	Remark
PID	VARCHAR2(6)	PRIMARY KEY
PNAME	VARCHAR2(6)	
PCOST	NUMBER(4,2)	
PPROFIT	NUMBER(3)	

c) Create table SALE_DETAIL based on the following details

Name	Type	Remark
CID	VARCHAR2(6)	COMPOSITE PRIMARY KEY
PID	VARCHAR2(6)	COMPOSITE PRIMARY KEY
SALE	NUMBER(3)	
SALEDT	DATE	

1. INSERTION AND DATA RETRIEVAL:

a) Insert and Save Records in CUST, PROD and SALE_DETAIL table.
b) Data Retrieval using SELECT-WHERE, RELATIONAL OPERATOR, ARITHMETIC OPERATOR and use of ORDERBY, DISTINCT, BETWEEN, IN, DUAL and LIKE operator.

2. FUNCTIONS:

a) Date Functions, Numeric Functions, Character Functions, Conversion Functions.
b) Group Functions, Set Functions.

3. 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. Write PL/SQL block using looping statements.
4. Create a PL/SQL block to find ODD or EVEN NUMBER by using Searched CASE Statements.
5. Program development using BUILT –IN Exceptions, USER defined Exceptions, RAISE- APPLICATION ERROR.
6. Programs development using creation of procedures, passing parameters IN and OUT of PROCEDURES.
7. Program development using creation of stored functions, invoke functions in SQL Statements and write complex functions.
8. Program development using creation of package specification, package bodies, private objects, package variables and cursors and calling stored packages.
9. Develop programs using CURSORS-Declaring, Opening, Fetching, and Closing a Cursor, including the use of CURSOR attributes.
10. Develop Programs using BEFORE and AFTER Triggers, and INSTEAD OF Triggers.

Course Nature : Practical						
Assessment Method (Max.Marks: 100)						
In Semester	**Assessment Tools**	**Observation Note Book**	**Output Result in time**	**Model Examination**	**Regularity and Discipline**	**Total**
	Marks	**10**	**10**	**20**	**10**	**50**

End Semester	Assessment Tools	Record Note Book	Program Writing	Debugging	Result / Output	Total
	Marks	10	10	15	15	50
Total						100

Course Code	Course Title	L	T	P	L+T+P	C
UCA18305 / UCS18305	STATISTICAL METHODS	4	1	0	5	4

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

1. Pillai, R.S.N, Bagavathi, V. (2009),Statistics,Theory and Practice,7Th Edition,S.Chand Ltd,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*" ,4th Edition,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**	**50%**
End Semester Weightage							**50%**
Total							**100%**

Course Code	Course Title	L	T	P	L+T+P	C
UCA18E51	FUNDAMENTALS OF DATA STRUCTURES	3	0	0	3	3

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

UNIT I - INTRODUCTION TO DATA STRUCTURES **(9 Hours)**

Definition – types of data structure-abstract data type-array as an abstract data type-representation of array- sparse matrices- asymptotic notation.

UNIT II - STACKS AND QUEUES **(9 Hours)**

Stacks- queue- mazing problem- evaluation of expression- postfix notation- infix to post fix- multiple stack and queue.

UNIT III - LINKED LIST **(9 Hours)**

Singly linked list- representation of linked singly list- operations on singly linked list- doubly linked list- representation of doubly linked list- operations on doubly linked list- differentiate singly and doubly linked list- circularly singly and doubly linked list

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

Tree Terminology- representation of tree- binary tree- binary tree traversal- operations on tree- applications- Sorting : selection sort- bubble sort- quick sort

UNIT V – GRAPHS **(9 Hours)**

Definition- representation of a graph- operations- breadth first search- depth first search- minimum cost spanning trees- kruskal's algorithm and prim's algorithm- shortest path and transitive closure- single source- floyds algorithm- all pair dijikstra's algorithm.

TEXT BOOK

1. Ellis Horowitz, Sahni, Dinesh Mehta (1999), "Fundamentals of Data Structures in C++", Golgotha publication, New Delhi.

REFERENCE

1. Weiss Mark Allen (2006), “Data Structure and algorithm analysis”, 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	L+T+P	C
UCA18E52	STATISTICAL PACKAGE FOR SOCIAL SCIENCES (SPSS)	3	0	0	3	3

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To acquire basic knowledge about basic SPSS options	a				
2.	To develop the skills in spplying the tools for solving different problems			c	e	

LIST OF EXPERIMENTS

1. Construction of Frequency tables: Univariate Frequency tables -- Cross-Tabulation
2. Graphical representation of Data: Bar diagram – Simple Bar diagram, Multiple Bar Diagram, Sub divided Bar Diagram, Histogram Pie Diagram
3. Calculation of Measures of Central Tendencies: Mean, Median and Mode, Geometric mean
4. Calculation of Methods of Dispersion, (a) Standard Deviation, (b) Quartiles, (c) Skewness, (d) Kurtosis
5. Calculation of Correlation Coefficient: (a) Karl Pearson's Correlation Coefficient, (b) Spearman's Rank Correlation Coefficient
6. Calculation of Regression Trend: (a) Trend Line
7. Test of Significance for Single and two Samples – Large Sample Test (Z-Test)
   (a) Test for Mean
   (b) Test for Proportion
   (c) Test for Standard Deviation
8. Test of Significance for Single and two Samples – Small Sample Test (t-Test, F-test)
   (a) Test of Mean
   (b) Test of Variances
9. Non-Parametric Test
10. One –Way Chi-square test (test for Homogeneity)
11. Two–Way Chi-square test (test for Attributes)
12. Test of Homogeneity of Means for more than 2 samples
    (a) One –Way ANOVA
    (b) Two–Way ANOVA

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

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

Course Code	Course Title	L	T	P	L+T+P	C
UCA18E53	BUSINESS INTELLIGENCE	3	0	0	3	3

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To understand about data organization, and examine the BI processes techniques used in transforming data to knowledge and value	a	b	i		

UNIT I - INTRODUCTION TO BUSINESS INTELLIGENCE (9 Hours)

Introduction to OLTP and OLAP, BI Definitions & Concepts, Business Applications of BI, BI Framework, Role of Data Warehousing in BI, BI Infrastructure Components – BI Process, BI Technology, BI Roles & Responsibilities.

UNIT II - BASICS OF DATA INTEGRATION ETL (9 Hours)

Concepts of data integration need and advantages of using data integration, introduction to common data integration approaches, introduction to ETL, Introduction to data quality, data profiling concepts and applications.

UNIT III - INTRODUCTION TO MULTI-DIMENSIONAL DATA MODELING (9 Hours)

Introduction to data and dimension modeling, multidimensional data model, ER Modeling vs. multi-dimensional modeling, concepts of dimensions, facts, cubes, attribute, hierarchies, star and snowflake schema, introduction to business metrics and KPIs, creating cubes using SSAS**.**

UNIT IV - BASICS OF ENTERPRISE REPORTING (9 Hours)

Introduction to enterprise reporting, concepts of dashboards, balanced scorecards, and overall architecture.

UNIT V - DATA MINING FUNCTIONALITIES (9 Hours)

Association rules mining, Mining Association rules from single level, multilevel transaction databases, Classification and prediction, Decision tree induction, Bayesian Classification, k-nearest neighbor classification, Cluster analysis, Types of data in clustering, categorization of clustering methods.

TEXT BOOKS

1. Cindi Howson, *Successful Business Intelligence*, *Unlock the Value of BI & Big Data Hardcover* –Second Edition.
2. Gert H N Laursen, Jesper Thorlund, *Business Analytics for Managers: Taking Business Intelligence beyond Reporting Paperback* .

REFERENCE

1. Mike Biere , Business Intelligence for the Enterprise , second edition, 2009.

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	L+T+P	C
CAC18301	QUANTITATIVE APTITUDE AND LOGICAL REASONING – II	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 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	n
4.	To adopt new techniques in solving problem	a	b	h	i	j	m	n

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. Abhijit Guha, 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 Nature : Theory (Internal only)							
Assessment Method (Max.Marks: 100)							
In Semester	**Assessment Tools**	**Assignment 1**	**Assignment 2**	**Surprise Test 1**	**Surprise Test 2**	**Attendance**	**Total**
	Marks	**20**	**20**	**25**	**25**	**10**	**100**

SEMESTER – IV

Course Code	Course Title	L	T	P	L+T+P	C
UCA18401	MULTIMEDIA AND ANIMATION	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To understand the different components, different file formats and various tools of multimedia system	a	b			
2.	To gain knowledge in Animation and images			c	l	

UNIT - I **(15 Hours)**

Multimedia: What Is Multimedia: Interactive Multimedia – Advantages Of Interactive Multimedia – Where To Use Multimedia – Text – Graphics – Audio – Film – Video. Understanding Text: Typeface or Fonts – Types of Fonts. Computer Graphics: 2D Computer Graphics – 3D Computer Graphics API. Understanding Sound: Basic Sound Concept – Audio Formats and Quality Levels – AIF Format – AU Format – EA Format – MIDI Format – Mp3 Format. Understanding Video: Digital Vs Analog Video.

UNIT - II **(15 Hours)**

Photoshop: Fundamentals – Opening and Importing Images – Resolution – Models and Colour Spaces – Layers. Painting Pixels: The Painting Tools – Erasing – Fills – Type. Selection and Allied Operations: Marquee selection and cropping – Lasso Selection – Paths – Combining and Transforming Selections.

UNIT - III **(15 Hours)**

Adjustments and Retouching: Tonal Adjustment – Colour Adjustments – Retouching By Hand. Effects and Filters: Blurring and Sharpening – Special Effects and Distortion – Layer Effects and Layer Styles.

UNIT - IV **(15 Hours)**

FLASH: Animation with Interacting – Basic Concepts – Drawing – Lines and Shapes – Strokes and Fill – Shapes and Brushes – Selection – Transformation and Reshaping – Importing Artwork and Manipulating Images. ANIMATION: Animating One Frame at a Time – Motion Tweening – Symbols and Instances – Shape Tweening – Sound.

UNIT - V **(15 Hours)**

ACTIONS: Buttons – Button action – Frame Action – Action and Movie Clip Symbols – Actions – Browsers and Networks – Beyond the Basic Actions. FLASH MX275: Interface Elements – Panels – Tools – Layer Folders – Accessibility – Video –

Components – User Interface Components – Changing the Appearance of Components.

TEXT BOOKS

1. Vishnu Priya Singh (2006), "*A Text Book of Multimedia*", 1st Ed., Computech Pub. Ltd, New Delhi,. UNIT I
2. Nigel Chapman and Jenny Chapman, "*Practical Multimedia*", 2nd Ed., Wiley – Dream Tech Pvt. Ltd. UNITS II, III, IV & V

REFERENCES

1. Thiagharajan and Anbumani, "*Flash MX 2004*", Tata McGraw Hill, New Delhi.
2. Laurie Ulrich Fuller and Robert C. Fuller, "*Photoshop CS3 Bible*", Willey India 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	L+T+P	C
UCA18402	WINDOWS PROGRAMMING USING VB .NET	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To gain knowledge in the concepts of the .NET framework as a whole and the technologies that constitute the framework	a				
2.	To gain knowledge about various object oriented concepts in VB.Net.		b			
3.	To gain programming skills in VB.Net both in basic and advanced levels.		c	e		
4.	To enable the learner for aiming careers in software development related fields			l	j	k

UNIT - I **(15 Hours)**

Net Framework and VB.NET: Evolution of the .NET Framework – Overview of the .Net Framework – VB.NET – Simple VB.Net Program. Variables, Constants and Expressions: Value Types and Reference Types – Variable Declarations and Initializations – Value Data Types – Reference Data Types – Boxing and Unboxing – Arithmetic Operators – Textbox Control – Label Control – Button Control.

UNIT - II **(15 Hours)**

Control Statements: If Statements – Radio Button Control – Check Box Control – Group Box Control – Listbox Control – Checked List Box Control – Combo box Control – Select Case Statement – While Statement – Do Statement – For Statement. Methods and Arrays: Types of Methods – One Dimensional Array – Multi Dimensional Arrays – Jagged Arrays. Classes: Definition And Usage of a Class – Constructor Overloading – Copy Constructor – Instance and Shared Class Members – Shared Constructors.

UNIT – III **(15 Hours)**

INHERITANCE AND POLYMORPHISM: Virtual Methods – Abstract Class and Abstract Methods – Sealed Classes. INTERFACES, NAMESPACES AND COMPONENTS: Definition of Interfaces – Multiple Implementations of Interfaces – Interface Inheritance – Namespaces – Components – Access Modifiers.

UNIT - IV **(15 Hours)**

EXCEPTION HANDLING: Default Exception Handling Mechanism – User Defined Exception Handling Mechanism – Throw Statement – Custom Exception. MULTITHREADING: Usage Of Threads – Thread Class – Start(), Abort(), Join(), and Sleep() Methods – Suspend() And Resume() Methods – Thread Priority – Synchronization. I/O STREAMS: Binary Data Files – Text Files - Data Files – FileInfo and DirectoryInfo Classes.

UNIT - V **(15 Hours)**

SDI & MDI – Dialog Boxes – Toolbar – StatusBar. DATABASE CONNECTIVITY: Advantages Of ADO.NET – Managed Data Providers – Developing a Simple ADO.NET Based Application – Creation of Data Table – Retrieving Data From Tables – Table Updating.

TEXT BOOK

1. Muthu C. (2008), "*Visual Basic.NET*", 2nd Ed., Vijay Nicole Imprints Pvt.Ltd.,.

REFERRENCES

1. Jeffrey R.Shaprio (2002), "*Visual Basic .NET The Complete Reference*", Mac Graw Hill
2. Michael Halvorson (2010), "*Visual Basic 2010 Step by Step*", Microsoft Press.
3. Harold Davis (2002), "*Visual Basic.NET Programming"*, Sybex.

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**	**L+T+P**	**C**
UCA18403	**MULTIMEDIA AND ANIMATION LABORATORY**	**0**	**0**	**4**	**4**	**2**

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		**Student Outcomes**				
1.	To acquire basic knowledge about basic Photoshop and Flash	**a**	**b**			
2.	To develop the skills in spplying the tools for solving different problems			**c**	**e**	

LIST OF EXPERIMENTS

Photoshop

1. Create an image using different properties.
2. Picture manipulation using filter.
3. Design pictures using layers.
4. Design our college ID Card.
5. Design Marriage Invitation.

Flash

6. Design a car.
7. Move a Ball.
8. Human Movement using animation.
9. Create an Advertisement.
10. Develop a webpage using Photoshop and flash.

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

Course Code	**Course Title**	**L**	**T**	**P**	**L+T+P**	**C**
UCA18404	**WINDOWS PROGRAMMING USING VB .NET LABORATORY**	**0**	**0**	**4**	**4**	**2**

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		**Student Outcomes**				
1.	To acquire basic knowledge about basic programming techniques in .Net	**a**	**b**			
2.	To develop the skills in spplying the tools for solving different problems			**c**	**e**	

LIST OF EXPERIMENTS

1. Develop an Image Viewer Application
2. Simulate a Math Calculator
3. Develop a Notepad Editor using Dialog Control
4. Develop an Application to draw different shapes.
5. To Move an object using Timer Control
6. Develop a Simple Student Information System Using Files
7. Develop a College Admission Form Using MDI
8. Validate a Bio – Data Application Form
9. Develop an Inventory Control System Using ADO.NET
10. Develop a mark sheet preparation system Using Grid Control.

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

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

Course Code	Course Title	L	T	P	L+T+P	C
UCA18405/ UCS18405	RESOURCE MANAGEMENT TECHNIQUES	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		**Student Outcomes**				
1.	To apply Operations research methods for decision making process.	**b**	**e**			
2.	To apply Operations 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, Ganapahy 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. Kanti Swarup, Gupta, P.K. and Manmohan (2006),"*Operations Research*",12th Edition-Sultan Chand & Sons, New Delhi.

Question Pattern : Theory:20% ; Problem: 80%.

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	L+T+P	C
UCA18E54	DESIGN AND ANALYSIS OF ALGORITHM	3	0	0	3	3

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To provide a strong foundation about algorithms	A		c		
2.	To learn different methods and techniques for writing algorithm		b		j	
3.	To apply the techniques for producing algorithm for different problems.	A			j	

UNIT - I **(9 Hours)**

Introduction – Notion of Algorithm – Fundamentals of Algorithmic Solving – Important Problem types – Fundamentals of the Analysis Framework – Asymptotic Notations and Basic Efficiency Classes.

UNIT - II **(9 Hours)**

Mathematical Analysis of Non-recursive Algorithm – Mathematical Analysis of Recursive Algorithm – Example: Fibonacci Numbers – Empirical Analysis of Algorithms – Algorithm Visualization.

UNIT - III **(9 Hours)**

Brute Force – Selection Sort and Bubble Sort – Sequential Search and Brute-force string matching – Divide and conquer – Merge sort – Quick Sort – Binary Search – Binary tree- Traversal and Related Properties – Decrease and Conquer – Insertion Sort.

UNIT - IV **(9 Hours)**

Transform and conquer – Presorting – Balanced Search trees – AVL Trees – Heaps and Heap sort – Dynamic Programming – Warshall's and Floyd's Algorithm.

UNIT - V **(9 Hours)**

Backtracking – n-Queen's Problem – Hamiltonian Circuit problem – Subset-Sum problem – Branch and bound – Assignment problem – Knapsack problem – Traveling salesman problem.

TEXT BOOK

1. Anany Levitin (2003), "Introduction to the Design and Analysis of Algorithm", Pearson Education Asia.

REFERENCES

1. Cormen T.H., Leiserson C.E., Rivest R.L. and Stein C. (2001), "*Introduction to Algorithms*", PHI Pvt. Ltd.,
2. Sara Baase and Allen Van Gelder (2003), "*Computer Algorithms - Introduction to Design and Analysis*", Pearson Education Asia,.
3. Aho A.V., Hopcroft J.E. and Ullman J.D. (2003), "*The Design and Analysis Of Computer Algorithms*", Pearson Education Asia.

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	L+T+P	C
UCA18E55	LINUX ADMINISTRATION	3	0	0	3	3

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To learn about the features of Linux	a	b			
2.	To learn about installation of Linux.	a	b			
3.	To apply the techniques for producing algorithm for different problems.	a			j	

UNIT - I **(9 Hours)**

Linux Introduction and Installation: Linux-Advantages-Red Hat Linux-New Features-Installation procedures and Methods. Using Desktop-GNOME-KDE-Linux Commands Accessing and Running Applications.

UNIT - II **(9 Hours)**

Installing Red Hat Linux Applications, Running Window Application, Running Window,DOS and Macintosh Applications –Tools for using Internet and Web.

UNIT - III **(9 Hours)**

Administration: Understanding System Administration: Root login-super user-GUI tools, commands and Log files-Configuring Hardware-File System and Disk Management- Monitoring performances.

UNIT - IV **(9 Hours)**

Setting Up and Supporting users: Creating user accounts – Setting user defaults – Creating Desktops-Modifying and Deleting Accounts.

UNIT - V **(9 Hours)**

Security Issues: Hacker versus Cracker-Password Protection- Protection from break-in-Filtering - Network Access-Firewalls-Detecting Instructions – Encryption techniques

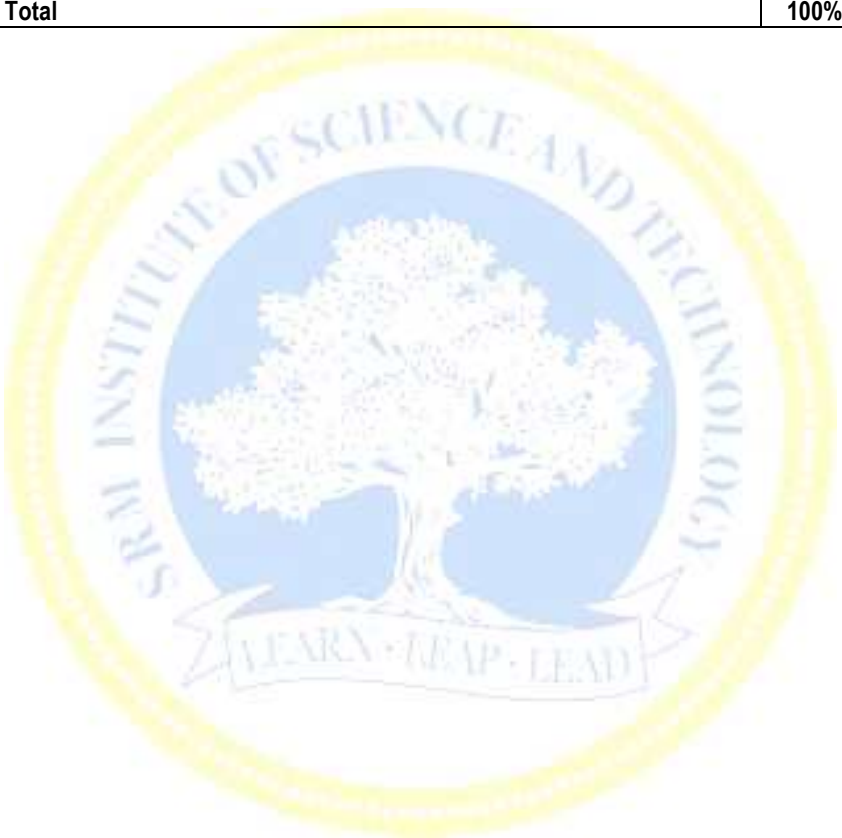
TEXT BOOK

1. Christopher Negus (2003), "*Red Hat Linux 9 Bible*", First Edition, WILEY-Dreamtech India Pvt.Ltd, New Delhi.

REFERENCE

1. Thomas Schenk (2003.),"*Red Hat Linux System Administration*", Techmedia, 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	L+T+P	C
UCA18E56	INTRODUCTION TO FINANCIAL ACCOUNTING	3	0	0	3	3

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To provide basic and essential knowledge regarding Accounting	a	b			
2.	To inculcate basic accounting to the non commerce students	a		h	j	

UNIT - I **(9 Hours)**

Introduction to Accounting – Meaning – Accounting concepts – Conventions

UNIT - II **(9 Hours)**

Journal – Preparation of subsidiary books- Purchase book – Sales book – Purchase return book – Sales returns book – Cash book.

UNIT - III **(9 Hours)**

Ledger Posting and Preparation of Trial Balance-Meaning – Methods of preparing trial balance

UNIT - IV **(9 Hours)**

Depreciation – Meaning, Methods of Providing depreciation, Straight Line Method and Written Down Value Method only.

UNIT - V **(9 Hours)**

Preparation of Trading and Profit and Loss Account and Balance Sheet

REFERENCES

1. R.L. Gupta & Radhaswamy, Advanced Accountancy Vol.I, Sultan Chand & Sons,1999
2. Jain & Narang, Financial Accounting, Kalyani Publishers,1997
3. R.L.Gupta & V.K.Gupta, Financial Accounting, Sultan Chand & Sons,2006
4. Larson, Financial Accounting, Irwin, 1994
5. Harrison Horngen, Introduction to Financial Accounting, Pearsons higher Edication,Aug 12,1995

Course Nature : Theory							
Assessment Method (Max.Marks: 100)							
In Seme	Assessment	Cycle Test I	Cycle Test II	Model Examina	Assignment	Attendance	Total

ster	Tool			tion			
	Marks	10	10	20	5	5	50%
End Semester Weightage							50%
Total							100%

Course Code	Course Title	L	T	P	L+T+P	C
CAC18401	VERBAL ABILITY AND REASONING	2	0	0	2	2

COURSE OBJECTIVE

To instill confidence in students and develop skills necessary to face the challenges of competitive exams and placements

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
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 Meenakshi Upadhyay, 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

Course Nature : Theory (Internal only)							
Assessment Method (Max.Marks: 100)							
In Sem ester	**Assessment Tools**	**Assign ment 1**	**Assign ment 2**	**Surprise Test 1**	**Surprise Test 2**	**Atten dance**	**Total**
	Marks	**20**	**20**	**25**	**25**	**10**	**100**

SEMESTER V

Course Code	Course Title	L	T	P	L+T+P	C
UCA18501	COMPUTER NETWORKS	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To gain knowledge about the networks	a				
2.	To have clear understanding about the Network programming	a	c	e		

UNIT - I **(15 Hours)**

History and Need for Networking - Service Description – Connectionless and Connection-Oriented Services – Circuit and Packet Switching – Access Networks and Physical Media – Wireless Links and Characteristics – OSI Reference Model - Service Models –Ad-hoc network, GPS, Sensor network.

UNIT - II **(15 Hours)**

Principles of Network Applications – The Web and HTTP – FTP – Electronic Mail – SMTP – Mail Message Formats and MIME – DNS – Socket Programming with TCP and UDP. Multimedia Networking: Internet Telephony – RTP – RTCP – RTSP. Network Security: Principles of Cryptography – Firewalls – Application Gateway – Attacks and Counter measures.

UNIT - III **(15 Hours)**

Transport Layer Services – Multiplexing and Demultiplexing – UDP – Reliable Data Transfer – Go-Back-N and Selective Repeat. Connection-Oriented Transport: TCP – Segment Structure – RTT estimation – Flow Control – Connection Management – Congestion Control – TCP Delay Modeling – SSL and TLS. Integrated and Differentiated Services: Intserv – Diffserv.

UNIT – IV **(15 Hours)**

Forwarding and Routing – Network Service Models – Virtual Circuit and Datagram Networks – Router – Internet Protocol (IP) – IPv4 and IPv6 – ICMP – Link State Routing – Distance Vector Routing – Mobile IP

UNIT – V **(15 Hours)**

Layer Services – Error Detection and Correction Techniques – Multiple Access Protocols – Link Layer Addressing – ARP – DHCP – Ethernet – Hubs, Bridges, and Switches –PPP. Ring Topology - Physical Ring – Logical Ring.

TEXT BOOK

1. James F. Kurose and Keith W. Ross (2006), "Computer Networking: A Top-Down Approach Featuring the Internet", Pearson Education, 3rd edition,.

REFERENCES

1. Andrew S. Tanenbaum (2003), "*Computer Networks*", Prentice-Hall of India, 4th edition.
2. Larry L. Peterson and Bruce S. Davie (2007), "*Computer Networks: A Systems Approach*", Elsevier, 4th 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%**

Course Code	Course Title	L	T	P	L+T+P	C
UCA18502	PHP AND MYSQL PROGRAMMING	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES

At the end of this course the learner is expected:

1. To create dynamic Web pages and web platform Applications
2. To create and to use Graphical, Database objects for interactive web applications such as Cloud solutions

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To Understand PHP and MYSQL	a	i			
2.	To have clear understanding about the Network programming	a	c	e		

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. Rasmus Lerdorf, Kevin Tatroe, Bob Kaehms, Ric McGredy (2002), Programming PHP, O'REILLY(SPD). (Unit I,II & III)
2. Lee Babin, Nathan A. Good, Frank M. Kromann, Jon Stephens (2005), "PHP 5 Recipes, A problem solution approach", aprèss.(Unit IV & V)

REFERENCE

1. Vikram Vaswani (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	L+T+P	C
UCA18503	OPERATING SYSTEM	4	1	0	5	4

INSTRUCTIONAL OBJECTIVES

At the end of this course the learner is expected:

1. To learn different types of Operating Systems
2. To Perform Scheduling and memory management.
3. To Handle Components of Operating System and Deadlocks

UNIT - INTRODUCTION (15 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.

UNIT II - PROCESSES & SCHEDULING (15 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 (15 Hours)

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

UNIT IV - DEADLOCKS (15 Hours)

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

UNIT V - MEMORY MANAGEMENT (15 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.

REFERENCES

1. Milankovic M (1992),"Operating System concepts and Design, 2nd edition, Tata Mcgraw hill.
2. Deitel H.M. (2002), "An Introduction to Operating Sysems",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%

Course Code	Course Title	L	T	P	L+T+P	C
UCA18504	COMPUTER NETWORKS LABORATORY	0	0	4	4	2

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To acquire basic knowledge about network programming techniques	a	b			
2.	To develop the skills in spplying the tools for solving basic problems in computer networks			c	e	

LIST OF EXPERIMENTS

1. Familiarization with configuring and installing a LAN
2. Experimenting with network protocols for achieving communication between computers
3. Interconnection software for communication between two different network architectures
4. Experiments using TCP/IP, POP, e-mail, HTTP
5. Implementation of a web server and web client
6. Design of a mini search engine and firewall
7. Internet/web browser implementation
8. Web programming using HTML/XML/Perl/Java/PHP
9. Network security: email security / web security

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

Course Code	Course Title	L	T	P	L+T+P	C
UCA18505	PHP AND MYSQL PROGRAMMING LABORATORY	0	0	4	4	2

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To acquire basic knowledge about programming in PHP	a	b			
2.	To acquire basic knowledge about MYSQL database	a	b			
3.	To develop the skills in spplying the tools for solving basic problems in computer networks			c	e	

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

Course Code	Course Title	L	T	P	L+T+P	C
UCA18E01	SOFTWARE ENGINEERING AND TESTING	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 Process Models	a		l		
2.	To understand the Software Testing Concepts.		e			
3.	To implement the Software Quality and Control Concepts		b			j
4.	To Design the Test cases and to get familiarity over Automated Testing tools	a				j

UNIT I - THE PRODUCT AND THE PROCESS (15 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 (15 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 PRINCIPLES OF TESTING (15 Hours)

PRINCIPLES OF TESTING: Introduction - Phases of software – Quality assurance and Quality control - Testing verification and validation - TECHNIQUES: White box - static testing - structural testing - challenges in white box testing - Black box testing.

UNIT IV - TYPES OF TESTING (15 Hours)

TYPES OF TESTING: Integration testing - Top-Down Integration – Bottomup integration-Bi-Directional Integration - System - Integration – SYSTEM

ACCEPTANCE TESTING: Functional versus Non Functional Testing - Functional System Testing - Non Functional Testing Acceptance Testing.

UNIT V - PERFORMANCE TESTING **(15 Hours)**

PERFORMANCE TESTING: Introduction - Factors of governing - performance testing - Methodology for performance testing - Tools for performance testing - Process for performance Testing – REGRESSION TESTING : Introduction - Types regression testing - Best pratice in regression testing.

TEXT BOOKS

1. Roger S. Pressman, (2001), "*Software Engineering* ", Fifth edition, McGraw-Hill Higher Education - A Division of The McGraw-Hill Companies.
2. Srinivasan Desikan and Gopalasamy Ramesh, "*Software Testing for Principles and Practices*", Person Education,.

REFERENCES

1. William E. Perry (2006), "*Effective Methods of Software Testing*", 3rd Ed, Wiley India.
2. Renu Rajani, Pradeep Oak (2007), *"Software Testing"*, TMH.

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**	**L+T+P**	**C**
UCA18E02	**MANAGEMENT INFORMATION SYSTEM AND ERP**	**4**	**0**	**0**	**4**	**4**

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		**Student Outcomes**				
1.	To understand the importance of IS.	a	e			

2.	To understand evolution, implementation and advantage of ERP		b			j

UNIT - I **(12 Hours)**

FOUNDATION OF IS IN BUSINESS: Components of IS – Competing with IT - Fundamentals of Strategic Advantage – Using IT for Strategic Advantage.

UNIT - II **(12 Hours)**

BUSINESS APPLICATIONS: Enterprise, Functional Business Systems. Customer Relationship Management: The Business Focus – Supply Chain Management: The Business Network.

UNIT - III **(12 Hours)**

E-COMMERCE SYSTEMS – E-Commerce Fundamentals – E-commerce Applications and Issues – Decision Support Systems- Decision Support in Business.

UNIT - IV **(12 Hours)**

ENTERPRISE RESOURCE PLANNING (ERP): an overview – benefits of ERP - ERP and related technologies – Business process reengineering – Data warehousing – Data mining – online analytical processing.

UNIT - V **(12 Hours)**

ERP IMPLEMENTATION - ERP implementation life cycle – ERP Present and Future: ERP and E- Commerce – ERP and Internet.

TEXT BOOKS

1. James O Brien, George M Marakas (2007), *"Management Information Systems*", 7th Ed, Tata MC Graw Hill Publishing Company Ltd, New Delhi, UNITS I, II & III
2. Alexis Leon (2008), "*ERP Demystified*", 2nd Ed, Tata Mc Graw Hill publishing Company Ltd, New Delhi. Units IV & V

REFERENCE

1. WS Jawadekar (1998), "*Management Information System*", Tata McGraw Hill Publishing Company Ltd, 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	L+T+P	C
UCA18E03	KNOWLEDGE MANAGEMENT	4	0	0	4	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	Aware of store, map, retrieve, pack and repack information from a content repository	a			g	
2.	Depict Knowledge Management applications		b	f		h

UNIT - I **(12 Hours)**

Introduction to Knowledge Management - The foundations of knowledge management- including cultural issues, technology applications, organizational concepts and processes- management aspects and decision support systems. Evolution of Knowledge management- challenges – Principles of Knowledge Management.

UNIT - II **(12 Hours)**

Organization and Knowledge Management - Learning Organization- Knowledge Market- Cooperation among Distributed Technical Specialists – Implied Knowledge and Quality Assurance.

UNIT - III **(12 Hours)**

Knowledge Management in : Telecommunications and Networks, Internet Search Engines, Information Technology, Vocabulary Control - Information Mapping, Information Retrieval - Information Coding in the Internet Environment - Repackaging Information.

UNIT - IV **(12 Hours)**

Components of a knowledge strategy - content repository, document management system, Modern enterprises and contemporary methods of storing and accessing information, program interfaces.

UNIT - V **(12 Hours)**

Case Studies (Library, Health Sciences, climate control, election trolls, disaster management, etc.)

TEXT BOOKS

1. Srikantaiah, T.K., Koenig, M., “Knowledge Management for the Information Professional” Information Today, Inc., 2000.

2. Nonaka, I., Takeuchi, H., “The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation”, Oxford University Press, 1995.

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	L+T+P	C
UES18501	ENVIRONMENTAL STUDIES	3	0	0	3	3

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
3.	To gain knowledge on the importance of natural resources and energy	a			g	
4.	To understand the structure and function of an ecosystem		b		h	
5.	To imbibe an aesthetic value with respect to biodiversity, understand the threats and its conservation and appreciate the concept of interdependence				f	
6.	To understand the causes of types of pollution and disaster management			e		j
7.	To observe and discover the surrounding environment through field work				m	n

UNIT I - INTRODUCTION TO NATURAL RESOURCES/ENERGY (9 Hours)

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 – Mineralresource extraction and its effects - Food resources - food problems and Modern agriculture - Energy resources and its future.

UNIT II – ECOSYSTEMS (9 Hours)

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 (9 Hours)

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 (9 Hours)

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 (9 Hours)

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.

REFERENCES

1. Bharucha Erach, (2013), Textbook of Environmental Studies for Undergraduate Courses (Second edition). Telangana, India: Orient BlackSwan.
2. Basu Mahua, 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.

e-BOOK

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

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	L+T+P	C
UCA18506	CORPORATE INTERNSHIP	--	--	--	--	2

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To get an inside view of an industry and organization/company				j	
2.	To gain valuable skills and knowledge				j	
3.	To make professional connections and enhance networking	f	g			
4.	To get experience in a field to allow the student to make a career transition			i		

Students can choose a company of their own interest for internship for a period of minimum four weeks to learn about the application of IT in real time environment. In the first week of July, all the students have to give a presentation about their observations made by them in internship. At the end of the internship period, every student shall submit a structured internship report within 15 days from the date of the completion of the internship period.

Course Nature : Internship					
Assessment Method (Max.Marks: 100)					
In Semester	Assessment Tools	Review		Internship Report Submission	Total
	Marks	30		20	50
End Semester	Assessment Tools	Report Evaluation	Presentation	Viva-Voce	Total
	Marks	20	15	15	50
Total					100

SEMESTER VI

Course Code	Course Title	L	T	P	L+T+P	C
UCA18601	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.	To ensure quality and reusability while developing software	c				
2.	To analyze and design the problem domain using unified Object approach	b	d			
3.	To identify and categorize business, access and view layer objects of the application		d			
4.	To derive OOA & OOD phases using UML diagrams and CASE tools		e	l		

UNIT - I **(15 Hours)**

INTRODUCTION TO UML: Importance of Modeling - Principles of Modeling - Object Oriented Modeling - Conceptual Model of the UML- Architecture - Software Development Life Cycle.

UNIT - II **(15 Hours)**

STRUCTURAL MODELING: Classes – Relationships – Common Mechanisms – Diagrams.

UNIT - III **(15 Hours)**

CLASS & OBJECT DIAGRAMS: Terms – Concepts - Modeling Techniques for Class and Object Diagrams.

UNIT - IV **(15 Hours)**

BEHAVIORAL MODELING: Interactions - Interaction Diagrams – Use cases – Use case Diagrams – Activity Diagrams.

UNIT - V **(15 Hours)**

ARCHITECTURAL MODELING: Component – Deployment – Component Diagrams and Deployment Diagrams.

TEXT BOOK

1. Grady Booch, James Rumbaugh and Ivar Jacobson (2004). *"The Unified Modeling Language User Guide*". Addison Wesley Longman Pvt. Ltd., Singapore,

REFERENCE

1. Grady Booch, James Rumbaugh and Ivar Jacobson (2000), "*The Unified Modeling language Reference manual*". Addison Wesley Longman Pvt. Ltd., Singapore,

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	L+T+P	C
UCA18602	E-COMMERCE	4	1	0	5	4

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

UNIT I - INTRODUCTION **(15 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 **(15 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 **(15 Hours)**

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

UNIT IV - SECURITY **(15 Hours)**

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

UNIT V - E-PAYMENT MECHANISMS AND E-COMMERCE ETHICS **(15 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)

REFERENCES

1. Judy Strauss and Raymond Frost, (2002), "*E Marketing*", PHI.
2. Brenda Kienan, (2001),"*Managing e Commerce Business*", PHI.

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	L+T+P	C
UCA18603	OBJECT ORIENTED ANALYSIS AND DESIGN LABORATORY	0	0	4	4	2

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To acquire basic knowledge about OOAD	a	b			
2.	To develop the skills in spplying the tools for solving basic problems			c	e	

LIST OF EXPERIMENTS

PART I – To Familiarize with CASE tools using ATM system as specification.

1. Introduction and project definition
2. Software process overview
3. Project planning
4. Software requirements and RequisitePro
5. Introduction to UML and use case diagrams
6. System modeling (DFD and ER)
7. Flow of events and activity diagram
8. OO analysis: discovering classes
9. Interaction diagrams: sequence and collaboration diagrams
10. Software Design: software architecture and object-oriented design
11. State Transition Diagram
12. Component and deployment diagrams
13. Software testing
14. Presentations.

PART II - Design a project using CASE tools

Students are divided into batches of 5 each and each batch has to draw the following diagrams using UML for given different case studies for each batch.

UML diagrams to be developed are:

1. Use Case Diagram.
2. Class Diagram.
3. Sequence Diagram.
4. Collaboration Diagram.
5. State Diagram
6. Activity Diagram.
7. Component Diagram
8. Deployment Diagram.

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

Course Code	Course Title	L	T	P	L+T+P	C
UCA18604	PROJECT WORK	0	2	4	6	4

Students can choose problems of their own interest to develop software package using the programming languages/tools available. There will be two reviews conducted during the project period for all the students .At the end of the project, every student shall submit a structured project report.

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To conceptualize a novel idea / technique into a product	c				
2.	To think in terms of multi-disciplinary environment		d			
3.	To understand the management techniques of implementing a project				k	
4.	To take on the challenges of teamwork, prepare a presentation in a professional manner, and document all aspects of design work.			g		

Course Nature : Project						
Assessment Method (Max.Marks: 100)						
In Semester	Assessment Tools	First Review (Abstract)	Second Review	Final Review	Regularity and Disciplin	Total

					e	
	Marks	10	10	20	10	50
End Semester	Assessment Tools	Report and Presentation	Analysis	Findings and Conclusion	Viva-Voce	Total
	Marks	10	10	20	10	50
Total						100

Course Code	Course Title	L	T	P	L+T+P	C
UCA18E04	CRYPTOGRAPHY & NETWORK SECURITY	4	0	0	4	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To understand about Network Security	a	b			
2.	Understand the mechanism used in the classical encryption system and different type of block cipher mode of operation	a	b			
3.	Ability to encrypt/decrypt a message using Secret Key and Public Key	a	b			
4.	Understand apply various types of authentication algorithm	a		j		

UNIT - I **(12 Hours)**

Overview – Symmetric Ciphers: Classical Encryption Techniques

UNIT - II **(12 Hours)**

Symmetric Ciphers: Block ciphers and Data Encryption Standards. Public-key encryption and Hash Functions: Public-Key Cryptography and RSA

UNIT - III **(12 Hours)**

Network Security Practices: Authentication applications – Electronic Mail Security

UNIT - IV **(12 Hours)**

Network Security Practices: IP Security – Web security

UNIT - V **(12 Hours)**

System Security: Intruders – Malicious Software – Firewalls.

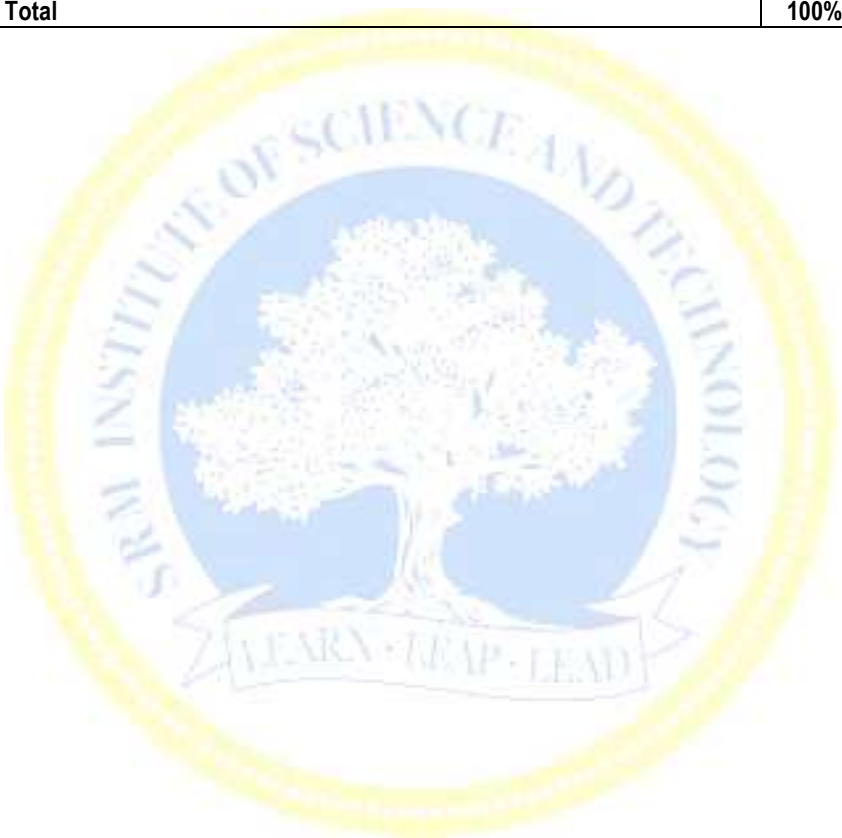
TEXT BOOK

1. William Stallings (2003), "*Cryptography and Network Security – Principles and Practices*', Prentice-Hall, Third edition.

REFERENCES

1. Johannes A, Buchanan, "*Introduction to cryptography*", Springer-Verlag
2. Atul kahate, "*Cryptography and Network Security*". TMH

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	L+T+P	C
UCA18E05	DATA MINING AND WAREHOUSING	4	0	0	4	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To know the basic concepts of data mining	a				
2.	To classify & cluster the data	a				
3.	To use association rules on data	a				
4.	To introduce the concept of data warehousing	a				
5.	To recover data in case of data loss	a	m			

UNIT I - DATA MINING **(12 Hours)**

Introduction- information and production factor- data mining Vs query tools - data mining and marketing -self learning computer system-computer learning-data learning, data mining and data warehouse.

UNIT II - KNOWLEDGE DISCOVERY PROCESS **(12 Hours)**

Data selection- cleaning-enrichment-coding preliminary analysis of data set using traditional query tools-visualization techniques-OLAP tools-decision trees association rules-Neural networks genetic algorithms-KDD(Knowledge discover in databases) environment.

UNIT III - DATA WAREHOUSE – ARCHITECTURE **(12 Hours)**

System process-process architecture, - design – database schema- partitioning strategy-aggregations - data marting-meta data-system and data warehouse process managers.

UNIT IV - HARDWARE AND OPERATIONAL DESIGN **(12 Hours)**

Hardware and operational design of data warehouse - hardware arch-physical layout-security-backup and receiver-service level agreement-operating the data warehouse.

UNIT V - PLANNING, TUNING AND TESTING **(12 Hours)**

Capacity planning- tuning the data warehouse- testing the data warehouses-data warehouse features.

TEXT BOOKS

1. Pieter Adriaans, Dolf, Zantinge (1996), "*Data mining"*, Addison Wesley" (Unit I & II)
2. Sam Anahory, Dennis Murray "*Data Warehousing in real world*" (1997)**,** Addison Wesley.(Unit III, IV & V)

REFERENCES

1. Mark Hall, Ian Witten and Eibe Frank (2011),"*Data Mining: Practical Machine Learning Tools and Techniques*", Third edition, Morgan Kaufmann Publisher.
2. Paulraj Ponniah (2012), "*Data Warehousing: Fundamentals for IT Professionals*", Second Edition, Wiley India 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	L+T+P	C
UCA18E06	SERVICE ORIENTED ARCHITECTURE	4	0	0	4	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To get an overview of service oriented architecture	a				
2.	To understand the concept of web services and SOA	a				
3.	To acquire knowledge about enterprise platforms and SOA	a				

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

Fundamental SOA- Common Characteristics of contemporary SOA- Benefits of SOA- A SOA timeline (from XML to Web Services to SOA) - The continuing evolution of SOA (Standards organizations and Contributing vendors) - The roots of SOA (comparing SOA to Past architectures).

UNIT II - PRINCIPLES OF SERVICE – ORIENTATION **(12 Hours)**

Services-orientation and the enterprise- Anatomy of a service-oriented architecture- Common Principles of Service-orientation- Service orientation and Object-orientation- Service layer abstraction- Business service layer- Orchestration service layer.

UNIT III - WEB SERVICES AND SOA **(12 Hours)**

The Web services framework- Services (as Web Services)- Service Registry- Service descriptions (with WSDL)- Messaging (with SOAP), Transactions, Coordination, Business Activity, Orchestration, Choreography- Reliable Messaging, Metadata, Security, Notification and Events.

UNIT IV - BUSINESS PROCESS DESIGN **(12 Hours)**

Business Process Management basics- WS BPEL language basics- WS Coordination overview- Service oriented business process design- WS addressing language basics- WS-Reliable Messaging language basics- Service Component Architecture basics.

UNIT V - ENTERPRISE PLATFORMS AND SOA **(12 Hours)**

SOA platform basics- Enterprise Service Bus basics (including basic and complex patterns) - SOA support in J2EE- SOA support in .NET- SOA Reference Architecture.

TEXT BOOKS

1. Thomas Erl (2005), "*Service-Oriented Architecture Concepts and Technology and Design*", Pearson Education.(Unit I ,II)
2. Eric Newcomer, Greg Lomow (2005), "*Understanding SOA with Web Services*" , Pearson Education (Unit III, IV & V)

REFERENCES

1. Chris Britton (2004),"*IT Architecture and Middleware, Strategies for Building Large Integrated Systems*" ,Pearson Education.
2. Sandeep Chatterjee, James Webber (2004) "*Developing Enterprise Web Services – An Architect's Guide*", 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	L+T+P	C
UCA18E07	INTRODUCTION TO MOBILE APPLICATION DEVELOPMENT	4	0	0	4	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To understand mobile application development trends and Android platform	a				
2.	To analyze the need of simple applications, game development, Location map based services	a				
3.	To acquire knowledge about enterprise platforms and SOA	a				

UNIT I - ANDROID FUNDAMENTALS (12 Hours)

Mobile Application development and trends – Android overview and Versions – Android open stack, features – Setting up Android environment (Eclipse, SDK, AVD)- Simple Android application development – Anatomy of Android applications – Activity and Life cycle – Intents, services and Content Providers

UNIT II - ANDROID USER INTERFACE (12 Hours)

Layouts: Linear, Absolute, Table, Relative, Frame, Scrollview, Resize and reposition - Screen orientation – Views: Textview, EditText, Button, ImageButton, Checkbox, ToggleButton, RadioButton, RadioGroup, ProgressBar, AutocompleteText, Picker, Listviews and Webview– Displaying pictures with views: Gallery and ImageView, ImageSwitcher, Gridview – Displaying Menus: Helper methods, Option and Context

UNIT III - DATA PERSISTENCE (12 Hours)

Shared User preferences – File Handling: File system, System partition, SD card partition, user partition, security, Internal and External Storage – Managing data using SQLite – Content providers: Data sharing with query string, projections, filters and sort and User defined content providers

UNIT IV - MESSAGING, NETWORKING AND SERVICES (12 Hours)

SMS Messaging: Sending and Receiving – Sending email and networking – Downloading binary and text data files – Access Web services – Local and remote services, Asynchronous threading, communication and binding services

UNIT V - LOCATION ACCESS AND PUBLISH ANDROID APPLICATION(12 Hours)

Location based services: Display map, zoom control, view and change, Marking, Geocoding, Get location - Publish Android applications and Deployment

TEXT BOOK

1. WeiMeng Lee (2012), "Beginning Android Application Development", Wrox Publications (John Wiley, New York) .

REFERENCES

1. Ed Burnette (2010), "Hello Android: Introducing Google's Mobile Development Platform", The Pragmatic Publishers, 3rd edition, North Carolina USA
2. Reto Meier (2012), "Professional Android 4 Application Development", Wrox Publications (John Wiley, New York).
3. ZigurdMednieks, Laird Dornin, Blake Meike G, Masumi Nakamura (2011), "Programming Android: Java Programming for the New Generation of Mobile Devices", OReilly Media, USA

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	L+T+P	C
UCA18E08	PYTHON PROGRAMING	4	0	0	4	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To know the basics of algorithmic problem solving and Python programming	a	b			
2.	To develop the programming skill in PYTHON	a	b	c	e	

UNIT I - ALGORITHMIC PROBLEM SOLVING (12 Hours)

Algorithms, building blocks of algorithms (statements, state, control flow, functions), notation (pseudo code, flow chart, programming language), algorithmic problem solving, simple strategies for developing algorithms (iteration, recursion). Illustrative problems: find minimum in a list, insert a card in a list of sorted cards, guess an integer number in a range.

UNIT II - DATA, EXPRESSIONS, STATEMENTS (12 Hours)

Python interpreter and interactive mode; values and types: int, float, boolean, string, and list; variables, expressions, statements, tuple assignment, precedence of operators, comments; modules and functions, function definition and use, flow of execution, parameters and arguments; Illustrative programs: exchange the values of two variables, circulate the values of n variables, distance between two points.

UNIT III - CONTROL FLOW, FUNCTIONS (12 Hours)

Conditionals: Boolean values and operators, conditional (if), alternative (if-else), chained conditional (if-elif-else); Iteration: state, while, for, break, continue, pass; Fruitful functions: return values, parameters, local and global scope, function composition, recursion; Strings: string slices, immutability, string functions and methods, string module; Lists as arrays. Illustrative programs: square root, gcd, exponentiation, sum an array of numbers, linear search, binary search.

UNIT IV - LISTS, TUPLES, DICTIONARIES (12 Hours)

Lists: list operations, list slices, list methods, list loop, mutability, aliasing, cloning lists, list parameters; Tuples: tuple assignment, tuple as return value; Dictionaries: operations and methods; advanced list processing - list comprehension; Illustrative programs: selection sort, insertion sort, mergesort, histogram.

UNIT V FILES, MODULES, PACKAGES (12 Hours)

Files and exception: text files, reading and writing files, format operator; command line arguments, errors and exceptions, handling exceptions, modules, packages; Illustrative programs: word count, copy file.

TEXT BOOKS

1. Allen B. Downey (2016), "Think Python: How to think like a Computer Scientist", 2nd Edition, O' Reilly Publishers.
2. Guide Van Rossum and Fred L. Drake Jr (2011), "An Introduction to Python", Network Theory Ltd.

REFERENCES

1. John V Gultag(2013),"Introduction to Computation and Programming Using Python", MIT Press
2. Kenneth A. Lambert (2012), "Fundamentals of Python:First Programs", CENGAGE Learning.

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	L+T+P	C
UCA18E09	ARTIFICIAL INTELLIGENCE	4	0	0	4	4

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To impart knowledge on Artificial Knowledge concepts	a	b			
2.	To learn different techniques for problem solving and applying them.	a	b	c	e	

UNIT – I (12 Hours)

Introduction – Evaluation of Artificial Intelligence production Systems – search strategies. Hill climbing – back tracking graph search (Algorithm A and A") properties of A* algorithm. Monotone restriction specialized production systems- AO* algorithm.

UNIT – II (12 Hours)

Searching game trees: Minimax Procedure alpha beta pruning – Introduction to predicate calculus. Answer extraction – Introduction to knowledge based systems – knowledge processing techniques – Knowledge inference techniques.

UNIT – III (12 Hours)

Expert System definition- various stages in developing expert system- knowledge Representation using semantic ness, predicate calculus, frames, scripts-knowledge acquisition techniques – factors to be considered while expert systems.

UNIT – IV (12 Hours)

Forward chining, backward chining- tools for developing an experts system-explanation facilities- meta knowledge-fuzzy reasoning.

UNIT – V (12 Hours)

Building various expert systems – case study denral, mycin etc. Introduction to various applications of AI. Natural language processing- natural language understanding – perception – learning using neural nets.

TEXT BOOKS

1. Elaine Rich, Artificial Intelligence, MC Graw Hill International.
2. PH. Winston, Artificial Intelligence, Addison Wessley.
3. Fredrick Hayes Roth, Donald A Waterman and Douglas B. Leant, Building Expert System, Addison Wessley,1983.

REFERENCES

1. N. J. Nilson, Spring Verlag, Principles of AI.1983.

2. David W. Rolston, Principles of AI & Expert Systems Development, MC Graw Hill.
3. Donald A Waterman, A guide to expert ystems.

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	L+T+P	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 **(6 Hours)**

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

UNIT - II **(6 Hours)**

Interpersonal skills- Empathy, Managing conflicts, Effective decision making

UNIT - III **(6 Hours)**

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 **(6 Hours)**

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

UNIT - V **(6 Hours)**

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.

Course Nature : Theory (Internal only)							
Assessment Method (Max.Marks: 100)							
In Semester	**Assessment Tools**	**E mail drafting**	**Case study analysis**	**Presentation**	**Professional writing**	**Participation**	**Total**
	Marks	**20**	**25**	**25**	**20**	**10**	**100**

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NON-MAJOR ELECTIVE SUBJECTS

Semester	Course Code	Course Title	L	T	P	L+T+P	C
III	UCA18E81	Office automation	0	1	1	2	2
	UCA18E82	Web design					
	UCA18E83	Programming in C					
IV	UCA18E84	Animation	0	1	1	2	2
	UCA18E85	Statistical Package for Social Sciences (SPSS)					
	UCA18E86	Programming in C++					

Semester	Course Code	Course Title	L	T	P	L+T+P	C
III	**UCA18E81**	**OFFICE AUTOMATION**	**0**	**1**	**1**	**2**	**2**

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		**Student Outcomes**				
1.	To acquire knowledge about basic working skills in Open Office	**a**				
2.	To develop the skills in preparing documents, Work books and presentations			**c**	**e**	
3.	To develop the skill for performing the manipulations with documents, Work books and presentations		**b**			

UNIT I - WRITER - THE WORD PROCESSOR **(6 Hours)**

Creating a Document -Opening a Document -Laying Out the Page-Setting paper size, margins, and orientation -Creating headers and footers -Numbering pages -Entering and Editing Text-Modifying text-Moving and copying text -Finding and replacing text -Correcting mistakes automatically-Printing

UNIT II - WRITER - THE WORD PROCESSOR **(6 Hours)**

Adding character to your characters -Planning Your Paragraphs-Aligning paragraphs -Spacing your lines -Making Lists -Bulleting lists-Numbering lists-Using a style -Creating a style - tables and columns

UNIT III - CALC - THE SPREADSHEET **(6 Hours)**

Creating a Spreadsheet -Inputting Your Data -Entering your data -Editing your data -Filling cells automatically -Managing Columns and Rows-Copying, pasting, cutting,

dragging, and dropping your cells -Adding the Art -Formula Basics-Adding, Subtracting, and More -Adding and other arithmetic -Adding with the Sum function.

UNIT IV - CALC - THE SPREADSHEET (6 Hours)

Rocketing into Orbit with Functions Using the AutoPilot: Functions dialog box -Editing functions -Entering functions manually -Copying and pasting formulas -Creating formula arrays -Recalculating formulas -Creating Magic Formula-Nesting functions - Creating conditional formulas

UNIT V - IMPRESS - THE PRESENTATION (6 Hours)

Creating a Presentation -Opening an existing presentation -Adding Slides -Adding text to a slide -Saving Your Presentation for Posterity - Making Presentations Picture Perfect -Adding Images -Clipping art -Drawing objects -Coloring Backgrounds - Creating a plain-colored background -Creating a gradient background -Hatching a background -Using a bitmap image as a background -Creating 3-D text-Inserting 3-D objects -Animating Impressively -Using Text Effects Effectively -Creating Animation Effects -Creating Animated GIF files -Adding Slide Transition Effects - Showing a Presentation -Setting slide timing -Hiding slides -Specifying slide show settings - Delivering a Slide Show .

TEXT BOOKS

1. Keir Thomas and Andy Channelle with Jaime Sicam (2009), "Beginning Ubuntu Linux" , Apress.(Unit I & II)
2. Gurdy Leete, Ellen Finkelstein, and Mary Leete (2004), "Openoffice.org for dummies", Wiley Publishing, Inc.(Unit III,IV & V)

REFERENCE

1. Andy channelle (2009), "Beginning OpenOffice 3", Aprèss.

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

Semester	Course Code	Course Title	L	T	P	L+T+P	C
III	UCA18E82	WEB DESIGN	0	1	1	2	2

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To acquire knowledge about basic working skills in web design	**a**				
2.	To design websites using the HTML tags.			**c**	**e**	

UNIT I **(6 Hours)**

BASIC INTERNET CONCEPTS: What is Internet – History – Host Machines and Host Names-Client / Server Model – Domain Names – Protocols- IP Address.

UNIT II **(6 Hours)**

ADVANCED INTERNET CONCEPTS: Anatomy of an Email Message – Viewing - Sending – Replying - Search Engines – Meta Search Engine.

UNIT III **(6 Hours)**

HTML INTRODUCTION: History of HTML – HTML Document – Anchor Tags – Hyper Links-Sample HTML Documents.

UNIT IV **(6 Hours)**

HEAD AND BODY SECTIONS: Header Section – Title – Prologue – Links – Comment – Heading – Horizontal Rule – Paragraph – Images and Pictures - Ordered and Unordered List.

UNIT V **(6 Hours)**

TABLES: Table Creation – ColSpan, RowSpan – Cell Spacing, Cell Padding – Nested Tables. FRAMES: Frameset Definition – Frame Definition – Nested Frames. FORMS: Action Attribute – Method Attribute – Drop Down List – Sample Forms.

TEXT BOOKS

1. Wendy G. Lehnert, “Internet 101 - A Beginners Guide to Internet and the World Wide Web”, Addison Wesley. UNITS I & II
2. Xavier.C,”World Wide Web design with HTML”, Tata McGraw Hill Publishing Limited, New Delhi. UNITS III, IV & V

REFERENCE

1. Bryan Pfaffenberger and Bill Karow, “HTML 4 Bible”, 2nd Edition, IDG Books Worldwide, Inc

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

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

Semester	Course Code	Course Title	L	T	P	L+T+P	C
III	UCA18E83	PROGRAMMING IN C	0	1	1	2	2

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To acquire knowledge about basic Programming skills	a	c			
2.	To strengthen the knowledge on structures, arrays etc., of C programming	a	b	i		
3.	To develop program using the features in C Language for problem solving.	a	c	i		

UNIT I - OVERVIEW OF C **(6 Hours)**

Introduction- Importance of C- Basic Structure of C program- Tokens-Variables- Data types- Operators and Expression- Managing Input and Output Operators.

UNIT II - CONDITIONAL STATEMENTS **(6 Hours)**

If statement- switch statement- goto statement- while statement- do statement-for statement- continue statement- break statement.

UNIT III - ARRAYS **(6 Hours)**

One dimensional array- Two dimensional array- Multidimensional array

UNIT IV - FUNCTIONS **(6 Hours)**

Built in functions (Library functions): String Handling functions-User defined functions.

UNIT V – STRUCTURES AND UNIONS **(6 Hours)**

Structure definition- Arrays of structures- Structures and functions- Unions

TEXT BOOK

1. Balagurusamy.E, (2008), "Programming in ANSI C" , Second Edition, Tata McGraw Hill.

REFERENCES

1. Kamthane Ashok.N, (2013), "Programming in C", 2nd Edition, Pearson Education.
2. Yashvant P. Kanetkar, (2008), "Let us C", 8th Edition, Infinity science press.

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

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

Semester	Course Code	Course Title	L	T	P	L+T+P	C
IV	UCA18E84	ANIMATION	0	1	1	2	2

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To acquire knowledge about basic working skills required for animation	a	b			
2.	To design different presentations and applying the effects.			c	e	

INSTRUCTIONAL OBJECTIVES

At the end of this Subject the learner is expected:

1. To get an overview on the basic concepts of Flash and its tools.

UNIT - I **(6 Hours)**

Introduction: Flash MX Environment – Tool bar – Tool box – Timeline – Panels – Property Inspector.

UNIT - II **(6 Hours)**

Graphics Tools in Flash: Drawing Tools – Object Selection Tools – Color Selection Tools – Viewing Tools.

UNIT - III **(6 Hours)**

Panels: Design Panel – Development panel.

Editing Techniques: Reshaping the object – Optimizing the curves – Softening the edges.

UNIT - IV **(6 Hours)**

Transformations: Arranging the elements – Aligning Objects.

Advanced Concepts : Frames – Layers – Scenes.

UNIT - V **(6 Hours)**

Animation: Framy-By-Frame Animation – Motion Tweening - Shpe Tweening – Text Animation – 3D Animation.

TEXT BOOK

1. K.Thyagharajan, B.Anbumani, “Flash 2004”, Tata McGraw-Hill Publishing Limited, New Delhi, 2004.

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

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

Semester	Course Code	Course Title	L	T	P	L+T+P	C
IV	UCA18E85	STATISTICAL PACKAGE FOR SOCIAL SCIENCES	0	1	1	2	2

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To acquire knowledge about basic techniques used in SPSS for solving problems	a	c			
2.	To apply the features in SPSS for problem solving.	a	c	i		

LIST OF EXPERIMENTS

1. Construction of Frequency tables: Univariate Frequency tables -- Cross-Tabulation
2. Graphical representation of Data: Bar diagram – Simple Bar diagram, Multiple Bar Diagram, Sub divided Bar Diagram, Histogram Pie Diagram
3. Calculation of Measures of Central Tendencies: Mean, Median and Mode, Geometric mean
4. Calculation of Methods of Dispersion - Standard Deviation, Quartiles, Skewness, Kurtosis
5. Calculation of Correlation Coefficient: (a) Karl Pearson's Correlation Coefficient, (b) Spearman's Rank Correlation Coefficient
6. Calculation of Regression Trend: (a) Trend Line
7. Test of Significance for Single and two Samples – Large Sample Test (Z-Test) (a) Test for Mean, (b) Test for Proportion, (c) Test for Standard Deviation
8. Test of Significance for Single and two Samples – Small Sample Test (t-Test, F-test) (a) Test of Mean, (b) Test of Variances
9. Non-Parametric Test (a) One –Way Chi-square test (test for Homogeneity) (b) Two–Way Chi-square test (test for Attributes)
10. Test of Homogeneity of Means for more than 2 samples (a) One –Way ANOVA (b) Two–Way ANOVA

REFERENCES

1. Vijay Gupta, (1999),SPSS for Beginners, Published by VJBooks Inc.
2. Levine's Guide to SPSS for Analysis of Variance.2nd Edition, Melanie C. Page, Sanford L. Braver and David P. MacKinnon, LAWRENCE ERLBAUM ASSOCIATES, PUBLISHERS2003 Mahwah, New Jersey, London.

Course Nature : Practical						
Assessment Method (Max.Marks: 100)						
In	Assessm	Observati	Output	Model	Regularity	Total

Semester	ent Tools	on Note Book	Result in time	Examination	and Discipline	
	Marks	10	10	20	10	50
End Semester	Assessment Tools	Record Note Book	Program Writing	Debugging	Result / Output	Total
	Marks	10	10	15	15	50
Total						100

Semester	Course Code	Course Title	L	T	P	L+T+P	C
IV	UCA18E86	PROGRAMMING IN C++	0	1	1	2	2

INSTRUCTIONAL OBJECTIVES At the end of this course the learner is expected:		Student Outcomes				
1.	To acquire knowledge about basic Programming skills using object oriented concepts	a	c			
2.	To strengthen the knowledge on constructors, Inheritance, Overloading of operators and functions.	a	b	i		
3.	To develop program using the features in C++ Language for problem solving.	a	c	i		

UNIT I - PRINCIPLES OF OBJECT ORIENTED PROGRAMMING (6 Hours)

Object Oriented Programming Paradigms- basic concept of OOPS- benefits of OOP-what is C++-simple C++ program-structure of C++ program- creating a source file – compiling and linking.

UNIT II - TOKENS, EXPRESSION AND CONTROL STRUCTURES (6 Hours)

Tokens-keywords-identifiers and constants-basic data types-user defined data types-derived data types-type compatibility-declaration of variables-dynamic initialization of variables-reference variables-operators in C++-manipulators-type cast operator-implicit conversion-operator overloading-control structures.

UNIT III - CLASS AND OBJECTS (6 Hours)

Functions in C++- function overloading-Specifying a class- defining member function-arrays within a class-arrays of objects- objects as function arguments- friendly functions-constructor and destructor

UNIT IV - INHERITANCE (6 Hours)

Single inheritance-multilevel-multiple inheritance-hierarchical-hybrid.

UNIT V - POLYMORPHISM (6 Hours)

Virtual base class-abstract classes - operator over loading- rules for operator overloading

TEXT BOOK

1. Balagurusamy.E, (2008), “Object Oriented Programming with C++”, Tata McGraw-Hill Publication.

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