



# **Criterion 1 – Curricular Aspects**

Key Indicator	1.1	Curriculum Design and Development
Metric	1.1.2	Percentage of Programmes where syllabus revision was carried out during academic year 2022-23

# DEPARTMENT OF COMPUTER SCIENCE AND APPLICATIONS

SI. No.	Programme Code	Programme name	Year of Introduction	Year of revision	Percentage of Syllabus content added or replaced
01.	152	BCA	2013-14	2022	14%

S.No	Contents
1.	Minutes of Board of Studies
2.	Extracts of minutes of the Academic Council Meeting
3.	Curiculum and Syllabus of the programme – Before Revision
4.	Curiculum and Syllabus of the programme – After Revision

Legend : Highlighted Color - Red

- Indicates courses which are removed from syllabus before revision
- Highlighted Color Green Indicates courses which are removed from syllabus after revision

#### 1. a. Minutes of the Board of Studies for BCA held on 14.07.2022

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Faculty of Computing Sciences and Engineering

Department of Computer Science and Applications

#### BOARD OF STUDIES MEETING

#### BCA - Bachelor of Computer Applications

#### Minutes of Meeting

Date: 14.07.2022

Time: 3.00 pm to 5 .00 pm

Venue: CSA Dept.

Mode of Meeting: Online Gmeet link:https://meet.google.com/rda-oitb-ifo

The Board of Studies meeting is held in virtual mode on 14.07.2022 for framing new course B.Sc Data Science Curriculum (I to VI semester) and syllabi (I to VI semester).

#### Agenda:

- Presentation of Department Mission, Vision, PEOs, POs and PSOs of B.Sc Data Science.
- 2. Presenting of B.Sc Data science Curriculum and Syllabus Regulations 2022.
- 3. Discussion on Value-Added Courses offered by the department of CSA.
- 4. Suggestions and Observations in BCA Regulation 2021 and MCA Regulation 2020

#### Members present:

The BoS members are listed in the Table L

#### Table I Members of the BoS

S.No	Name of the Member	Designation and Address
1.	Dr.J.Jeyachidra	Dean FCSE and Professor, Faculty of Computing Sciences and Engineering, Periyar Maniammai Institute of Science & Technology, Vallam.
2.	Dr.D.D.Ruby BoS Chairman	Head &Asso.Prof, Department of Computer Science and Applications, Periyar Maniammai Institute of Science & Technology, Vallam.
З.	Dr.S.Nickolas (Academic Expert)	Professor, Department of Computer Applications, NIT, Tiruchirappalli. <u>nickolas@nitt.edu</u> , <u>nickolasnitt@gmail.com</u> , 94435 61989,94860 01131

4.	Dr.V.Adithya Pothan Raj (Industry Expert)	Associate Operations Manager ,CTS, Chennai.apr1991@rediffmail.com 9444408814
5.	Dr.A.Muthamil Selvan BoS Member Internal	Asso.Prof./CSA Periyar Maniammai Institute of Science & Technology, Vallam.
6,	Dr.S.Arumugam BoS Member Internal	Asso.Prof./CSA Periyar Maniammai Institute of Science & Technology, Vallam.
7.	Dr.V.Srithar BoS Member Internal	Asst.Prof/CSA Periyar Maniammai Institute of Science & Technology, Vallam.
8.	Dr.S.Bhuvaneswari BoS Member Internal	Asso.Prof./Mathematics Periyar Maniammai Institute of Science & Technology, Vallam.



# A. FEEDBACK ON CURICULLAR ASPECTS

The feedbacks were collected and analyzed during 2019-20 ,2020-21 and 2021-2022 from the following stake holders

- 1. Teachers
- 2. Employers
- 3. Alumni students

In addition, the feedback from Academic Expert, Industry Expert, Teachers, Alumni and students who participated in Department Advisory Committee Meeting (DAC) were presented. The action taken for the feedbacks are given as "Remarks".

# B. CURICULLUM INTERVENTION BASED ON CO ATTAINMENT

The CO attainment and PO attainment for the courses were presented to the members. The below and above target values of Cos attainment were discussed. Syllabus were modified for those courses and documented in the Table II.

#### C. PRESENTATION OF CURICULLUM AND SYLLABUS

All the courses which are framed by the department of Computer Science and Applications are presented individually. The details of deletion, addition and introduction of new courses are tabulated for all courses in the following table, Table II.

S.No	Semester	Course Code	Course Name	Course content Deletion/ Addition/New	Action Taken
1	I	XGT101/ XFT101	Tamil I/Foundational Tamil I	Added	Added in the Semester 1 with 3 credits
2	1	XGE102	English I	Added	Added in the Semester I with 3 credits
3	11	XGT201/ XFT201	Tamil II/Foundational Tamil II	Added	Added in the Semester II with 3 credits
4	n	XGL202	English II	Added	Added in the Semester II with 3 credits

#### Table II: Discussions on courses with actions as remarks

#### D. LIST OF NEWLY INTRODUCED COURSES IN REGULATION 2023

S.No	Course Code	Course Title	Semester
1	XGT101/ XFT101	Tamil I/Foundational Tamil I	I
2	XGE102	English I	1
3	XGT201/XFT201	Tamil II/Foundational Tamil II	n
4	XGL202	English II	11

#### E. PERCENTAGE CHANGE IN THE SYLLABUS

Number of new courses added = 12 Credits Number of courses Credit Removed = 7 Credits % change = (19/135) x 100 = 14.07%

#### F. COURSES ON EMPLOYABILITY/ENTREPRENEURSHIP/SKILL DEVELOPMENT

The curriculum focuses of including 87.5 % of courses with either/and employability / entrepreneurship / skill development. The courses are given below

# Table III Categorization of courses

cr	t Categor	y Code	Subject Name	
I	PART 1	XGT101/	Tamil I/Foundation 18	Category
1	PART 2	XFT101 XGE102	Tamil I	Skill Development
1	CC-1	NGL102	English I	Skill David
		ACA103	C Programming	Freedow 100
1	DSC - 1	XCA104	Algebra, Calculus and Analytical Geometry	Skill Develop
1	CC- 2	XCA105	Computer Organization and	Entre Coveropiner
1	UMAN I	XUM001	Human Ethics, Values, Rights	Entrepreneurship
I	CC-3	XCA106	and Gender Equality	
11	DADTER	XGT201/V	C Programming Laboratory	Employability
	PARTI	FT201	ramit II/Foundational Tamil II	Skill Development
	PART 2	XGL202	English II	sam bevelopitent
п	UMAN 2	XUM002	Environmental Studias	
п	CC- 4	XCA203	Object Oriented Programming	Entrepresent
П	DSC-2	XCA204	Discrete Mathemati	andepreneursnip
П	CC-5	XCA205	Computer Nationality	Skill Development
П	CC-6	XCA206	Data Standard Metworks	Entrepreneurship
	000	ACA200	Data Structures and Algorithms	Employability
П	CC-7	XCA207	with C++ Laboratory	Employability
п	CC-8	XCA208	Data Structures and Algorithms Laboratory	Employability
ш	SEC 1	XCA301	HTML and DHTML	Employability
ш	CC-9	XCA302	Database Management Systems	Employability
ur l	UMAN 2	XUM003	Disaster Management	*****
п	SEC 1	XCA304	Statistical and Numerical Methods	Employability
ш	CC-9	XCA305	HTML and DHTML Laboratory	Employability
I I	CC- 10	XCA306	Database Management Systems Laboratory	Employability
1 0	GE1	Generic Elective – 1	Elective	*****
I	DSC-3	XCA307	Visual Programming Laboratory	Skill Development
	EC2 3	XCA401	Data Analytics	Skill Development
5	EC 2		In Programming	Employability

# G. DISCUSSION ON PROGRAMME ARTICULATION MATRIX (PO

The existing POs and PSO was presented. The members agreed that there need not

# H. VALUE ADDED COURSES PROVIDED

Value added courses with more than 30 hours are given to the students by the department. The value-added courses are given in Table VI. The syllabus of the same is given in

# I.VALUE ADDED COURSES PROVIDED

Value added courses with more than 30 hours are given to the students by the department. The value-added courses are given in Table IV.

S.No	Course Name	
1.	VA-XDS-01 -Pattern recognition	
2.	VA-XDS-02- Image processing	
3.	VA-XDS-03- MATLAB	
4.	VA-XDS-04- Strike and DIP	
5.	VA-XDS-05- Advanced data model	

# Table IV Value added courses

The BoS members recommended to submit the outcome of this meeting in the forthcoming Academic council meeting for approval.

HoD/CSA (Dr.D.Ruby)

A 7 202 Dean (FCSE) (Dr.J.Jeyachidra)

Net Technologies Laboratory Employability XCA605A Programming with PHP and DSE-4 Employability VI XCA605B Lab MySQL Laboratory Employability Project Work VI XCA606 DSE-6

# 2. a. Extracts of the Minutes of 40<sup>th</sup> ACM Meeting for BCA

MINUTES OF FORTIETH	MEETING OF THE ACADEMIC COUNCIL Venue: Richard Dawkins Hall Place : PMIST, Vallam – Thanjavur is Council of the Petiyar Manlammal Institute o m, Thanjavur held on 27.08.2022 at 10.30 a.m ellor, chaired the meeting.
Date : 27.08.2022 Time : 10.30 A.M The Fortieth Meeting of the Academ Science & Technology (PMIST), Valia Prof.S.Valusami, Hon'ble Vice-Chance The following Academic Council Me 1. Dr.D.Aarthi Saravanan 2. Dr.A.Anard, Jacad Schaefing	Venue: Richard Dawkins Hall Place : PMIST, Vallam – Thanjavur is Council of the Periyar Manlammai Institute o m, Thanjavur held on 27.08.2022 at 10.30 a.m ellor, chaired the meeting. embers were present
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The following Academic Council Me     Dr.D Aarthi Sarayanan     Dr.A. Anand Jacard Sahasting	embers were present
1. Dr.D.Aarthi Saravanan 2. Dr.A.Annod Jarard Schooling	
<ol><li>Dr A Anapol Jorard Sebasting</li></ol>	Member
2. Christeliana deleta decadaria	e Member
3. Dr.S.Arumugam	Member
4. Dr.P.Aruna	Member
5. Dr.S.Asokan	Member
<ol><li>Or S Buvaneswan</li></ol>	Member
7. Dr.A.George	Member
<ol> <li>Dr.S.Gomathi</li> </ol>	Member
<ol><li>Dr.P.Guru</li></ol>	Member
10. Dr.V.Hamsadhiwani	Member
11. Dr.R.Jayanthi	Member
12. Dr.N.Jayanthi	Member
13. Dr.J.Jeyachidra	Member
14. Mr.I. Karthic Subramaniayan	Member
15. Dr.T.Kavitha	Member
16. Dr.K.Kesavan	Member

b). Data Science

SI. No	Course Code	Course Name	Semester	L	T	P	с	н
1	XCSHD1	Introduction to Data Science	10	1	0	2	3	5
2	XCSHD2	Data Visualization and Text Analytics	IV	1	0	2	3	5
3	XCSHD3	Applied Artificial Intelligence	v	1	0	2	3	5
4	XCSHD4	Deep Learning	< <u>V</u> 1	3	0	2	3	5
5	XCSHD5	Internet of Things	VI	1	0	2	3	5
6	XCSHD6	Mini project	VII		-	5	5	10
			Total	5	0	15	20	35

The specialization is applicable for students admitted from the academic year 2021-2022 onwards. The specialization is optional and the courses are taken in collaboration with the industry.

The matter is placed before the Academic Council for approval.

#### Resolution

RESOLVED TO APPROVE the curriculum and syllabi for B.Tech. (Hons).-Computer Science and Engineering with specializations in a) Artificial Intelligence and Machine Learning b) Data Science (Regulation 2021, Revision 1: Full time mode). The courses pertaining to the specialization and their credits (In addition to the courses in B.Tech-Computer Science and Engineering Curriculum and Syllabi, Regulation 2021).

#### DEPARTMENT OF COMPUTER SCIENCE AND APPLICATIONS

FCSE TO CONSIDER AND APPROVE the Curriculum and the Syllabi of the new B.Sc.-Data degree programme, B.Sc.-Data Science, to be offered from the Academic Science Year 2022-23 under Full-Time (Regulation 2022).

#### Kotes:

A new degree programme B.Sc. – Data Science is introduced from the year academic year 2022-23 onwards. The Board of Studies of the Department of Computer Science and Applications recommended the Curriculum and Syllabi

from I to VI Semester for B.Sc.-Data Science programme under Full-Time (Regulation 2022).

Value Added Courses offered by the department in 2022-23:

- 1. Pattern Recognition
- 2. Image Processing
- 3. MATLAB
- 4. Strike and DIP
- 5. Advanced Data Model

The matter is placed before the Academic Council for approval.

Resolution

RESOLVED TO APPROVE the Curriculum and the Syllabi of the new degree programme, B.Sc.-Data Science, to be offered from the Academic Year 2022-23 under Full-Time (Regulation 2022) and the value added courses offered by the department in 2022-23.

FCSE BCA 40.4.3 TO CONSIDER AND APPROVE the revision in Curriculum and Syllabi for BCA Programme under Full Time (Regulation 2021, Revision 1).

#### Notes:

The Board of Studies of the Department of Computer Science and Applications pertaining to BCA programme recommended a few revisions in the Curriculum and Syllabi under Full Time (Regulation 2021, Revision 1) for the students admitted from the academic year 2022-23.

The matter is placed before the Academic Council for approval. Resolution

RESOLVED TO APPROVE the revision in Curriculum and Syllabi for BCA Programme under Full Time (Regulation 2021, Revision 1).

#### DEPARTMENT OF SOFTWARE ENGINEERING

FCSE TO CONSIDER AND APPROVE the Curriculum and Syllabus for B.Sc. B.Sc.- Al 40.4.4 Artificial Intelligence degree Programme under Full Time (Regulation 2022).

### 3. a and 4.a Curicullum and Syllabus of the BCA – Before and After Revision

SEVIESIEK – I											
Catagor Course				Cı	redit	S	Hours				
Categor y	Code	Course Title	L	Т	Р	Tota l	L	Т	Р	S S	Tota l
PART1	XGT101 / XFT101	Tamil I/Foundational Tamil I	3	0	0	3	3	0	0	0	3
PART2	XGE102	English I	3	0	0	3	3	0	0	0	3
CC- 1	XCA103	C Programming	4	0	0	4	4	0	0	0	4
DSC - 1	XCA104	Algebra, Calculus and Analytical Geometry	4	1	0	5	4	1	0	0	5
CC- 2	XCA105	Computer Organization and Architecture	4	0	0	4	4	0	0	0	4
CC-3	XCA106	C Programming Laboratory	0	0	1	1	0	0	2	0	2
UMAN 1	XUM00 1	Human Ethics, Values, Rights and Gender Equality	1	0	0	1	1	0	0	1	2
EA		Extension Activities NSS,NCC,NSO,RR C and Swatch Bharath)									2
		Mentor, Library									2
		Field Visit	0	0	0	0	0	0	0	0	2
		Placement Activity									1
		Total	1 9	0 1	0 1	21	1 9	0 1	0 2	1	30

#### BACHELOR OF COMPUTER APPLICATIONS (BCA) REGULATIONS 2021, REVISION: 1 CURRICULUM SEMESTER I

# SEMESTER – II

				C	redit	S	Hours				
Categor y		Course Title	L	Т	Р	Tota l	L	Т	Р	S S	Tota l
	Course Code			0	0			0	0	0	
PARTI	XGT201/XFT20 1	Tamil II/Foundation al Tamil II	3	0	0	3	3	0	0	0	3
PART2	XGL202	English II	3	0	0	3	3	0	0	0	3
CC- 4	XCA203	Object Oriented Programming with C++	4	0	0	4	4	0	0	0	4
DSC - 2	XCA204	Discrete Mathematics	4	1	0	5	4	1	0	0	5
CC- 5	XCA205	Computer Networks	3	0	0	3	3	0	0	0	3
CC- 6	XCA206	Data Structures and Algorithms	4	0	0	4	4	0	0	0	4
CC-7	XCA207	Object Oriented Programming with C++ Laboratory	0	0	1	1	0	0	2	0	2
CC-8	XCA208	Data Structures and Algorithms Laboratory	0	0	1	1	0	0	2	0	2
UMAN2	XUM002	Environmenta 1 Studies	1	0	0	1	1	0	0	1	2
		Mentor , Library									2
		Total	2 2	0 1	0 2	25	2 2	0 1	0 4	1	30

### SEMESTER – III

				Cı	redit	S			irs		
Category	Course Code	Course Title	L	Т	Р	Tota l	L	Т	Р	S S	Tota l
SEC 1	XCA301	HTML and DHTML	1	0	0	1	2	0	0	0	2
CC- 9	XCA302	Database Management Systems	4	0	0	4	4	0	0	0	4
CC- 10	XCA303	Visual Programming	4	0	0	4	4	0	0	0	4
GE1		Generic Elective – 1	3	0	0	3	3	0	0	0	3
DSC - 3	XCA304	Statistical and Numerical Methods	3	2	0	5	3	2	0	0	5
SEC 1- Laborator y	XCA305	HTML and DHTML Laboratory	0	0	1	1	0	0	2	0	2
CC-11	XCA306	Database Management Systems Laboratory	0	0	1	1	0	0	2	0	2
CC-12	XCA307	Visual Programming Laboratory	0	0	1	1	0	0	2	0	2
UMAN3	XUM00 3	Disaster Management	1	0	0	1	1	0	0	1	2
EA		Extension Activities NSS,NCC,NSO,RR C and Swatch Bharath)									2
		Mentor, Library									2
		Total	1 6	0 2	0 3	21	1 7	0 2	0 6	1	30

# SEMESTER – IV

				Cı	redits	5			Hours		
Category	Course Code	Course Title	L	Т	Р	Total	L	Т	Р	SS	Total
SEC 2	XCA401	Data Analytics	1	0	0	1	2	0	0	0	2
CC-13	XCA402	Java Programming	4	0	0	4	4	0	0	0	4
DSC - 4	XCA403	Resource Management Techniques	3	2	0	5	3	2	0	0	5
CC-14	XCA404	Operating Systems	4	0	0	4	4	1	0	0	5
GE	2	Generic Elective – 2	3	0	0	3	3	0	0	0	3
SEC 2- Laboratory	XCA405	Data Analytics Laboratory	0	0	1	1	0	0	2	0	2
CC-15	XCA406	Java Programming Laboratory	0	0	1	1	0	0	2	0	2
CC-16	XCA407	Operating Systems Laboratory	0	0	1	1	0	0	2	0	2
UMAN4	XUM004	Entrepreneurship Development	1	0	0	1	1	0	0	1	2
EA		Extension Activities NSS,NCC,NSO,RRCand Swatch Bharath)									2
		Mentor									1
		Total	16	02	03	21	17	3	6	1	30

		Credits							Но	urs	
Category	Course Code	Course Title	L	Т	Р	Tota l	L	Т	Р	S S	Tota l
SEC-3	XCA501	XML and Web Services	1	0	0	1	2	0	0	0	2
DSE- 1	XCA502 A	Software Engineering	4	1	0	5	4	1	0	0	5
	XCA502 B	Internet of Things	4	1	0	5	4	1	0	0	5
DSE-2	XCA503 A	Unix and Shell Programming	4	1	0	5	4	1	0	0	5
	XCA503 B	Web Scripting Framework	4	1	0	5	4	1	0	0	5
DSE-3	XCA504 A	Enterprise Resource Planning	4	1	0	5	4	1	0	0	5
	XCA504 B	Organizational Behavior	4	1	0	5	4	1	0	0	5
GI	Ξ3	Generic Elective – 3	3	0	0	3	3	0	0	0	3
SEC-3- Laborator y	XCA505	XML and Web Services Laboratory	0	0	1	1	0	0	2	0	2
DSE-2- Laborator y	XCA506 A	Unix and Shell Programming Laboratory	0	0	1	1	0	0	2	0	2
	XCA506 B	WebScriptingFrameworkLaboratory	0	0	1	1	0	0	2	0	2
	XCA507	Inplant Training	0	0	4	4	-	-	-	-	-
UMAN5	XUM005	Cyber Security	1	0	0	1	1	0	0	1	2
EA		Extension Activities NSS,NCC,NSO,RRCa	0	0	0	2	0	0	0	0	2

#### SEMESTER – V

	nd Swatch Bharath)									
	Mentor, Library									2
	Total	1	3	0	28	1	3	4	1	30
		7		6		7				

#### SEMESTER – VI

			Credits						Ho	urs	
Category	Course Code	Course Title	L	Т	Р	Total	L	Т	Р	SS	Total
SEC-4	XCA601	Introduction to Python	1	0	0	1	2	0	0	0	2
	XCA602A	.net Technologies	4	1	0	5	4	0	0	0	4
DSE-4	XCA602B	Programming with PHP and MySQL	4	1	0	5	4	0	0	0	4
DSE-5	XCA603A	Mobile Computing	4	1	0	5	4	1	0	0	5
	XCA603B	Data Science	4	1	0	5	4	1	0	0	5
	XCA603C	Block Chain	4	1	0	5	4	1	0	0	5
SEC-4 Laboratory	XCA604	Introduction to Python Laboratory	0	0	1	1	0	0	2	0	2
DSE -4 Laboratory	XCA605A	.Net Technologies Laboratory	0	0	1	1	0	0	2	0	2
	XCA605B	Programming with PHP and MySQL Laboratory	0	0	1	1	0	0	2	0	2
DSE-6	XCA606	Project Work	0	0	6	6	0	0	8	8	8
EA		Extension Activities NSS,NCC,NSO,RRCand Swatch Bharath)									1
		Mentor, Library									2
		Total	9	2	8	19	10	1	12	0	30

Total Credits: 135

Course Code					1	T	P	C
Course Name		ad	ip - 1		3	0	0	3
Prerequisite			and the second se		L	T	P	H
C-P-A	3:0:0				3	0	0	3
		COURSE OUTCOMES		DOM	AIN		LEVE	2L .
2.002	1	after the completion of th	he course, students will be	able to		1		
CO1 Recogn GUI3#& Garcher	lze (.948 señet 6 st.	டயாளம் காணுதல்) பல தாண்டுகளைத் தமிழ்மெ	ගිනයා නැතිවේ හැර ලැගේ නැතිවෙ	Cognit	tive	Re	memb	ber
CO2 Choose	(Ggrla) തെണ B	செய்தல்) பன்முகப் பரி கை்கியங்கள் மூலம் அ	மாணங்களின் நந்து கொள்ளல்	Cognit	tive	Re	mem)	ber
CO3 Describ	त (क्वीजात जाना ह	குதல) தமீழ் மகளிர்ன் ணாதல்	உரையாடல் சிறப்புச்	Cognit	tive	Un	derst	and
CO4 Apply ( watanie	விளங்கு ரி பாடல்	தல்) பல்வேறு கலைத்த கள் குறித்துத் தெளிவு	கூரச் எர்ந்த பிரிவுகள் பெறல்	Cognit	tive:	Ap	ply	
COS Analyze	(பகுத்த எடக்கொ	ல்) சிறுகதைகளின் தே ர் - கவிதை குறித்துத்	ாற்றம் மற்றும் வளர்ச்சி தெளிவு பெறுதல்	Cognit	tive	An	alyze	
அல தமிழ் த ரு.1	<b>M</b> B <sub>1</sub> <b></b>	ரும் தமிழ்த்தொண்டும்						
பாரதியார், பார தொடர்கள், சிர தொடர்கள், சிர	திதாசன், சி கந்தா மப்புப் வெ	தாமக்கல் கவிஓர், சி. ம், கல்மனி தேசியல்தா பயர்கள்,	இலக்குலனார், உ.வே.சாம் ாயகம் பிள்ளை தொடர்பர்	நாத அம எ செய்த	ப்பி. கேன்.	đợ	5 <b>5</b> 5	
SINUS-2	ക്ഷിണ്ടെ	கள் (மரபுக்கவிதை, புது	ര്രഖ്തു)		9	-ster		
பட்டுக்கேலதை பட்டுக்கோட் கூட புதுக்கவிதை நானக்கூத்தன் ஹைக-1	ព្រៃលោ ទស់ហា គ.បំទំទង សូលគំត្	சன, வான்றாசன, சுரது ன சுந்தரம், மருதகாசி மர்த்தி, சி.க.செல்லப்பா, மர் மோகனரங்கன் தொ புற்தன், தமீழ் முகளில்	ட கண்ணதாசன், உடுமன் தொடர்பான செய்திகள், முமேத்தா, ஈரோடு தமிழ டர்பான செய்திகள், ச் சின்ப	ல நாராம எப்பள், அ	a Ninenes Dennes	கவ. உரக	(ताला,	
ஜி.புபோப் முந் அம்பேத்கர், க அன்னி பெசன் வேனுநாச்சியார்	றும் வீரம மமாசி, ட். அம்எ , வள்ளி	ரமுள்வின் தம்ப்பன மாபொச்லதானம், காச மயார், மூனஹர் ராமா மம்மை, ரானி மங்கம்ம	, பெரியர், அன்னா, மு மிதே மீல்லத் சமுதாயத் மீத்வீமாள், டாக்டர் முத்த ாள் சிறப்பு	த்துராமல் தொண்டு நலட்சுமி	GRLQ	а <u>ж</u> а) 1,	1.	
AND 3-4	BALGUL	றப்பாடல்		3	9			
BTRUTLOULTLE	0, தொம	ல் பாடல், ஒப்பார்ப் பா	LAD	10	-			
SHOUT-1	Desail	L SULAND		1.5	£.			
Chevely 2		and the second second						
உளர்நடை சி	நகனத்.	நாடகம் கவிதைகள் TETOPIAL	DPACTICAL.		TOP	TAL		

#### பாட நூல்கள்:

- முனைவர் கா.செல்வகுமரர் (தொ.ஆ.), பொதுத்தமிழ், மார்ச் 2022, துனாகோ பதிப்பகம், தரும்பாக்கம், சென்னை – 106, 9884159972.
- முனைவர் மு.அருணாசலம் (ப.ஆ.) தமிழ் இலக்கிய வரலாறு 2012, அருண் புதிப்புகம், தனரத்தளம், பாலாஜி நகர், குடிஜ காலனி, கண்டோனமெண்ட், திருச்ச் - 1, 9694440530
- கசக்தலேல் நாட்டுப்புற இயல் ஆய்வு, மனிவாசகர் புதிப்பகம் 12, மேலசன்னதி வீதி, சிதம்பரம் - 1.
- முனைவர் கோ பெரியண்ணன் அடிப்படை எளிய தமிழ் இலக்கணம் 2003 –லனிதா பதிப்பகம், 11- நானா தெரு, பாண்டி புஜார், தி.நகர், சென்னை - 17.

Cour	se Code	and the second second second second second		1	T	P	c
Cour	se Name	அடிப்படைத் தமிழ்-	1	3	0	0	3
Pror	equisite			1	T	P	H
C	P:A	3:0:0		3	0	Ō	3
		COURSE OUTC	OMES	DO	MAIN		LEVEL
After	the comp	pletion of the course, stu	dents will be able to	100			
CO1	உயிர் வகைப்	எழுத்துக்கள் - மெய்யெ படுத்தி நினைவூட்டல்	ழத்துகள்	Cogni	tive	Rer	nember
CO2	உடல் தொகுத்	உறப்புப் பெயர்கள் - எ (துக் கூறுதல்	ளிய சொற்களை	Cogni	tive	Rer	nember
CO3	900 6	லற்பாடுளைப் புரிந்து கெ	റൺത്രൾ ക്യാൽ പ്രൊல	Cogni	tive	Uni	derstand
CO4	தம்ழில்	் உள்ளால் - இயற்கை	சுபை வருளித்தல்	Cogni	tive	Ap	aly
CO5	ADOL	ம்க் கருத்துக்களை வலை	සටටලිස්සුවේ සිලාබේ මටලාවේ.	Cogni	tive	Ani	alyze
SPA	8- 1	ឆា	ழத்துக்களின் வகைகள்				9
ន_ឃាំ ឈិតាន់	கம் கற்	க்கள் - மெய்யெழுத்து தல்	ல் - பிர்த்து கழதுதல்	- சேர்த்து	nugati	gai -	Guntan
SIN	8- 2	எளிய தமி	)ச் செருகளை வகைப்படு	த்துதல்			9
RES	بانوے ا	ப் பெயிகள் - எளிய அ	நிழ்ச் சொற்கள் வகைப்படு	க்துதல்			
Spec	8-3	5	லி வேறபாட்டுத் திறன்				9
940	வேறபாடு	கள் – சொல் வன்க்கள்					
12,000	- 4		e amun a			T.	9
,6400/			and the second se				
Brand Brand	ல் உரை	பாடல் - இபற்கையைப்	பற்றி அறிதல் - வருனான	an Galàgai			
Starte Starte	ತು <u>೩ ನಾ</u> ರ ಹ_ 5	பாடல் - இபற்கையைப் <b>அற</b> ருற்க	பற்றி அறிதல் - வருளான 1. கருத்துக்கனைப் பின்பரி	ன செம்தல் ஐதல்			
මුණාලි මූගිලේ මෛත් කිලාව	ல் உரை கு-5 கேள் - ह	பாடல் - இபற்கையைப் அற்றெறில் அற்றெறிக் கதைகள் - பி	பற்றி அறிதல் - வருணன 6 கருத்துக்கனைப் பின்பரி மூயின்றிப் படித்தல், எழு	ன செம்தல் குதல் துதல்			•
<u>ජූගය</u> මූගිල් ජූගිල් සේලා	20 11	பாடல் - இபற்கைபைப் அற்றெறில் மூற்றெறிக் கதைகள் - பில TUTORIAL	பற்றி ஆற்தல் - வருணன 6 கருத்துக்கனைப் பின்பரி மையின்றிப் படித்தல், எழ PRACTICAL	ன செம்தல் றுதல் துதல் Ti	OTAL		,

படதாகளை: 1. முனைவர் கோபெரியண்ணன் - அடிப்படை எனிய தமிழ் இலக்கணம் -2003. வனிதா புதிப்பகம். 11. நானா தெரு. பான்டி பஜார். திநகர். சென்னை - 17 2. முனைவர் நலெனின் - பிழையின்றித் தமிழை வழதுக (எளியமுறை) சூன்-2020, பிருந்தா புதிப்பகம், தஞ்சாவூர் - 05. பார்வை நூல்கள்:

1. தமிழ்றாடு அரசு வெளியிட்டுள்ள தமிழ்ப் பாட நால்கள், வகுப்பு - 6, 7, 8

COU	RSE CO	DE	XGE102	L	Т	SS	Н	C	
COU	RSE NAI	ME	English - I	3	0	0	0	3	3
C:P:A	A - 3:0:0								
COU	RSE OU	ТСОМЕ	ES:	Do	omai	n	Ι	Level	
<b>CO</b> 1	<b>Recall</b> t	the basic	grammar and using it in proper context	Co	gniti	ve	Reme	ember	ring
CO2	Explain	the pro	cess of listening and speaking	Co	gnitiv	ve	Unde	rstanc	ling
CO3	Adapt i	importar	t methods of reading	Co	gnitiv	ve	Cı	reating	g
CO4	Demon	s <i>trate</i> th	e basic writing skills	Co	gniti	ve	Unde	rstanc	ling
SYLI	LABUS							HOU	RS
UNIT	I Gr	rammar							
i. Maj	or basic g	grammat	ical categories ii. Notion of correctness and attitud	de to	erroi	•		9	
correc		stoning	and Speaking						
		stening						-	
111. In	nportance	of liste	ening skills iv. Problems of listening to unfan	niliar aking	dial	lects	v.	9	
UNIT	<b>III</b> Ba	sics of I	Reading	anne	>				
vii. In	troduction	n to read	ing skills viii. Introducing different types of texts	– na	rrativ	ve,		9	
descri	ptive, ext	rapolativ	7e						
UNIT	<b>IV</b> Ba	usics of V	Writing						
ix. Int given cohere compl	roduction sentence ent paragi laints, app	to writi without raph xiii. preciation	ng skills x. Aspects of cohesion and coherence xi affecting the structure xii. Reorganizing jumbled Drafting different types of letters (personal notes n, conveying sympathies etc.)	. Exp sente s, not	andin nces ices,	ng a intc	a	9	
				T	'otal	Ho	urs	36	
Text	books 1. Acev 2. Deute (Ninth H 3. Eastv 4. Hade 5. Hedg 6. Jolly, 7. Klipp 8. Saras 9. Swan 10. Wel	edo and er, M et. Edition). Vood, Jo field, Ch ge, T (200 , David ( bel and S swati, V n, Michae	Gower M (1999) Reading and Writing Skills. Lo al. (2015). Oxford Advanced Learner's Dictionar New Delhi, OUP hn (2008). Oxford Practice Grammar. Oxford, OU rris and J Hadefield (2008). Reading Games. Lor 05). Writing. Oxford, OUP 1984). Writing Tasks: Stuidents' Book. Cambridg wan (1984). Keep Talking. Oxford, OUP (2005). Organized Writing 1. Hyderabad, Orient 1 el. (1980). Practical English Usage. Oxford, OUP	ondon ry of l idon, ge, Cl Black	, Lo Engl Long UP swa	ngm ish gma	an n		

### XCA103 C PROGRAMMING

#### **Course Outcomes:**

CO1	C	Remember	<b>Defines</b> the concept of C programming and its fundamental
CO2	C	Understand	Illustrate various control statements and arrays
CO3	C	Understand	Differentiate structures and unions
CO4	C	Understand	Explain the pointer concepts
CO5	C	Understand	<b>Develop</b> a program to create and process a file for different applications

COURSE CODE	COURSE	E NAME		L	Т	Р	C			
XCA103	C PRO	GRAMMING		4	0	0	4			
<b>C:P:A = 4:0:0</b>										
				L	Т	Р	H			
PREREQUISITE	Nil			4	0	0	4			
<b>UNIT-I: INTRODUCTI</b>	ON TO C	LANGUAGE	1				12			
C Language - History of	C - Featu	ires of C - Str	ucture of a C Pr	ogram –P	re-pro	ocesso	rs-#			
define- # include-Writing	a C Progra	am - Compiling	g and Linking a (	C Program	- C (	compil	er -			
syntax and semantic error	rs - link an	d run the C pro	ogram - linker er	rors - logic	al an	d runt	ime			
errors - Constants, Varia	ables and	Data Types -	storage – qua	lifiers -	Oper	ators	and			
Expressions – Input/Outpu	ut Operatio	ons – unformatt	ed I/O - formatte	d I/O						
UNIT- II : CONTROL STATEMENTS AND ARRAYS 12										
Control Statements - if statement - switch statement - Loop Control Statements - while loop -										
do-while statement - for le	do-while statement - for loop - Un-conditional Controls - goto statement - break statement -									
continue Statement - Arr	rays – mu	lti-dimensional	arrays - Charac	eter arrays	and	String	;s –			
dynamic arrays										
<b>UNIT-III: FUNCTIONS</b>	, STRUCI	TURE AND U	NIONS				12			
Functions - User define	d Function	ns – Call by	value, Call by	reference	Cate	gories	of			
Functions – Recursion. S	Structures	– declaration,	definition- acce	ssing the	mem	bers c	of a			
structure - initializing stru	uctures - st	tructures as fur	nction arguments	- structure	es and	1 array	/s –			
Unions – dynamic memor	y allocatio	n - malloc(), callet ()	alloc(), realloc(),	free()						
UNIT- IV: POINTERS							12			
Pointers: Introduction-U	nderstandi	ng pointers-A	accessing the a	address o	f a	varia	ble-			
Declaration and Initializat	tion of poi	nter Variable -	- Accessing a var	iable throu	ıgh it	s poin	ter-			
Pointer Expressions – Po	ointers and	d Arrays- Poi	nters and String	s – Array	of p	ointer	·s –			
Pointers as Function Arg	guments- l	Functions retur	rning pointers –	Pointers	to Fu	nction	ıs —			
Pointers and Structures.										
UNIT- V: FILE PROCESS	SING			<u></u>		-	. 12			
File Management in C –	Definition	n of Files- Op	ening modes of	files- Stai	idard	funct	ion:			
topen(), tclose(), teot(), ts	seek(),tew1	nd()-fgetc(), fp	utc(), tscant()-pro	ogram usir	g file	S	r			
			1010KIAL 0	PKAUTICA			<b>u</b>			
		UU	<b>U</b>		<u> </u>	UU				
TEXT										

1. Programming in ANSI 8th Edition,935316513X · 9789353165130 By E Balagurusamy

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- 2. R. B. Patel, Fundamental of Computers and Programming in C, Khanna Book Publishing Company PVT. LTD. Delhi, India, 1st edition, 2008, ISBN: 13: 978-81-906988-7-0.
- 3. Gottfried, Programming with C, Tata McGraw Hill.
- 4. Brian W. Kernighan, Dennis M. Ritchie, The C Programming Language, 2nd Ed., PHI.

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- 1. NPTEL, Introduction to C Programming, Prof.SatyadevNandakumar ,IIT, Computer Science and Engineering Kanpur.
- 2. NPTEL, Introduction to Problem Solving & Programming, by Prof. Deepak Gupta Department of Computer Science and Engineering IIT Kanpur.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2
CO 1	3	2	2	1	1	1	1	2	1
CO 2	3	2	2	1	1	1	1	2	1
CO 3	3	2	2	1	1	1	1	1	1
CO 4	3	2	2	1	1	1	1	1	1
CO 5	2	2	2	1	1	1	1	1	1
Total	14	10	10	5	5	5	5	7	5
Course	3	2	2	1	1	1	1	2	1

0-No relation 3- Highly relation 2- Medium relation 1- Low relation

#### XCA 104 ALGEBRA, CALCULUS AND ANALYTICAL GEOMETRY

#### **Course Outcome:**

CO1	С	Remembering Understanding	<i>Explain</i> and <i>Find</i> derivative functions in differential calculus.
CO2	С	Applying	<i>Solve</i> the definite and indefinite integrals using various techniques.
CO3	С	Applying	<b>Apply</b> orthogonal transformation to determine eigen values and eigen vectors of a given matrix.
CO4	С	Applying	<b>Solve</b> problems using Binomial, exponential and logarithmic series expansions.
CO5	С	Remembering Applying	<i>Find</i> the distance between two points and <i>Explain</i> section formulae, slope form and intercept form.

COURSE CODE	COURSE NAME	L	Т	Р	С
X CA 104	ALGEBRA, CALCULUS AND	4	1	0	5
	ANALYTICAL GEOMETRY				
C:P:A = 5:0:0					
		L	Т	Р	Η
PREREQUISITE	Basic Mathematics	4	1	0	5

UNIT- I:DIFFERENTIAL CALCULUS			15			
Derivative of a function – Various formula	e – Product and	l quotient rule of diff	erentiation			
– Differentiation of function of function (cl	hain rule) – Tr	igonometric functions	s – Inverse			
trigonometric functions - Exponential fun	iction – Logari	thmic functions – L	ogarithmic			
differentiation - Higher derivatives - Succ	essive different	tiation – Liebnitz theo	orem.			
UNIT- II: INTEGRAL CALCULUS			15			
Constant of integration – Indefinite integra	al – Elementar	y integral formulae	– Methods			
of integration – Integration by substitution	n - Integration	by parts - Integration	on through			
partial fractions - Concept of definite integ	gral – Properties	s of definite integral				
<b>UNIT- III: MATRICES AND DETERM</b>	INANTS		15			
Definition and types of matrices – Matrix C	Operation – De	terminants – Solution	of system			
of linear equations by Matrix method.						
UNIT- IV: SERIES			15			
Binomial theorem for a rational index	– Exponenti	al and Logarithmic	series –			
Summation of the above series						
UNIT -V: TWO DIMENSIONAL ANAI	LYTICAL GE	OMETRY	15			
Cartesian coordinate system - Introduction	n to polar coord	linates – Distance be	tween two			
points - Section formulae - Area of triang	gle – Locus ar	nd its equations – Str	raight line:			
Equation of a straight line parallel to an ax	tis – slope form	n-normal form - Inte	crcept form			
through two point -condition of concurrence	y of three lines	•				
	LECTURE	TUTORIAL	TOTAL			
	60	15	75			
TEXT BOOKS						
1.T. K. Manicavachagom Pillay, T. Nataraj	jan, K. S. Gana	pathy, Algebra, Volu	me I ,			
S.Vishvanathan Printers and Publishers Pvt	t., Ltd, Chenna	i 2004.				
2. S.Naravanan, T.K.Manicavachagam Pill	lay, S.Vishvana	athan, Calculus volun	ne I & II			
Printers and Publishers Pvt., Ltd, Chenna	ai 2009,9th edit	ion				
REFERENCES						
1. P.Kandasamy&K.Thilagavathi, B.Sc 1	Mathematics for	or branch I – Vol I	& Vol II,			
S.Chand& Co, 2004.						
E REFERENCES						
1. Advanced Engineering Mathematics Prof. PratimaPanigrahi						
8 8 8	s Prof. Pratima	Panigrahi				
2. Department of Mathematics Indian	s Prof. Pratima Institute of Tec	Panigrahi chnology, Kharagpur.	•			

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2
CO 1	3	1	0	0	1	0	1	0	0
CO 2	3	1	0	0	1	0	1	0	0
CO 3	3	1	0	0	1	0	1	0	0
CO 4	3	1	0	0	1	0	1	0	0
CO 5	3	1	0	0	1	0	1	0	0
Total	15	5	0	0	5	0	5	0	0
Course	3	1	0	0	1	0	1	0	0

0-No relation 3- Highly relation 2- Medium relation 1– Low relation

### XCA105 COMPUTER ORGANIZATION AND ARCHITECTURE

# **Course Outcomes**:

CO1	С	Remember	Defines	basic	number	systems,	Boolean	expression
			simplifica	tion and	logic gates	manipulati	on	
CO2	С	Understand	Explain t	he functi	ons of vari	ous compor	nents in digi	tal system
CO3	С	Understand	<b>Describe</b> general Instruction types, formats, addressing modes					
			and organ	ization				
CO4	С	Understand	Summari	ze variou	us modes o	f Data trans	fer and inter	rface
CO5	С	Understand	Summari	izes mem	ory organi	zation and 1	nanagement	t

COURSE CODE	COURSE NAME	L	Т	Р	С
XCA 105	COMPUTER ORGANIZATION AND	4	0	0	4
	ARCHITECTURE				
<b>C:P:A = 4:0:0</b>					
		L	Т	Р	Η
PREREOUISITE	Number system	4	0	0	4
UNIT -I:NUMBER SYS	TEM AND BOOLEAN LOGIC	I	l		12
Introduction: Simple Co	mputer Organization - Number System	n – Data R	eprese	entatic	)n –
Complements – Subtract	tion of unsigned numbers- Arithmetic	Addition a	and S	ubtrac	tion
Boolean Algebra – Truth	n Tables -Logic Gates - Map Simplific	cation- Other	· Bina	ry co	des-
Error detection codes				5	
UNIT-II: COMBINATIO	ONAL AND SEQUENTIAL CIRCUIT				12
Combinational Circuit - H	Half adder. Full Adder - Decoders – Mu	ltiplexer – Se	eauent	tial ci	rcuit
- Flip Flops: RS, JK, D, T	Flip Flops – Excitation Table – Master	/ Slave Flip	Flop-	Regis	sters
– Counters.	1 1	1	1	0	
UNIT-III: INSTRUCTIO	N FORMATS AND TYPES				12
Instruction codes -Compo	onents of CPU- General Register Organi	zation – Inst	ructio	n For	mat-
Addressing Modes – Me	emory Reference Instructions – Data '	Transfer and	Man	ipulat	ion-
Instruction – Shift Instruc	tion.			-	
UNIT -IV: INPUT OUTP	UT ORGANIZATION				12
Peripheral Devices – Inp	tut Interface $- I/O$ Bus and Interface m	odules- Asv	nchro	nous I	Data
Transfer – Modes of Tran	sfer – Direct Memory Access.				
UNIT- V: MEMORY OF	RGANIZATION				12
Memory Hierarchy – Ma	in Memory - Auxiliary Memory – Ass	sociative Me	mory	- Cacl	he –
Virtual Memory.	5 5 5		2		
	LECTURE	TUTORIA	L '	ТОТА	L
	60	0		60	)
1. M.Morris Mano "	Computer System Architecture".	Pearson Ed	ucatio	n. T	hird
Edition,2014.				, -	
2. M.Morris Mano "Dig	ital Logic and Computer Design", Pears	son Education	n, 201	0.	
3. William Stallings, "G	Computer Organization and Architectu	re", Tenth E	dition	, Pear	rson
Education, 2015.	1 0	,		·	
REFERENCES					
1. Stallings, William. C	omputer organization and architecture :	designing for	r perfo	orman	ce /
William Stallings. —	Tenth edition. pages cm Includes biblio	graphical ref	erenc	es and	1
index. ISBN 978-0-1	3-410161-3 — ISBN 0-13-410161-8				

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#### **E REFERENCES**

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- 2. NPTEL, Digital Computer Organization by Prof.P.K. Biswas, Department of Electronics and Electrical Communication Engineering, IIT Kharagpur.
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  - 5. William Stallings, "Computer Organization and Architecture", Tenth Edition, Pearson Education, 2015.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2
CO 1	3	3	2	2	2	1	1	2	2
CO 2	3	3	2	2	2	1	1	2	2
CO 3	3	3	2	2	2	1	1	2	2
CO 4	3	2	2	2	2	1	1	2	2
CO 5	2	2	2	2	2	1	1	2	2
Total	14	13	10	10	10	5	5	10	10
Course	3	3	2	2	2	1	1	2	2

0-No relation 3- Highly relation 2- Medium relation 1- Low relation

#### **XCA106 C PROGRAMMING LABORATORY**

#### **Course Outcomes:**

CO1 CO2	C C	Apply Apply	<b>Computes</b> various control statements and arrays <b>Solve</b> an application program using various controls statements and
			arrays
CO3	С	Apply	Implement structures and unions
			<b>Develop</b> an application program using structures and unions
CO4	С	Apply	<b>Implement</b> the pointer concepts
			<b>Develop</b> an application program using structures and unions
CO5	С	Apply	<b>Develop</b> a program to create and process a file for different
			applications

COURSE CODE	COURSE NAME	L	Т	Р	C
XCA106	C PROGRAMMING LABORATORY	0	0	1	1
C:P:A =1:0:0					
		L	Т	Р	Η
PREREQUISITE	Nil	0	0	2	2

1.Program to implement formatted I/O operations

2. Program to implement unformatted I/O operations

3.Program to implement control structures

4. Program to implement one dimensional and two-dimensional arrays

5.Program to implement calling the function through call by value method & call by reference

6.Program to implement Structures

7. Program to implement dynamic memory allocation

8.Program to implement pointer to function

9. Program to implement an array of pointers

10.Program to implement various file operations in a standard file

11.Program to implement various file operations in text file

						LECT	URE	PRA	CTICAL	TOTAL
							0		30	30
PO1	PO2	PO3	PO4	PO5	PO6	<b>PO7</b>	PSO 1	PSO 2	]	
3	2	2	1	1	1	1	2	1		
3	2	2	1	1	1	1	2	1		
3	2	2	1	1	1	1	1	1		
3	2	2	1	1	1	1	1	1		
2	2	2	1	1	1	1	1	1		
14	10	10	5	5	5	5	7	5		
3	2	2	1	1	1	1	2	1		
	PO1 3 3 3 3 2 14 3	PO1       PO2         3       2         3       2         3       2         3       2         3       2         3       2         14       10         3       2	PO1PO2PO3322322322322222141010322	PO1PO2PO3PO43221322132213221222114101053221	PO1PO2PO3PO4PO532211322113221132211322111410105532211	PO1PO2PO3PO4PO5PO632211132211132211132211132211141010555322111	PO1       PO2       PO3       PO4       PO5       PO6       PO7         3       2       2       1       1       1       1         3       2       2       1       1       1       1         3       2       2       1       1       1       1         3       2       2       1       1       1       1         3       2       2       1       1       1       1         3       2       2       1       1       1       1         3       2       2       1       1       1       1         3       2       2       1       1       1       1         3       2       2       1       1       1       1         14       10       10       5       5       5       5         3       2       2       1       1       1       1	LECTUREPO1PO2PO3PO4PO5PO6PO7PS01322111232211123221111322111132211112211111141010555732211112	LECTUREPRAPO1PO2PO3PO4PO5PO6PO7PS01PS0232211121322111121322111111322111111322111111222111111141010555575322111121	LECTUREPRACTICAL030PO1PO2PO3PO4PO5PO6PO7PS0 1PS0 2322111213221111213221111132211111322111112211111114101055575322111121

0-No relation 3- Highly relation 2- Medium relation 1– Low relation

COURSE CODEXUM001COURSE NAMEHUMAN ETHICS, VALUES, RIGHTS AND GENDER EQUALITY						Р 0	SS 1	C 1
PRER	EQUISITE	Not Required		L	Т	Р	SS	Η
S C:P:A		0.8:0.1:0.1		1	0	0	1	2
COUR	SE OUTCON	<b>IES</b>	Domain	Le	vel			
CO1	<i>Relate</i> and <i>I</i> human relation	<i>Relate</i> and <i>Interpret</i> the human ethics and human relationships Cognitive						
CO2	<i>Explain</i> and <i>Apply</i> gender issues, equality Cognitive and violence against women			Understand, Apply				
CO3	<i>Classify</i> and <i>Develop</i> the identify of women Cognitive & Affective			Analyze Receive				
<b>CO4</b>	<b>Classify</b> and <b>Dissect</b> human rights and report on violations. Cognitive			Understand, Analyze				
List and respond to family values, universal brotherhood, fight against corruption by common man and good governance.Cognitive & Affective					mer spor	nbe nd	r,	
TINTER							э.	1

UNIT I HUMAN ETHICS AND VALUES

#### HUMAN ETHICS AND VALUES

Human Ethics and values - Family and Society, Social service, Social Justice, Integrity, Caring and Sharing, Honesty and Courage, Time Management, Co-operation, Commitment, Sympathy and Empathy, Self respect, Self-Confidence, Personality Development

#### **UNIT IIGENDER EQUALITY**

Gender Discrimination in society and in family, Gender equity, equality, and empowerment. Social and Economic Status of Women in India in Education, Health, Employment, Definition of HDI, GDI and GEM. Contributions of Dr.B.R. Ambethkar, ThanthaiPeriyar and Phule to Women Empowerment.

#### UNIT IIIWOMEN ISSUES AND CHALLENGES

Women Issues and Challenges- Female Infanticide and Feticide, Violence against women, Domestic violence, Sexual Harassment, Trafficking, Remedial Measures – Acts related to women: Political Right, Property Rights, and Rights to Education, Dowry Prohibition Act.

#### UNIT IV HUMAN RIGHTS

Human Rights and Duties, Universal Declaration of Human Rights (UDHR), Civil, Political, Economical, Social and Cultural Rights, Rights against torture, Forced Labour, Child helpline- Intellectual Property Rights (IPR) and its types. National Policy on occupational safety and health.

#### UNIT V GOOD GOVERNANCE

Good Governance - Democracy, People's Participation, Transparency in governance and audit, Corruption, Impact of corruption on society and Remedial measures, Government system of Redressal. Creation of People friendly environment and universal brotherhood.

LECTUR	SELF STUDY	TOTAL
Ε		
15	15	30

#### REFERENCES

- 1. Aftab A, (Ed.), Human Rights in India: Issues and Challenges, (New Delhi: Raj Publications, 2012).
- 2. Bajwa, G.S. and Bajwa, D.K. Human Rights in India: Implementation and Violations (New Delhi: D.K. Publications, 1996).
- 3. Chatrath, K. J. S., (ed.), Education for Human Rights and Democracy (Shimala: Indian Institute of Advanced Studies, 1998).
- 4. Jagadeesan. P. Marriage and Social legislations in Tamil Nadu, Chennai: Elachiapen Publications, 1990).
- 5. Kaushal, Rachna, Women and Human Rights in India (New Delhi: Kaveri Books, 2000)
- 6. Mani. V. S., Human Rights in India: An Overview (New Delhi: Institute for the World Congress on Human Rights, 1998).
- 7. Singh, B. P. Sehgal, (ed) Human Rights in India: Problems and Perspectives (New Delhi: Deep and Deep, 1999).
- 8. Veeramani, K. (ed) Periyar on Women Right, (Chennai: Emerald Publishers, 1996)
- 9. Veeramani, K. (ed) Periyar Feminism, (Periyar Maniammai University, Vallam, Thanjavur: 2010).
- 10. 10. Planning Commission report on Occupational Health and Safety http://planningcommission.nic.in/aboutus/committee/wrkgrp12/wg\_occup\_safety.p
- 11. Central Vigilance Commission (Gov. of India) website: <u>http://cvc.nic.in/welcome.html</u>.
- 12. Weblink of Transparency International: https://www.transparency.org/

3+3

3+3

3+3

3+3

13. Weblink Status report: https://www.hrw.org/world-report/2015/country-chapters/india

	PO	<b>PO1</b>	PO1	PO1	PSO	PSO								
	1	2	3	4	5	6	7	8	9	0	1	2	1	2
CO1								2						
CO2								3	1					
CO3								2						
CO4								3		2				
CO5								3	2	2		2		
Total		2						13	3	4		2		
Scale		1						3	1	1		1		
d														
Value														

Table 1 : Mapping of COs with Pos

 $1-5 \rightarrow 1$ ,  $6-10 \rightarrow 2$ ,  $11-15 \rightarrow 3$ 

0 - No relation, 1 - Low relation, 2 - Medium relation, 3 - High relation

Course	Course Name	Category	L	т	Ρ	SS	H	C		
	பொதுத்தமிழ் - 2	Supportive	3	0	0	0	3	3		
Pre- requisite	பன்னிரெண்டாம்வகு டும்.	பன்னிரெண்டாம்வகுப்பில்தமிழைஒருபாடமாகப்பயின்றிருக்கவேண் டும்.								
பாடப் பயன் கள் / Course outcome s	இப்பாடத்தைக்கற்ப	தால்பின்வரு	நம்பயன்	ாகளைம	ாணவ	ர்கள்அ	ത്രപ	வர்.		
CO1	நீதிஇலக்கியங்களைக்கற்பதன்மூலம்நீதிநெறியினையும் வாழ்வியல்மற்றும்மேலாண்மைச்சிந்தனைகளையும்தெரி ந்துபின்பற்றுவர் (Understand )									
CO2	சிற்றிலக்கியங்களின்வழிஇலக்கியச்சுவையினையும்பண் பாட்டுஅறிவினையும்பெறுவர்						புரிந் கொ	து ர்ளல்		

		(Under	rstand )	
CO3	பட்டப்படிப்பினைப்படிக்கும்போதேபெரும்பான்மையான தமிழ்இலக்கியங்கள்குறித்தஅறிவினைப்பெறுவர்	பகுப் வுசெ n Analyz	பாய் ய்த e	
CO4	தமிழ்ச்சமூகப்பண்பாட்டுவரலாற்றினைஇலக்கியங்கள் வாயிலாகஅறிவர்	தெரி கொ (Apply	ிந்து ள்ளல் )	
CO5	போட்டித்தேர்வுகளில்வெற்றிபெறுவதற்குத்தமிழ்ப்பாடத் தினைப்பயன்கொள்ளும்வகையில்ஏற்றபயிற்சிபெறுவர்	புரிந் கொ (Under	து ள்ளல் rstand )	
	K1- Remember; K2 – Understand; K3 –Apply; K4 Analyze; K5 Evaluate; K6 – Create.			
அலகு - ၊	நீதிஇலக்கியம்	9+0	)+0=9 ഥഒ	னிகள்
	திருக்குறளில்வாழ்வியல் – திருக்குறளில்மேலாண்மைச்சிந்தனைகள்			
அலகு - ၊	பிறஇலக்கியங்கள்	9+0	+0=9 ഥഒ	னிகள்
	வள்ளலார் – அருள்விளக்கமாலை (முதல் 10 பாடல்கள்) எச்.ஏ.கிருட்டிணப்பிள்ளை – இரட்சணியமனோகரம் – பால்யபிரார்த்தனை – குணங்குடிமஸ்தான்சாகிபு – பராபரக்கண்ணி (முதல் 10 கண்ணி)	-		
அலகு - I	ப சிற்றிலக்கியங்கள்	9+0	+0=9 ഥഒ	னிகள்
	தமிழ்விடுதாது (முதல் 20 கண்ணி) – திருக்குற்றாலக்குறவஞ்சி – குறத்திமலைவளம்கூறல் முக்கூடல்பள்ளு – நாட்டுவளம்	-		
அலகு - I	v இலக்கியவரலாறு	9+0	+0=9 ഥഒ	னிகள்
	பாடம்தழுவியஇலக்கியவரலாறு (பல்லவர்காலம், நாயக்கர்காலம்)			
அலகு - \	/ மொழித்திறன்/ போட்டித்தேர்வுத்திறன்	9+0	+0=9 ഥഒ	னிகள்
	<ol> <li>தொடர்வகைகள்</li> <li>மரபுத்தொடர், பழமொழிகள்</li> <li>பிறமொழிச்சொற்களைக்களைதல்</li> <li>வழுச்சொற்கள்நீக்குதல்</li> <li>வலக்கணக்குறிப்ப அறிகல்</li> </ol>			

	(குறிப்பு : அலகு 4, 5		
	ஆகியபகுதிகள்போட்டித்தேர்வுநோக்கில்நடத்தப்ப		
	டவேண்டும்)		
	கூடுதல்	45+0+0=45 மணிகள்	r
பாடநூல்க	តា		
1.	திருக்குறள், மணிவாசகர்பதிப்பகம், சென்னை		
2.	தமிழ்விடுதாது		
3.	திருக்குற்றாலக்குறவஞ்சி 		
4.	எச்.ஏ.கிருட்டிணப்பிள்ளை – இரட்சணியமனோகரம்		
பார்வைநு	ல்கள்		
1.	தமிழ்இலக்கியவரலாறு – சிற்பிபாலசுப்பிரமணியன்.		
2.	புதியநோக்கில்தமிழ்இலக்கியவரலாறு - தமிழண்ணல்		
3.	வகைமைநோக்கில்தமிழ்இலக்கியவரலாறு –		
	எஃப்.பாக்கியமேரி.		

<b>பாடவகை</b> Cat	பாடக்குறியீட்டுஎ	பாடப்பெயர்						
egory	ண்/ sub Code	Course Name	Crec	lits				
தமிழ்			L	Т	Ρ	S	Н	С
Foundation course: II	XFT201	□□;- II				S		
			3	0	0	0	3	3
Pre-Requisite	தமிழ்இலக்கணத்	தின்தொன்மையை	அம	ிதல்	ΰ.			
Course outcomes								
CO1				Understand			d	
CO2					Un	ders	tan	d
CO3					Ар	ply		
CO4					Un	ders	tan	d
					0.1	ucro		-
CO5					Ар	ply		

	K1- Remember; K2 – Understand; K3 –Apply; K4 Analyse; K5 Evaluate; K6 – Create.	
அலகு		9+0+0=9
அலகு		9+0+0=9
அலகு	தொடர்அமைத்தல்	9+0+0=9
அலகு IV		9+0+0=9
அலகு ∨		9+0+0=9
	L=45/T=0/P=0 \$Ljy; kzpNeuk;	45

COURS	RSE CODE XGE202 L T P 5				SS	Н	С		
COURSENAME			ENGLISH II	2	1	0	0	3	3
C:P:A-	C:P:A- 3:0:0								
COURS	SE OUT	TCOMES:		Do	omai	n	L	evel	
After t	he cor	mpletion o	f course, the learners will be able to get						
compr	ehens	ive skills li	ke:						
CO1	Expla	in the peri	od of the poets and their works	Co	gnitiv	/e	Und	dersta	and
CO2	Interp	pret the pr	ose forms according to the context	Co	gnitiv	/e	Und	dersta	and
CO3	Classify the historical writing in literary context Cognitive						Understand		
CO4	D4 Make use of the basic grammar and using it in proper context Cognitive					Apply			
CO5	Selec	t the proce	ess of listening and speaking	Co	gnitiv	/e	Apply		
SYLLAE	BUS							HOU	RS
UNIT-I	I	POETRY					6-	+3+0=	=9
1.1	/ery In	ndian Poem	in Indian English - Nissim Ezekiel						
1.2 Still I Rise - Maya Angelou									
1.3	1.3 The Flower -Tennyson								
1.4 0	1.4 On Killing a Tree - Gieve Patel								
UNIT-I	UNIT-II PROSE					6-	+3+0=	=9	

2.5 1110	Spoon-led Age- W.R. Inge	
UNIT-III	FICTION	6+3+0=9
Alch	lemist - Paulo Coelho	
UNIT-IV	LANGUAGE COMPETENCY	6+3+0=9
4.1 Horr	ionyms, Homophones, Homographs	
Portma	nteau words	
4.2 Verk	os and Tenses, Subject Verb Agreement	
4.3 Erro	r correction	
UNIT - V	ENGLISH FOR WORKPLACE	6+3+0=9
5.1 Read	ding for General and Specific Information [charts, tables, schedules, graphs etc]	
5.2 Read	ling news and weather reports	
5.3 Writ	ing paragraphs	
5.4 Taki	ng and making notes	
	L=30 / T=15 Total Hours	45
<ul> <li>2) Sum</li> <li>3) Com</li> <li>4) Role</li> <li>Textbooks</li> <li>Coel</li> <li>Char</li> <li>Char</li> <li>Ph</li> <li>Hew</li> <li>Shar</li> <li>Shar</li> <li>E- Resource</li> <li>Very</li> <li>http</li> <li>Still</li> <li>http</li> <li>Still</li> <li>http</li> <li>Gind</li> <li>http</li> <li>Gur-engl</li> <li>dkeS</li> <li>The</li> </ul>	ho, Paulo. <i>The Alchemist</i> . Harper ,2016 nbers, Pearson. <i>Brilliant Speed Reading: Whatever you need to read, however</i> il, 2013 ings, Martin. <i>Advanced English Grammar</i> . Cambridge University Press, 2000 ma, Richa <i>Descriptive English</i> . Arihant Publications (India) Ltd, 2019 <b>s:</b> Indian poem by Nissim Ezekiel ://econtent.in/pacc.in/admin/contents/40_%20_2020103001102714.pdf I Rise by Maya Angelou s://www.poetryfoundation.org/poems/46446/still-i-rise ly Adjust please - Shashi Tharoor s://www.theweek.in/columns/shashi-tharoor/2018/05/25/kindly-adjust-to- ish.html?fbclid=IwAR3IhtdXqvuV4ySECn9S7SA6HmCEYISyd1QHd3BlwKgiNKKw ig3qWp-U/ Alchemist: https://www.youtube.com/watch?v=lxBYpmxjeDU	

#### XCA203 OBJECT ORIENTED PROGRAMMING WITH C++

#### **Course Outcomes**:

CO1	C	Remember	<b>Recall</b> the basic concepts on object-oriented programming
CO2	С	Understand	Defends the classes and objects with array and functions.
CO3	С	Understand	Explain the types of inheritances and operator Overloading
			functions
CO4	С	Apply	Apply the concept of Polymorphism
CO5	С	Understand	Define and Explain file concept and exception handlings in
			C++

COURSE CODE	COURSE NAME	L	Т	P	С
XCA203 OBJECT ORIENTED PROGRAMMING		4	0	0	4
	WITH C++				
C:P:A =4:0:0					
		L	Т	Р	Η
PREREQUISITE	C Programming	4	0	0	4
UNIT- I: INTRO	DUCTION TO C++	•••••		12	

key concepts of Object-Oriented Programming – Object Oriented Languages – I/O in C++ - C++ Declarations. Control Structures: - Decision Making and Statements: If, else, jump, goto, break, continue, Switch case statements - Loops in C++ : For, While, Do.

UNIT- II: CLASSES AND OBJECTS	12
Declaring Objects, classes - Static Member variables. Arrays - Characteristics -	array of
classes - array of objects. Functions in C++ - Defining Member Functions - Inline fur	ctions -
Function Overloading - Constructor and destructor - friend functions.	

# UNIT- III: OPERATOR OVERLOADING AND INHERITANCE 12

Overloading unary, binary operators- type conversion – Inheritance: Types of Inheritance – Single, Multilevel, Multiple, Hierarchal, Hybrid, Multi path inheritance – Virtual base Classes – Abstract Classes.

#### **UNIT-IV: POINTERS AND POLYMORPHISM**

Declaration – Pointer to Class, Object – this pointer – Pointers to derived classes and Base classes – Memory models – new and delete operators – dynamic object – Binding, Polymorphism -Compile time polymorphism - Run time polymorphism.

12

12

#### **UNIT- V: EXCEPTION HANDLING AND FILES**

Exception Handling - File stream classes – file modes – Sequential Read / Write operations – Binary and ASCII Files – Random Access File Operation.

LECTURE	PRACTICAL	TUTORIAL	TOTAL
60	0	0	60

#### TEXT

- 1. Bjarne Stroustrup, "The C++ Programming Language", Pearson Education, 2014.
- 2. Stanley B. Lippman, JoseeLajoieandBarbara E. Moo, "The C++ Primer", Addison Wesley, 2013, Fifth Edition.

#### REFERENCES

1. E. Balagurusamy, OBJECT-ORIENTED PROGRAMMING WITH C++, Tata McGraw Hill Education Private Limited ,2011,fifthth edition

	PO1	PO2	PO3	PO4	PO5	PO6	<b>PO7</b>	PSO1	PSO2
CO 1	3	3	2	2	2	1	2	3	3
CO 2	3	3	2	2	2	1	2	3	3
CO 3	3	2	2	2	2	1	2	3	3
CO 4	2	3	2	2	2	1	2	2	2
CO 5	3	2	2	2	2	1	2	2	2
Total	14	13	10	10	10	5	10	13	13
Course	3	3	2	2	2	1	1	3	3

0-No relation 3- Highly relation 2- Medium relation 1- Low relation

#### **XCA204 - DISCRETE MATHEMATICS**

### **Course Outcomes**:

CO1	С	Remember,	<i>Define</i> the properties and laws of <u>sets</u> , <u>relations</u> and functions.
	А	Respond to	Participate in the class discussion in the operation of set using venn
		phenomena	Diagram.
CO2	С	Understand	Explain the basic concepts of logic to calculate the normal forms,
			tautologies and contradiction.
CO3	С	Apply	<i>Apply</i> the counting principle permutation and combination and
			pigeonhole principle to <i>solve</i> the problem.
	Р	Guided	Reproduce model related to counting principle
		Response	
CO4	С	Remember,	<i>Explain</i> the types of lattices and to <i>show</i> lattices as partially ordered
		Understand	sets.
CO5	С	Understand	<i>Explain</i> the properties of semi groups and groups and any set with
			binary operation as a semigroup and group with examples.

COURSE CODE	COURSE NAME	L	Т	P	С		
XCA204	DISCRETE MATHEMATICS	4	1	0	5		
C:P:A =4.5:0.25:0.25							
		L	Т	Р	Η		
PREREQUISITE	Basic Mathematics	4	1	0	5		
UNIT- I: SET OPERA	TIONS				15		
Set notations - Basic def	initions and set operations – Venn diagram –	Algeb	raic la	ws of	i set		
theory – D Morgan's	law. Relations: Properties of relations - '	Types	of re	lation	s –		
Equivalence classes. Fu	nctions: Definition - Domain - Range an	d type	s of	funct	ion-		
Classification of function							
UNIT- II: NORMAL FORMS							

- PDN – Tauto	ologies - Contrad	lictions.
TION		15
Counting – Peri	nutations and Co	ombinations
ntable sets.		
		15
<ul> <li>Lattices as al</li> </ul>	gebraic system.	
		15
ples and element	ntary properties.	
LECTURE	TUTORIAL	TOTAL
60	15	75
chusetts Lowe	Structures, Dep II, Version 2.0, 2	2013.
New Delhi,2003 d its Applicatio Pvt. Ltd, 2015. andrasekaran, ' Graph Theory	ation, Fifth ed 3. Discrete Mather and Combinat	matorics and matics", the torics, 10th
udum.		
Computer Scie	ence and Automa	ation Indian
	<ul> <li>PDN – Tauto</li> <li>PDN – Tauto</li> <li>PON – Pon – Pon</li></ul>	<ul> <li>PDN – Tautologies - Contrad</li> <li>PION</li> <li>Counting – Permutations and Contable sets.</li> <li>Lattices as algebraic system.</li> <li>Lecture TUTORIAL 60 15</li> <li>Ombinatorial Mathematics: A ation Asia, Delhi, 2002.</li> <li>plied Discrete Structures, Depchusetts Lowell, Version 2.0, 2</li> <li>and its Application", Fifth eavew Delhi, 2003.</li> <li>d its Applications: With Combinatorial Mathematics: Mathematics: A polication and rasekaran, "Discrete Mathematics: Graph Theory and Combinatorial Mathematics: With Combinatorial Mathematics: A polication and rasekaran, "Discrete Mathematics: Mathematics: With Combinatorial Mathematics: Mathematics: A polication and Combinatorial Mathematics: A polication and Combinatorial Mathematics: A polication and Combinatorial Mathematics: Mathematics: A polication and Combinatorial Mathematics: A po</li></ul>

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2
CO 1	3	0	0	0	1	0	1	0	0
CO 2	3	1	0	0	1	0	1	0	0
CO 3	3	1	0	1	1	0	1	0	0
CO 4	3	0	0	0	1	0	1	0	0
CO 5	3	1	0	0	1	0	1	0	0
Total	15	3	0	1	5	0	5	0	0
Course	3	1	0	1	1	0	1	0	0

0-No relation 3- Highly relation 2- Medium relation 1- Low relation

# **XCA205 COMPUTER NETWORKS**

# **Course Outcomes**:

CO1 CO2	C C	Remember Remember	<i>Define</i> the OSI reference model used in the network <i>Describe</i> the DLL services and different protocols
CO3	С	Remember	<i>Recognize</i> the various routing algorithms.
CO4	C	Remember	<i>Recognize</i> the transport layer and the congestion control algorithm.

# CO5 C Remember *Identify* the application layer and the naming service.

COURSE CODE	COURSE NA	AME				L	Т	P	С
XCA205	COMPUTEI	R NET	WORKS			3	0	0	3
C:P:A =3:0:0									
						L	Т	P	Η
PREREQUISITE	Nil					3	0	0	3
UNIT-I: OVERVIEW (	<b>F COMPUTI</b>	ER NE	TWORKS				•		09
Network hardware- Netwo	ork software- P	rotoco	l Hierarchie	s – L	ayering –	Interf	aces,	servi	ces,
primitives – OSI reference Model – TCP/IP reference model – physical layer – transmission									
media - Wireless transmission – switching.									
UNIT – II : DATA LINK	LAYER								09
Services of DLL – Frami	ng – Flow con	ntrol –	Error conti	ol – 1	Error dete	ection	code	s – E	rror
correction codes - DLL	protocol - Sto	op and	Wait prot	ocol ·	-Sliding	Wind	ow P	rotoc	ol -
HDLC – DLL in the intern	net								
UNIT-III: NETWORK I	LAYER								09
Services of Network Lay	yer - Routing	– Sho	rtest Path	Rout	ing Algo	rithm	- Co	onges	tion
Control – General Princip	le of Congesti	ion Cor	ntrol Inter 1	Vetwo	ork Routin	ng – N	Jetwo	ork L	ayer
in the Internet – IP protoco	ol –IP address -	– subne	ets – interne	et con	trol proto	col			
<b>UNIT- IV : TRANSPOR</b>	TATION LAY	YER							09
Services of Transportation Layer – Addressing –Establishing and Releasing Connection –									on –
Flow Control – Buffering	g –Multiplexin	ng – Tl	ne Internet	Tran	sportatior	n Prot	ocol	ТСР	and
UDP Model – Connection	Management -	- TCP	Congestion	Cont	rol.				
UNIT- V: APPLICATIO	N LAYER								09
DNS – Name Space –R	esource – Rec	cords –	- Name Se	rvers	- Email	– Are	chited	eture	and
Services – User Agent – N	Aessage Forma	at and T	Transfer –	USEN	IET Imple	ement	ation	-W	WW
Client and Server Sides –	Locating Inform	mation	on the We	)	1				
	LECT	URE	TUTORI	AL	PRAC	FICAL	LS '	ТОТ	AL
	45	5	0			0		45	5
TEXT	~	-							
1. Andrew Tanenbaum,	Computer Netv	works,	PHI, 3rd E	dition	•			4.1	<b>F</b> 1
2. Larry Peterson and Bruce Davie, Computer Networks: A Systems Approach, 4th Ed.									
2007.									
REFERENCES									
1. William Stalling, Computer networks – PHI									
E REFERENCES									
1. http://nptel.ac.in/courses/106105081/									
2. Computer Network To	pology, Prof.Su	ujoy Go	OSh,						
nup://nptei.ac.in/video.ph	<u>p:subjectid=10</u>	010 20	191						

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2
CO 1	3	3	2	2	2	1	1	3	2
CO 2	3	3	2	2	2	1	1	3	2
CO 3	3	3	2	2	2	1	1	3	2
CO 4	3	2	2	2	2	1	1	3	2
CO 5	2	2	2	2	2	1	1	3	2
Total	14	13	10	10	10	5	5	15	10
Course	3	3	2	2	2	1	1	3	2

0-No relation 3- Highly relation 2- Medium relation 1- Low relation

### **XCA206 DATA STRUCTURES AND ALGORITHMS**

#### **Course Outcomes:**

CO1	С	Understand	d	<b>Understand</b> the classification of data typ of stack.	<b>Understand</b> the classification of data types and operations of stack.								
CO2	С	Understand	d	Understand the functions of queue and its types									
CO3	С	Understand	d	Describe the operations of linked list and its advantages									
CO4	С	Understand	d	<b>Recall</b> the recursion function in various problems									
CO5	С	Understand	d	Apply the concepts of tree and sorting									
COU	RSE	CODE	COURSI	E NAME	L	Т	Р	С					
XCA2	206		DATA S	FRUCTURES AND ALGORITHMS	4	0	0	4					
C:P:A	<b>\</b> = 4	4:0:0											
					L	Τ	P	Η					
PRER	EQ	UISITE	Nil		4	0	0	4					
UNIT	'- I:	INTROD	UCTION	TO DATA STRUCTURES AND STACK				12					
Defin	ition	, Classifica	tion of dat	ta structures: primitives and non primitive,	Oper	ations	on c	lata					
struct	ures	– Definiti	on, Array	& Linked list representation of stack, O	perati	ons o	n sta	ick,					
Appli	catio	ons of stac	ks, Infix,	Prefix and Postfix notations – Conversio	on of	an ai	rithm	etic					
expres	ssion	n from infix	to postfix.										
UNII	' <b>-II</b>	: QUEUE						12					
Defin	ition	, Array &	Linked lis	t representation of queue - Types of Que	eues: S	Simple	e que	eue,					
Circular queue, Double ended queue, Priority queue, Operations on all types of queues.													
UNIT- III: LINKED LIST 12													
Definition, Components of linked list, Representation of linked list, Advantages and													
Disadvantages of linked list. Types of linked list: Singly linked list, doubly linked list, Circular													
linked	l list	and Circula	arly doubly	v linked list. Operations on singly linked list	: creat	tion, i	nsert	ion,					
deleti	on, s	earch and d	isplay.										

UNIT- IV: RECURSION				12				
Definition, Recursion in C, writing recursive programs – Binomial coefficient, Fibonacci, GCD,								
Factorial etc.	8	8	······································	, , , , , , , , , , , , , , , , , , , ,				
<b>UNIT- V: TREE AND SORTIN</b>	G TECHNIO	UES		12				
Tree, Binary Tree, Complete Bin	ary Tree, Bina	ry Search Tree,	Heap Tree Termino	logy: Root,				
Node, Degree of a Node And T	ree, Terminal	Nodes, Non-Te	rminal Nodes, Sibli	ngs, Level,				
Edge, Path, Depth, Parent No	de, Ancestors	of a Node.	Different Types of	Searching				
Techniques: Bubble Sort, Selection	on Sort, Merge	Sort, Insertion -	Quick Sort.	U				
• · · · · · · · · · · · · · · · · · · ·	LECTURE	TUTORIAL	PRACTICAL	TOTAL				
	60	0	0	60				
TEXT								
1. A.K. Sharma, "Data Structures u	sing C", Pearso	n Education, 20	13					
2. Robert L. Kruse"Data Structure	es and Program I	Design in C, Pear	son Education, 2013					
REFERENCES								
1. Kamthane: Introduction to Da	ta Structures in	C, Pearson Edu	cation, 2005					
2. Aaron M. Tanenbaum, Moshe	J. Augenstein	and YedidyahLa	angsam, "Data struct	ures using				
C and C++", Prentice Hall, 2012.								
3. Michael T. Goodrich, Roberto	Tamassia and	David Mount, "	Data Structures and					
Algorithms in C++", John Wi								
	ley, 2011.							

# 1. NPTEL, Data structures and algorithm ,Prof. Hema A Murthy,IITMadras,Prof. Shankar Balachandran,IITMadras,Dr. N S. Narayanaswamy,IIT Madras

2. NPTEL, Data structures and algorithm , Prof. Naveen Garg, IIT Delhi

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO 1	3	3	2	2	2	1	2	3	3
CO 2	3	3	2	2	2	1	2	3	3
CO 3	3	2	2	2	2	1	2	3	3
CO 4	3	3	2	2	2	1	2	3	2
CO 5	3	2	2	2	2	1	2	3	2
Total	15	13	10	10	10	5	10	15	13
Course	3	3	2	2	2	1	1	3	3

0-No relation 3- Highly relation 2- Medium relation 1- Low relation

#### **XCA207 OBJECT ORIENTED PROGRAMMING WITH C++- LABORATORY**

**Course Outcomes**:

CO1	С	Apply	Apply structure and inline functions
CO2	C	Apply	Applying various levels of Inheritance for real time problems Apply the OOPs concepts class and object
-----	---	-------	---
CO3	С	Apply	Apply various overloading methods for different applications
CO4	С	Apply	Apply and implement operator overloading functions
CO5	С	Apply	Apply and implement file operations

COURSE CODE	COURSE NAME	L	Т	P	С
XCA207	<b>OBJECT ORIENTED PROGRAMMING WITH</b>	0	0	1	1
	C++ LABORATORY				
C:P:A =1:0:0					
		L	Т	P	Η
PREREQUISITE	C++ Programming	0	0	2	2

- 1. Implement Various Control Structures.
- 2. Demonstrate Inline Functions
- 3. Implement Structure & Unions
- 4. Implement Class and Subclass
- 5. Demonstrate Constructors & Destructors.
- 6. Programs to Implement Friend Function
- 7. Implement Multilevel Inheritance
- 8. Implement Multiple Inheritance with Access Specifiers
- 9. Implement Hierarchical inheritance
- 10. Programs to Overload Unary & Binary Operators
- 11. Program to implement file operations

<b>^</b>	LECTURE	PRACTICAL	TUTORIAL	TOTAL
	0	30	0	30

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO 1	3	3	2	2	2	1	2	3	3
CO 2	3	3	2	2	2	1	2	3	3
CO 3	3	2	2	2	2	1	2	3	3
CO 4	2	3	2	2	2	1	2	2	2
CO 5	3	2	2	2	2	1	2	2	2
Total	14	13	10	10	10	5	10	13	13
Course	3	3	2	2	2	1	1	3	3

0-No relation 3- Highly relation 2- Medium relation 1– Low relation

## XCA208 DATA STRUCTURES AND ALGORITHMS – LABORATORY Course Outcomes:

CO1	С	Apply	Computes a program to implement the operations of stack.
CO2	С	Apply	<b>Computes</b> a program to implement the operations of queue.

CO3	С	Apply	<b>Computes</b> an application to demonstrate the functions of linked list
CO4	С	Apply	<b>Computes</b> an application in C for traversing a tree and sorting concept.
CO5	С	Apply	Solve the problem with different searching algorithms.

COURSE CODE	COURSE NAME	L	Т	Р	С
XCA208	DATA STRUCTURES ANDALGORITHMS -	0	0	1	1
	LABORATORY				
C:P:A = 1:0:0					
		L	Т	P	Η
PREREQUISITE	C++ Programming	0	0	2	2

Lab:

- 1. Create a Stack and do the following operations using array
- 2. (i)Push (ii) Pop (iii) Peep
- 3. Create a Queue and do the following operations using array(i)Add (ii) Remove
- 4. Implement the operations on singly linked list.
- 5. Implement the following operations on a binary search tree.a. (i) Insert a node (ii) Delete a node
- 6. Create a binary search tree and do the following traversals a. (i)In-order (ii) Pre order (iii) Post order
- 7. Sort the given list of numbers using insertion sort
- 8. Sort the given list of numbers using quick sort.
- 9. Perform the following operations in a given graph(i) Depth first search (ii) Breadth first search

LECTURE	PRACTICAL	TUTORIAL	TOTAL
0	15	0	15

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2
CO 1	3	3	2	2	2	1	2	3	3
CO 2	3	3	2	2	2	1	2	3	3
CO 3	3	2	2	2	2	1	2	3	3
CO 4	3	3	2	2	2	1	2	3	2
CO 5	3	2	2	2	2	1	2	3	2
Total	15	13	10	10	10	5	10	15	13
Course	3	3	2	2	2	1	1	3	3

0-No relation 3- Highly relation 2- Medium relation 1– Low relation

COURSE CODE	COURSE NAME	L	Τ	P	SS	C	H	
XUM002	ENVIRONMENTAL STUDIES	1	0	0	1	1	2	
<b>C:P:A</b> = 0.7: 0 : 0.3								
COURSE OUTCOMES- On the successful completion of the DOMAIN LEVEL								
course, students will be able to								

CO1	<i>Describe</i> the significance of natural resources and <i>explain</i> anthropogenic impacts.	Cognitive	Remember Understand						
CO2	<i>Illustrate</i> the significance of ecosystem, biodiversity and natural geobio chemical cycles for maintaining ecological balance.	Cognitive	Understand						
CO3	CO3Identify the facts, consequences and apply the preventive measures of major pollutions and recognize and the disaster phenomenon.Cognitive AffectiveApply 								
CO4	<b>Explain</b> the socio-economic, policy dynamics and <i>practice</i> the control measures of global issues for sustainable Cognitive Understand Analyse								
CO5	<i>Recognize</i> the impact of population and the concept of various welfare programs, and explain themodern technology towards environmental protection.	Cognitive	Understand						
UNIT - I	NATURAL RESOURCES AND ENERGY		3+3						
World En	vironment Day and its need. Forest resources: Use Deforest	tion_ Water re	Sources: over-						
utilization resources: resources: individual	of surface and ground water- Mineral resources: Environme Modern agriculture, Fertilizer-Pesticide problems, Wate Renewable and Non-renewable energy sources; Alternate in Conservation of Resources.	ntal effects of er logging, S e energy reso	mining– Food alinity-Energy urces-Role Of						
UNIT – I	I ECOSYSTEMS AND BIODIVERSITY		3+3						
cycles- Fe ecosystem of Biodive UNIT – I Definition Marine p manageme prevention UNIT –IV Rain wate Acid rain,	<ul> <li>and function of an ecosystem – Froducers, consumers and decode chains, Food webs, Structure and Function of the Foe – Introduction to Biodiversity- Endemic, Extinct and Endarersity: In-situ and Ex-situ conservation</li> <li>II ENVIRONMENTAL POLLUTION         <ul> <li>Causes, effects and control measures of Air pollution, Wate of pollution, Noise pollution, Thermal pollution and Nucleant: Causes, effects and control measures of industrial waster of pollution – Pollution case studies</li> <li>SOCIAL ISSUES AND THE ENVIRONMENT</li> <li>r harvesting– Resettlement and Rehabilitation of people, Clim Ozone layer depletion, Nuclear accidents and Holocaust – E</li> </ul> </li> </ul>	ater pollution, ar hazards – Role of an ate change, Gl	and Aquatic         and Aquatic         Conservation         3+3         Soil pollution,         Solid waste         andividual in         3+3         obal warming,         obal warming,						
Water Act	t – Wildlife Protection Act – Forest Conservation Act.								
UNIT –V	HUMAN POPULATION AND THE ENVIRONMENT		3+3						
Population health- Hl studies.	n growth, Variation among nations - Population explosion IV / AIDS – Role of Information Technology in Environme	- Environmer ent and human	nt and Human health – Case						
	LECTURE	UTORIAL	TOTAL						
	30 0	)	30						
TEXT BC           1. Mi           2. To           (20)           3. Tr           (20)	<b>DOKS</b> iller T.G. Jr., Environmental Science, Wadsworth Publishing ( ownsend C., Harper J and Michael Begon, Essentials of Ecolo 203). ivedi R.K and P.K.Goel, Introduction to Air pollution, Techno 203).	Co, USA, (200 gy, Blackwell o Science Publi	0). Science, UK, cations, India,						
4. Di Pv 5. Int	saster mitigation, Preparedness, Recovery and Response, SBS t. Ltd, New Delhi, (2006). troduction to International disaster management, Butterworth	Publishers & Heinemann, (2	Distributors						
	34								

**6.** Gilbert M.Masters, Introduction to Environmental Engineering and Science, Pearson Education Pvt., Ltd., Second Edition, New Delhi, (2004).

## **REFERENCE BOOKS**

- 1. Trivedi R.K., Handbook of Environmental Laws, Rules, Guidelines, Compliances and Standards, Vol. I and II, Enviro Media, India, (2009).
- 2. Cunningham, W.P.Cooper, T.H.Gorhani, Environmental Encyclopedia, Jaico Publ., House, Mumbai, (2001).
- 3. S.K.Dhameja, Environmental Engineering and Management, S.K.Kataria and Sons, New Delhi, (2012).
- 4. Sahni, Disaster Risk Reduction in South Asia, PHI Learning, New Delhi, (2003).
- 5. Sundar, Disaster Management, Sarup& Sons, New Delhi, (2007).
- 6. G.K.Ghosh, Disaster Management, A.P.H.Publishers, New Delhi, (2006).

## **E RESOURCES**

- 1. <u>http://www.e-booksdirectory.com/details.php?ebook=10526</u>
- 2. https://www.free-ebooks.net/ebook/Introduction-to-Environmental-Science
- 3. https://www.free-ebooks.net/ebook/What-is-Biodiversity
- 4. <u>https://www.learner.org/courses/envsci/unit/unit\_vis.php?unit=4</u>
- 5. <u>http://bookboon.com/en/pollution-prevention-and-control-ebook</u>
- 6. http://www.e-booksdirectory.com/details.php?ebook=8557
- 7. http://www.e-booksdirectory.com/details.php?ebook=6804
- 8. http://bookboon.com/en/atmospheric-pollution-ebook
- 9. http://www.e-booksdirectory.com/details.php?ebook=3749
- 10. http://www.e-booksdirectory.com/details.php?ebook=2604
- 11. http://www.e-booksdirectory.com/details.php?ebook=2116
- 12. http://www.e-booksdirectory.com/details.php?ebook=1026
- 13. http://www.faadooengineers.com/threads/7894-Environmental-Science

## Table:1 Mapping of CO's with POs:

	PO1	PO2	PO3	PO4	PO5	PO6	<b>PO7</b>	PO8
CO1	3	0	0	0	0	0	0	0
CO2	2	0	0	0	0	2	1	0
CO3	2	1	3	0	0	3	1	0
CO4	1	1	2	0	0	3	2	3
CO5	2	1	1	0	0	3	0	0
	10	3	6	0	0	11	4	3
Scaled to 0,1,2,3 scale	2	1	2	0	0	3	1	1

1 - Low, 2 – Medium, 3 – High

## XCA301 HTML AND DHTML

CO1	С	Remember	Define out the tags of Text Formatting and Tables
CO2	С	Remember	Demonstrate the List, Links and Images.

CO3	C	Rememb	per	<i>Identify</i> Frames	in HTML for c	leveloping	the w	ebpage					
CO4	C	Rememb	per	Describe static web page with HTML form									
CO5	C	Rememb	per	Define DHTML with Java script and CSS									
COU	RSE	CODE	COURSE NA	AME		L	Т	Р	С				
XCA3	801		HTML AND	) DHTML		1	0	0	1				
<b>C:P:</b> <i>A</i>	<b>1</b> = 1	1:0:0											
								Р	Η				
PRER	REQ	UISITE	Nil		1	0	0	1					
UNIT- I: INTRODUCTION TO HTML 5							5						
Desig	ning	g a Home	Page – HTMI	Document -Ar	nchor Tag – H	yperlinks -	Head	d and B	ody				
Sectio	ons -	- Header S	Section – Title	e – Prologue – Lir	nks – Colorful	Pages – C	omme	nts – B	ody				
Sectio	on –	Heading -	– Horizontal F	Ruler – Paragraph	- Tabs - Imag	ges and Pic	tures	<ul> <li>Lists</li> </ul>	and				
their 7	Гуре	es – Neste	d Lists– Table	Handling.									
UNIT	- II:	FRAMES	S AND FORM	S				5					
Frame	es: I	Frameset	Definition – H	Frame Definition	- Nested Fran	nesets – H	ITML	and o	ther				
Media	a typ	es - Form	s: Forms and t	heir Elements.									
UNII	<b>]</b> – <b>I</b>	II : DHT	ML					5					
Docu	men	t Object	Model – HTI	ML and Scripting	g Access – R	ollover Bu	ittons	– Mo	ving				
object	objects with DHTML - Ramifications of DHTML- Introduction to java script -												
Funda	Fundamentals of CSS.												
		LECTURE PRACTICAL TO?							L				
	15 0 15												

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2
CO 1	3	3	2	2	2	1	2	3	3
CO 2	3	3	2	2	2	1	2	3	3
CO 3	3	2	2	2	2	1	2	3	3
CO 4	2	3	2	2	2	1	2	2	3
CO 5	3	2	2	2	2	1	2	2	3
Total	14	13	10	10	10	5	10	13	15
Course	3	3	2	2	2	1	1	3	3

0-No relation 3- Highly relation 2- Medium relation 1– Low relation

# XCA302 DATABASE MANAGEMENT SYSTEMS

CO1	С	Remember	Describe the database architecture and its applications
CO2	С	Remember	Discuss about the relational algebra and calculus
CO3	С	Remember	Describe the various normalization forms
CO4	С	Remember	Describe the storage and accessing of data.

CO5 C Remember

CO 1

*Define* the query processing in database management.

COURSE CODE	COU	RSE NAME		L	T	P	С
XCA302	DATABASE MAN	<b>JAGEMENT S</b>	YSTEMS	4	0	0	4
C:P:A = 4: 0: 0							
				L	Т	P	H
PREREQUISITE	Nil			4	0	0	4
UNIT-I: DATABASE	ARCHITECTURE	AND ER DIA	GRAM				12
Introduction, History, pur	pose and applications	s of Database -	View of data	i- Dat	abase	langu	ages
- Database architecture - I	Database users and ac	lministrators - H	History of da	tabase	e syste	ems-E	ntity
relationship modeling: en	tity types, entity set	, attribute and	key, relation	iships	, relat	tion ty	ypes,
roles and structural con	istraints, weak ent	ities, sub clas	ses; super	class	es, ir	nherita	ance,
specialization and general							10
UNII-II: RELATIONA	L DATA MODEL		T	. D.1		1 41-	14
The Turle Relational Col	s, Relational constra	Ints, Relational	Languages	: Kel	ationa	I Algo	ebra,
Operations Aggregate Eu	unus - The Domain	Netational Cal	Modificatio	r Of l	Dotob		e-Set
Relations	inclions-mested Sub	Queries-views	-wioumcatio		Databa	ase-je	meu
INIT – III· DATA NOR	MALIZATION						12
Pitfalls in relational da	atabase design –	Decomposition	– Functio	nal d	lenena	dencie	<u> </u>
Normalization – First nor	mal form – Second	normal form –	Third norma	al form	n – B	ovce-	code
normal form – Fourth nor	mal form – Fifth nor	nal form				- )	
UNIT- IV: STORAGE A	ND FILE ORGAN	IZATION					12
Disks - RAID -Tertiary s	storage - Storage Ac	cess -File Orga	nization – c	organi	zation	of fi	les -
Data Dictionary storage	0 0	C		U			
<b>UNIT- V: QUERY PRO</b>	<b>CESSING AND TR</b>	ANSACTION	MANAGE	MEN	Г		12
Query Processing - Tra	nsaction Concept -	Concurrency	Control –Lo	ocks	based	prote	ocol-
Deadlock Handling							
	LECTURE	TUTORIAL	PRACTIC	CALS		TOT	AL
	60	0	0			6	0
TEXT		1 1 5	1 9	2		<i>a</i> •	
1. Abraham Silberschatz	, Henry Korth, S.S	udarshan, Data	base System	ns Co	ncept	IS, S12	kth
Edition, McGraw Hill,	2010.	hulto Dotohoo		aant	anatar	та Т	Thind
2. Raginu Ramakrishnan Edition 2002	and Jonannes G	enrke, Databas	e managen	lent	syster	ns, i	mra
DEFEDENCES							
1 Binin Desai An Introd	uction to database sy	stems Galgotia	Publications	201	ſ		
2 RamezElamassri Shan	kant B-Navathe Fun	damentals of D	atabase Syste	ems F	o. Pearso	n 7 <sup>th</sup>	
Edition. 2015							
E REFERENCES							
1. NPTEL, Introduction to	) database design, Dr	P Sreenivasa K	umar Profes	sor C	S&E,		
Department, IIT, Madra	is				,		
2. NPTEL, Indexing and Searching TechniquesinDatabases, Dr. Arnab Bhattacharya, IIT							
Kanpur	- •						
PO1 P	O2 PO3 PO4 PO	05 PO6 PO7	PSO P	SO 2	]		

CO 2	3	3	2	2	2	1	2	3	3
CO 3	3	2	2	2	2	1	2	3	3
CO 4	3	3	2	2	2	1	2	3	3
CO 5	3	2	2	2	2	1	2	3	3
Total	15	13	10	10	10	5	10	15	15
Course	3	3	2	2	2	1	1	3	3

0-No relation	3- Highly relation	2- Medium relation	1–Low relation
	J- mgmy relation		I - LOW ICIALION

## XCA303 VISUAL PROGRAMMING

CO1	С	Knowledge	Quote basic controls and events
CO2	С	Knowledge	Describe various controls for different applications
CO3	С	Knowledge	Describe intrinsic and extrinsic controls in programming
CO4	С	Knowledge	Describe connections and operations in database
CO5	С	Knowledge	<i>Recite</i> various VC++ controls & events

COURSE CODE	COURSE NAME	L	Т	P	C		
XCA 303	VISUAL PROGRAMMING	4	0	0	4		
C:P:A = 4:0:0							
		L	Т	Р	Η		
PREREQUISITE	Nil	4	0	0	4		
UNIT-I: INTRO	DUCTION ON WINDOWS PROGRAMMING				12		
Overview of Winde	ows Programming - Event driven programming - C	GUI c	oncep	ts - I	)ata		
Types – Resources	- Windows Messages - Basic Drawings: GDI - De	evice	Conte	ext –E	<b>)</b> ots		
and Lines - creating the window – displaying the window - Text Output							
UNIT- II: VISUAI	L BASIC PROGRAMMING				12		
Introduction – Forn	ns – Variables, Types – Properties, methods, events -	- Deci	ision l	Makir	ıg –		
Looping – Select C	Case - Modules – Arrays – Built-in functions - Proc	edure	s – F	unctio	ons-		
Tool Box Controls	- Responding to mouse events - Drag and drop events	vents	Respo	onding	g to		
keyboard events – k	KEYPRESS, KEYUP, KEYDOWN events - shape and	l line	contro	ol.			
UNIT- III: ADVA	NCED CONTROLS				12		
Menu bar - Tool ba	ar - Message box - Input box - Dialog box - MDI – T	ree vi	ew –	List v	iew		
– Tab strip - – File	e System Controls : File List Box – Directory List Bo	x - D	rive L	ist Bo	)х –		
File System Object	ts - Projects with Multiple Forms - Do Events and	d Sub	Mai	n - E	rror		
Trapping							
UNIT- IV: ODBC	AND DATABASE ENGINES				12		
Database Manager -	– Data Control – Record set Objects – DAO – Manit	oulatio	on of	record	ls –		
Database Management with ODBC – RDO –ADO – ADO Control – Data Grid Control –							
Database Applications							
UNIT- V: VISUAL C++ 12							
VC++ Components - MFC - Resources - Getting started with AppWizard - Class Wizard -							
Modal and Modeless Dialogs – Document View Architecture							
k							

					LEC	TURE	C TI	<b>JTORI</b>	AL	PRACT	ICAL	TOTAL
						60		0		0		60
TEXT												
1. Cha	rles Petz	old, "	Progra	mming	g Wind	lows",	6 <sup>th</sup> Ec	lition, 2	2012, N	licrosoft	t Press	
2. Da	vid I. Sc	hneide	r," Int	troduct	tion to	Progr	ammir	ng Usir	ng Visu	al Basic	c", Uni	versity of
Marylai	nd, Pears	on, 10	th Edit	ion, 20	)17	U		U	C			•
REFER	ENCES											
1. Da	vid I. Sc	chneide	er, Intr	oducti	on to	Progra	mmin	g with	Visual	Basic	6.0, 4t	h Edition,
200	)3, Prenti	ice Ha	11			U						
2. Ava	inija J, V	'isual F	Program	nming,	, 3 <sup>rd</sup> Ec	lition,	2009,	Anura	dha Pub	lication	s.	
E REF	ERENC	ES	-									
1 NP'	TFL Dr S	S Arunl	aimar	Denarti	ment of	Comp	uter Sc	ience a	nd Fnoi	neering	IIT Dell	ni
$2 M_{\odot}$	r LL, Dr.	Concl (	$\gamma_{\perp}$	Lolvo o	Winda				ion hy	A lowond		
<b>Z.</b> IVII	croson v	Isual C	_++: IV	Take a	w mac	ows ro	mis A	ppncat	IOII DY .	Alexand	епоска	andron
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		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2		

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2
CO 1	3	3	2	2	2	1	2	3	3
CO 2	3	3	2	2	2	1	2	3	3
CO 3	3	3	2	2	2	1	2	3	3
CO 4	3	3	2	2	2	1	2	3	3
CO 5	3	3	2	2	2	1	2	3	3
Total	15	15	10	10	10	5	10	15	15
Course	3	3	2	2	2	1	1	3	3

0-No relation 3- Highly relation 2- Medium relation 1– Low relation

# XCA304 STATISTICAL AND NUMERICAL METHODS

### **Course Outcomes:**

CO1	С	Remember Understand	<i>Explain</i> the statistical data in the form of table, diagram and graph and to <i>find</i> various statistics, correlation, rank correlation and regression coefficients.
CO2	С	Remember Apply	<b>Define</b> null and alternate hypothesis and to <b>Apply</b> test statistic.
CO3	С	Remember	<i>Define</i> discrete and continuous random variables and to <i>Find</i> the expected values and moment generating functions of discrete and continuous distributions.
CO4	С	Understand Apply	<i>Explain</i> computational numerical methods to <i>Solve</i> algebraic and transcendental equations and systems of linear equations.
CO5	С	Apply	<i>Solve</i> the Numerical Differentiation and Integration and to <i>Apply the</i> Trapezoidal and Simpson's rules.

# COURSE CODE COURSE NAME

L T

P C

ACAJUT	STATISTICALAND I METHODS	NUMERICAL	4	3	2	0	5
<b>C:P:A = 5:0:0</b>	METHODS			L	Т	Р	Η
PREREQUISITE	Basic Mathematics			3	2	0	5
UNIT-I: MEAS	URES OF CENTRAL	TENDENCY			<b>i</b>	<b>i</b>	15
Diagrammatic and	graphical representatio	n of data. N	Mean Media	n a	nd mo	ode,	Range and
standard deviation.	Karl Pearson's Coeffic	ient of Correl	ation, Rank	cor	relatio	n, R	egression -
Regression coefficient	ents, Regression Equation	ns.					
UNIT- II: TESTIN	IG OF HYPOTHESIS						15
Sampling distribution and small samples) goodness of fit – In	ons - Tests for single mea – Tests for single variand dependence of attributes.	an, proportion, ce and equality	Difference of variances	ofm S – χ	eans ( 2-test	large for	
UNIT- III: PROB	ABILITY DISTRIBUT	IONS					15
Sample space - Ev	vents - Definition of pr	obability - co	nditional pro	obat	ility a	and i	ndependent
events- Random va	riables, distributions and	d Mathematica	1 expectation	ns. I	Discret	te dis	tributions -
Binomial – Poisson	. Continuous distribution	ı – Normal.					
UNIT-IV: NUMI	ERICAL SOLUTION O	<b>PF ALGEBRA</b>	IC AND				15
TRANSCENDEN'	<b>FAL EQUATIONS</b>						
Raphson method. Elimination method Jacobi method.	Numerical solution of d – Gauss Jordon Elimit	Simultaneous	Linear Alg – Gauss Se	ecti gebra eidel	on me tic Ec meth	ethod quatic lod a	– Newton on – Gauss nd Gauss –
Raphson method. Elimination method. Jacobi method. <b>UNIT- V: NUMEI</b> Numerical Different formula. Numerical - eighth rule.	Numerical solution of d – Gauss Jordon Elimit RICAL DIFFERENTIA ntiation - Newton's For Integration – Trapezoid	Simultaneous nation method TION AND I rward differen al rule - Simps	Linear Alg – Gauss Se NTEGRAT ce formula son's One-th	ecting ebra eidel ION and ird	on me nic Ec meth back rule –	ethod juatic od a ward Simp	<ul> <li>Newton</li> <li>Gauss</li> <li>Gauss</li> <li>Gauss</li> <li>difference</li> <li>difference</li> </ul>
Raphson method. Elimination method Jacobi method. <b>UNIT- V: NUMEI</b> Numerical Differen formula. Numerical - eighth rule.	Numerical solution of d – Gauss Jordon Elimit RICAL DIFFERENTIA ntiation - Newton's For Integration – Trapezoid	Simultaneous nation method TION AND I rward differen al rule - Simps LECTURE	Linear Alg – Gauss Se <b>NTEGRAT</b> ce formula son's One-th <b>TUTORIA</b>	ectingebra eidel ION and ird	on me ic Ec meth back rule –	ethod juatic od a ward Simp	<ul> <li>Newton</li> <li>Gauss</li> <li< th=""></li<></ul>
Raphson method. Elimination method Jacobi method. <b>UNIT- V: NUMEI</b> Numerical Differen formula. Numerical - eighth rule.	Numerical solution of d – Gauss Jordon Elimit RICAL DIFFERENTIA ntiation - Newton's For Integration – Trapezoid	Simultaneous nation method TION AND I rward differen al rule - Simps LECTURE 45	Linear Alg – Gauss Se NTEGRAT ce formula son's One-th TUTORIA 30	ecting gebra eidel ION and ird	on me ic Ec meth back rule –	ward Simp	<ul> <li>Newton</li> <li>Gauss</li> <li>Gauss</li> <li>15</li> <li>difference</li> <li>oson's three</li> </ul>
Raphson method. Elimination method Jacobi method. <b>UNIT- V: NUMEI</b> Numerical Different formula. Numerical - eighth rule. <b>TEXT BOOKS</b>	Numerical solution of d – Gauss Jordon Elimit RICAL DIFFERENTIA ntiation - Newton's For I Integration – Trapezoid	Simultaneous nation method TION AND I rward differen al rule - Simps LECTURE 45	Linear Alg – Gauss Se NTEGRAT: ce formula son's One-th TUTORIA 30	ecting ebra eidel ION and ird	on me ic Ec meth back rule –	ward Simp	<ul> <li>Newton</li> <li>Gauss</li> <li>Gauss</li> <li>difference</li> <li>oson's three</li> </ul>
Raphson method. Elimination method Jacobi method. <b>UNIT- V: NUMEI</b> Numerical Differen formula. Numerical - eighth rule. <b>TEXT BOOKS</b> 1. S. C. Gupta, V ,Eleventh Editi 2. P. Kandasamy Ltd. New Delh	Numerical solution of d – Gauss Jordon Elimit RICAL DIFFERENTIA ntiation - Newton's For Integration – Trapezoid K. Kapoor, "Fundament on, 2014 , K. Thilagavathi, K. Gui i Revised Edition, 2005.	Simultaneous nation method TION AND I rward differen al rule - Simps LECTURE 45 tal of Mathema navathi, Nume	Linear Alg – Gauss Se <b>NTEGRAT</b> ce formula son's One-th <b>TUTORIA</b> <b>30</b> ttical Statistic erical Method	idel idel idel idel ind ird ird ird ird ird ird ird	on me nic Ec meth back rule – 1 Sultar	ward Simp <b>TOT</b> 75	<ul> <li>Newton</li> <li>Gauss</li> <li>Gauss</li> <li>15</li> <li>difference</li> <li>oson's three</li> <li>AL</li> <li>nd &amp; Sons</li> <li>company</li> </ul>
Raphson method. Elimination method. Jacobi method. <b>UNIT- V: NUMEI</b> Numerical Differen formula. Numerical - eighth rule. <b>TEXT BOOKS</b> 1. S. C. Gupta, V ,Eleventh Editi 2. P. Kandasamy Ltd. New Delh <b>REFERENCES</b>	Numerical solution of d – Gauss Jordon Elimit RICAL DIFFERENTIA ntiation - Newton's For Integration – Trapezoid K. Kapoor, "Fundament on, 2014 , K. Thilagavathi, K. Gui i Revised Edition, 2005.	Simultaneous nation method TION AND I rward differen al rule - Simps LECTURE 45 tal of Mathema navathi, Nume	Linear Alg – Gauss Se <b>NTEGRAT</b> ce formula son's One-th <b>TUTORIA</b> <b>30</b> ttical Statistic erical Method	iectification in the second section is a second section of the second se	on me iic Ec meth back rule – ] Sultar	ward Simp <b>FOT</b> 75	<ul> <li>Newton</li> <li>Gauss</li> <li>Gauss</li> <li>15</li> <li>difference</li> <li>oson's three</li> <li>AL</li> <li>nd &amp; Sons</li> <li>company</li> </ul>
Raphson method. Elimination method Jacobi method. UNIT- V: NUMEI Numerical Different formula. Numerical - eighth rule. TEXT BOOKS 1. S. C. Gupta, V ,Eleventh Editi 2. P. Kandasamy Ltd. New Delh REFERENCES 1. V. Rajaraman , C	Numerical solution of d – Gauss Jordon Elimit RICAL DIFFERENTIA ntiation - Newton's For Integration – Trapezoid K. Kapoor, "Fundament on, 2014 , K. Thilagavathi, K. Gui i Revised Edition, 2005.	Simultaneous nation method TION AND I rward differen al rule - Simps LECTURE 45 tal of Mathema navathi, Nume	Linear Alg – Gauss Se NTEGRAT: ce formula son's One-th TUTORIA 30 tical Statistic erical Methoo PHI Publicat	iectification in the second sector is a second sector in the second seco	on me nic Ec meth back rule – 7 Sultar S. Cha 2013.	ward Simp <b>FOT</b> 75 n Cha	<ul> <li>Newton</li> <li>Gauss</li> <li>Gauss</li> <li>15</li> <li>difference</li> <li>oson's three</li> <li>AL</li> <li>nd &amp; Sons</li> <li>company</li> </ul>
Raphson method. Elimination method. Jacobi method. <b>UNIT- V: NUMEI</b> Numerical Differen formula. Numerical - eighth rule. <b>TEXT BOOKS</b> 1. S. C. Gupta, V ,Eleventh Editi 2. P. Kandasamy Ltd. New Delh <b>REFERENCES</b> 1. V. Rajaraman , C 2. E. Balagurusamy	Numerical solution of d – Gauss Jordon Elimit RICAL DIFFERENTIA ntiation - Newton's For Integration – Trapezoid K. Kapoor, "Fundament on, 2014 , K. Thilagavathi, K. Gur i Revised Edition, 2005.	Simultaneous nation method TION AND I rward differen al rule - Simps LECTURE 45 tal of Mathema navathi, Nume ical methods , opyright 1999 I	Linear Alg – Gauss Se <b>NTEGRAT</b> ce formula son's One-th <b>TUTORIA</b> <b>30</b> Itical Statistic erical Method PHI Publicat by Tata MC	iectificebra ebra idel ION and ird f ird f idel	on meth nic Ec meth back cule – Sultar S. Cha 2013. w Hill	ward Simp <b>FOT</b> 75 n Cha and &	<ul> <li>Newton</li> <li>Gauss</li> <li>Gauss</li> <li>15</li> <li>difference</li> <li>oson's three</li> <li>AL</li> <li>nd &amp; Sons</li> <li>company</li> </ul>
Raphson method. Elimination method. Jacobi method. <b>UNIT- V: NUMEI</b> Numerical Differen formula. Numerical - eighth rule. <b>TEXT BOOKS</b> 1. S. C. Gupta, V ,Eleventh Editi 2. P. Kandasamy Ltd. New Delh <b>REFERENCES</b> 1. V. Rajaraman , C 2. E. Balagurusamy Reprint, 2008	Numerical solution of d – Gauss Jordon Elimit RICAL DIFFERENTIA ntiation - Newton's For Integration – Trapezoid K. Kapoor, "Fundament on, 2014 , K. Thilagavathi, K. Gui i Revised Edition, 2005.	Simultaneous nation method TION AND I rward differen al rule - Simps LECTURE 45 tal of Mathema navathi, Nume ical methods , opyright 1999 I	Linear Alg – Gauss Se NTEGRAT: ce formula son's One-th TUTORIA 30 ttical Statistic erical Method PHI Publicat by Tata MC	iecti gebra idel ION and ird 1 L cs" , ds, ion, Grav	on me iic Ec meth back cule – 7 Sultar S. Cha 2013. w Hill	ward Simp <b>TOT</b> <b>75</b> n Cha and &	<ul> <li>Newton</li> <li>Gauss</li> <li>Gauss</li> <li>15</li> <li>difference</li> <li>oson's three</li> <li>AL</li> <li>nd &amp; Sons</li> <li>company</li> </ul>
Raphson method. Elimination method Jacobi method. UNIT- V: NUMEI Numerical Differen formula. Numerical - eighth rule. TEXT BOOKS 1. S. C. Gupta, V ,Eleventh Editi 2. P. Kandasamy Ltd. New Delh REFERENCES 1. V. Rajaraman , C 2. E. Balagurusamy Reprint, 2008 E REFERENCES	Numerical solution of d – Gauss Jordon Elimit RICAL DIFFERENTIA ntiation - Newton's For Integration – Trapezoid K. Kapoor, "Fundament on, 2014 , K. Thilagavathi, K. Gui i Revised Edition, 2005.	Simultaneous nation method TION AND I rward differen al rule - Simps LECTURE 45 tal of Mathema navathi, Nume ical methods , opyright 1999 I	Linear Alg – Gauss Se NTEGRAT ce formula son's One-th TUTORIA 30 tical Statistic erical Method PHI Publicat by Tata MC	iecti iebra idel ION and ird i L cs", f ds, f ion, Grav	on meth iic Ec meth back rule – 1 Sultar S. Cha 2013. w Hill	ward Simp <b>FOT</b> 75 n Cha and <i>&amp;</i>	<ul> <li>Newton</li> <li>Gauss</li> <li>Gauss</li> <li>15</li> <li>difference</li> <li>oson's three</li> <li>AL</li> <li>company</li> </ul>
Raphson method. Elimination method. Jacobi method. <b>UNIT- V: NUMEI</b> Numerical Differen formula. Numerical - eighth rule. <b>TEXT BOOKS</b> 1. S. C. Gupta, V ,Eleventh Editi 2. P. Kandasamy Ltd. New Delh <b>REFERENCES</b> 1. V. Rajaraman , C 2. E. Balagurusamy Reprint, 2008 <b>E REFERENCES</b> 1. Elementary Nun Institute of Tech	Numerical solution of d – Gauss Jordon Elimit RICAL DIFFERENTIA ntiation - Newton's For Integration – Trapezoid K. Kapoor, "Fundament on, 2014 , K. Thilagavathi, K. Gui i Revised Edition, 2005. Computer oriented numer , Numerical methods ,con nerical Analysis, Prof. Re nology, Bombay.	Simultaneous nation method TION AND I rward differen al rule - Simps LECTURE 45 tal of Mathema navathi, Nume ical methods , opyright 1999 I ekha P. Kulkar	Linear Alg – Gauss Se NTEGRAT: ce formula son's One-th TUTORIA 30 ttical Statistic erical Method PHI Publicat by Tata MC ni. Departme	iectific gebra and ird f ird f i i i i i i i i i i i i i i i i i i i	on methic Ec meth back rule – 7 Sultar S. Cha 2013. w Hill of Mat	thod quatic od an ward Simp <b>FOT</b> <b>75</b> n Cha and & ,25 <sup>th</sup> hema	– Newtor on – Gauss nd Gauss – 15 difference oson's three AL nd & Sons company

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO2
CO 1	3	1	0	0	1	0	1	0	0
CO 2	3	1	0	0	1	0	1	0	0
CO 3	3	1	0	0	1	0	1	0	0

CO 4	3	1	0	0	1	0	1	0	0
CO 5	3	1	0	0	1	0	1	0	0
Total	15	5	0	0	5	0	5	0	0
Course	3	1	0	0	1	0	1	0	0

0-No relation 3- Highly relation 2- Medium relation 1– Low relation

## XCA305 HTML AND DHTML LABORATORY

Cour	se ()	utcomes:	
CO1	С	Apply	Apply to work with Text Formatting tags
CO2	С	Apply	Apply the web site with List, Links and Images.
			Selects the necessary tag used for designing the website.
CO3	С	Apply	Organize all the web sites linked with Frames
CO4	С	Apply	Calculate static web page with HTML form elements
CO5	С	Apply	Sketch with CSS, Java Script and DHTML, Dynamic web
			pages with static webpages

PREREQUISITE	Nil	0	0	2	2
		L	Т	P	Η
<b>C:P:A = 1:0:0</b>					
XCA305	HTML AND DHTML-LABORATORY	0	0	1	1
COURSE CODE	COURSE NAME	L	Т	P	C

Lab:

- 1. Design a webpage using HTML Text formatting and List tags.
- 2. Design a webpage using HTML Tables and images.
- 3. Create a document with links which connects an external document.
- 4. Design a web page using images and Media types
- 5. Create an E-Learning document using Frames.
- 6. Design a Login Web page using HTML Forms.
- 7. Design a web page using DHTML filter concept.
- 8. Create a web page to perform the addition of two numbers using java script.
- 9. Design a web page with CSS.

						LI	ECTU	RE P	RACTIO	CAL	TOTAL	
							0		30		30	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2			
CO 1	3	3	2	2	2	1	2	3	3			

	101	102	105	104	105	100	107	1301	1502
CO 1	3	3	2	2	2	1	2	3	3
CO 2	3	3	2	2	2	1	2	3	3
CO 3	3	2	2	2	2	1	2	3	3
CO 4	2	3	2	2	2	1	2	2	3

CO 5	3	2	2	2	2	1	2	2	3
Total	14	13	10	10	10	5	10	13	15
Course	3	3	2	2	2	1	1	3	3

0-No relation 3- Highly relation 2- Medium relation 1- Low relation

## XCA306 DATABASE MANAGEMENT SYSTEMS - LABORATORY

#### **Course Outcomes:**

CO1	С	Apply	Sketch the ER diagram for real world applications
			Uses various ER diagram for a similar concepts from various
			sources
CO2	С	Apply	Generalize various queries in SQL and PL/SQL
			Solve various queries in SQL, Relational Calculus and Algebra
CO3	С	Apply	Apply the normalization concepts for a table of data
			Use a table and implement the normalization concepts
CO4	С	Apply	Apply the normalization concepts for a table of data
			Use a table and implement the normalization concepts
CO5	С	Apply	Apply the normalization concepts for PL/SQL
			Use a table and implement the PL/SQL

COURSE CODE	COURSE NAME	L	Τ	P	C	
XCA306	DATABASE MANAGEMENT SYSTEMS-	0	0	1	1	
	LABORATORY					
C:P:A = 1: 0: 0						
		L	Т	Р	Η	
PREREQUISITE	Nil	0	0	2	2	
				1	30	

.Lab :

- 1. Execute a single line query and group functions.
- 2. Execute DDL Commands.
- 3. Execute DML Commands
- 4. Execute DCL and TCL Commands.
- 5. Implement the Nested Queries.
- 6. Implement Join operations in SQL
- 7. Create views for a particular table
- 8. Implement Locks for a particular table.
- 9. Write PL/SQL procedure for an application using exception handling.
- 10. Write PL/SQL procedure for an application using cursors. (As per Industry Expert Recommendation)
- 11. Write a PL/SQL procedure for an application using functions
- 12. Write a PL/SQL procedure for an application using package (As per Industry Expert Recommendation)

LECTURE	TUTORIAL	PRACTICALS	TOTAL
---------	----------	------------	-------

0

0

30

30

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO	PSO 2
	101	102	100	101	100	100	10,	1	1502
CO 1	3	3	2	2	2	1	2	3	3
CO 2	3	3	2	2	2	1	2	3	3
CO 3	3	2	2	2	2	1	2	3	3
CO 4	3	3	2	2	2	1	2	3	3
CO 5	3	2	2	2	2	1	2	3	3
Total	15	13	10	10	10	5	10	15	15
Course	3	3	2	2	2	1	1	3	3

0-No relation	3- Highly relation	2- Medium relation	1-Low relation
	0,		

## XCA307 VISUAL PROGRAMMING LABORATORY

Cours	se U	utcomes:	
CO1	С	Apply	Recognize event handlers for VB form
CO2	С	Apply	Recognize Various controls for different applications
CO3	С	Apply	Apply intrinsic and extrinsic controls in programming
CO4	С	Apply	Apply the Database concepts for the Real time applications
CO5	С	Apply	Apply various controls for Menu and Tool bar

COURSE CODE	COURSE NAME	L	Т	P	С
XCA307	VISUAL PROGRAMMING LABORATORY	0	0	1	1
<b>C:P:A</b> = 1:0:0					
		L	Т	Р	Η
PREREQUISITE	Nil	0	0	2	2
LAB	•				30
<ol> <li>Design a form</li> <li>Visual Basic c</li> <li>Design a scien</li> <li>Design a form</li> </ol>	and event handler for keyboard & mouse events ode to calculate simple and compound interest tific calculator using control array in visual basic for free hand writing				

- 5. Design a simple MDI Text Editor in visual Basic
- 6. Design a Digital Clock in Visual Basic
- 7. Write a visual basic code for creating simple applications with file system controls
- 8. Create, Update and Manipulate a content in Database
- 9. Create a code for drawing various two dimensional objects
- 10. Design a code for displaying Message Box
- 11. Design a code to manipulate Menu bar applications
- 12. Design a code to manipulate Tool bar applications

## LECTURE TUTORIAL PRACTICAL TOTAL

						0		0	3	80	30
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2		
CO 1	3	3	2	2	2	1	2	3	3		
CO 2	3	3	2	2	2	1	2	3	3		
CO 3	3	3	2	2	2	1	2	3	3		
CO 4	3	3	2	2	2	1	2	3	3		
CO 5	3	3	2	2	2	1	2	3	3		
Total	15	15	10	10	10	5	10	15	15		
Cours e	3	3	2	2	2	1	1	3	3		
0-No re	lation	3- ]	Highly	relati	ion	2- Medi	um re	lation 1	– Low r	elation	

# XCA401 DATA ANALYTICS

CO1	С	Remember	Describe Data Management in Worksheet
CO2	С	Remember	Define Formulas in an Excel Spread sheet
CO3	С	Remember	<i>Recite</i> Statistical and Mathematical functions
CO4	С	Remember	<i>Describe</i> the type of charts to analyse the data
CO5	С	Remember	<i>Recite</i> Analysis Toolpak for statistical concepts

COURSE CODE	COURSE NAME	L	Т	P	C		
XCA401	DATA ANALYTICS	1	0	0	1		
C:P:A = 1:0:0							
		L	Т	P	Η		
PREREQUISITE	Nil	1	0	0	1		
UNIT -I: INTRO	DUCTION TO WORKSHEET				5		
Getting Started with	Excel: Excel and Spread Sheets - Excel Workboo	ks and	l Wor	kshee	ets –		
Worksheet Cells - E	xcel Add-Ins – Working with Data: Data Entry – For	mulas	s and 1	Funct	ions		
– Querying Data – I	mporting Data from Databases.						
UNIT-II: DATA A	NALYSIS IN CHARTS				5		
Working with Char	ts: Excel Charts – Scatter Plots – Editing a char	t – Id	lentify	ving I	Data		
Points: Creating Bu	bble Plots – Breaking a scatter plot into categorie	s – P	lotting	g Sev	'eral		
Variable.							
UNIT- III: STATIS	TICAL ANALYSIS				5		
Describe Data: Variables and Descriptive Statistics - Frequency Tables : Creating a							
Frequency Table – Using Bins in a Frequency Table – Working with Histograms –							
Distribution Statistics – Percentiles and Quartiles – Measures of the Center: Means, Medians							
and the Mode – Measures of Variability – Working with Boxplots.							

		LECTURE	PRACTICAL	TOTAL
		15	0	15
ГЕХТ				
1. Ken	neth N.Berk& Patrick Carey, "Data A	nalysis with M	icrosoft Excel",	3 <sup>rd</sup> Edition.
2. John	Walkenbach, "Microsoft Office Exce	1 2007", Wiley	Publishing Inc.,	2007.
REFERENC	CES			
1. Curt Pres	is Frye, "Step by Step Microsoft Of s.	fice Excel 200	7", First Edition	, Microsoft
2. Mar Mici	g, Craig Stinson, "Microsoft Office Ex rosoft Press.	cel 2007 inside	e and outside", F	irst Edition,
E REFERF	ENCES			

1.NPTEL, Dr.NandanSudarsanam, Dr.BalaramanRavindran, IIT, "Introduction to Data Analytics".

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2
CO 1	3	3	2	2	2	1	2	3	3
CO 2	3	3	2	2	2	1	2	3	3
CO 3	3	2	2	2	2	1	2	3	3
CO 4	3	3	2	2	2	1	2	2	2
CO 5	3	2	2	2	2	1	2	2	2
Total	15	13	10	10	10	5	10	13	13
Course	3	3	2	2	2	1	1	3	3

0-No relation 3- Highly relation 2- Medium relation 1- Low relation

# XCA402 JAVA PROGRAMMING

CO1	С	Understand	<i>Explain</i> the history and features of java					
CO2	С	Understand	Distinguish the class, packages and interfaces					
CO3	С	Understand	<i>interpret</i> the inheritance concepts					
CO4	С	Understand	<i>Demonstrate</i> the various types of exception and its handling methods					
CO5	С	Understand	<i>Distinguish</i> the Applets methods in Graphics, AWT controls and event handling					

COURSE CODE	COURSE NAME	L	Т	P	C
XCA402	JAVA PROGRAMMING	4	0	0	4

C.D.A	- 4.0 .0													
<b>C.I</b> .A	- 4.0 .0										L	Т	Р	н
PRERF	EOUISITI	E	C	++ Pro	orami	ning					4	0	0	4
UNIT-	I: INT	RODI	JCTIC	)N	'Slaiin					<u>i</u>	-	v	- V	12
Introdu	iction to	Java-	Java a	and In	ternet	-Bvte	codes	-Featu	res of	Java-	Java	Dev	elopr	nent
Enviro	nment- Ja	ava Hi	story -	Java I	Develo	pment	Kit (	JDK)	Java To	okens	Java	Char	acter	set-
data ty	pes-opera	tors-ex	pressi	ons-Jav	va Stat	tement	s-cont	rol sta	tements	-Simp	le pro	ograr	ns- A	rray
and Ve	ctors-Stri	ngs an	d Strin	g Buff	ers.					_	_	_		-
UNIT-	II: CLA	SSES,	INTE	RFAC	ES A	ND PA	CKA	GES						12
Classes	s-Objects-	Wrapp	oer Cla	sses-P	ackage	es and	Interf	aces-ex	tending	g inter	faces	·impl	emen	ting
interfac	ces-abstra	ct met	hods.											
UNIT-	III: INF	IERIT	CANCI	E										12
Inherita	ance Ext	ending	g class	ses-ove	erridin	g me	thods-	finaliz	e meth	ods-A	bstra	ct a	nd F	Final
classes	-Interface	s and I	Inherita	ance.										
UNIT-	IV: EXC	CEPTI	ON H	ANDL	ING									12
Error H	Handling	and E	xceptic	on Han	dling-	Excep	tion T	ypes a	nd Hier	rarchy	-Try	Cate	h blo	cks-
Use of	Throw, T	hrows	and Fi	nally-	Progra	ammer	Defin	ed Exc	eptions	•				
UNIT-	V: APPI	LETS,	GRA	PHICS	AND	FILE	S							12
Fundar	nentals of	f Apple	ets-Gra	aphics.	AWT	and E	Event 1	Handli	ng: AW	T con	npone	nts a	nd E	vent
Handle	ers-AWT	Contro	ols and	Event	Handl	ing Ty	pes ar	id Exai	mples-S	wing-	Intro	ducti	ion. I	nput
and Ou	tput: File	s – Str	eams.	Multith	readir	ıg.								
					LEC	TURE	Т	TORI	AL.	PRAC	TICA	r. T	ота	T.
						<u>60</u>		0		11010	0		60	)
TEXT								-			-			
1.E. Ba	lagurusar	ny ,"Pi	rogram	ming V	With Ja	ava ",7	「ata M	cgraw	Hill Ed	ucatio	n Pri	vate		
Limited	d,4th Edit	ion, 20	)09											
2. Y. D	aniel Lia	ng,"Int	roduct	ion to j	ava pi	rogram	ming'	,Pears	onPubli	cation	,Tent	h		
Edition	,2013													
REFER	RENCES	1 5	· 1 T			<b>TT</b>			<b>D</b>	<b>TT</b> -	11 0	T 1.	ъ ·	
I. Dei	itel H M	and L		, , , , ,	AVA-	How 1	to Pro	gram",	Prenti	ce Ha	ll of	India	l Priv	vate
	nited, Nev	v Dein	1, 2008 hissta	S.	Due er		n a Dau	. diama		I arra D	-11 <b>-</b> 2	0005		
2. D.J <b>FD</b>	ana, Java		bject o	menteo	Plog	amm	ig Pai	adigin	, РПІ, N		eini, 2	2003.		
1 http:	//www.nr	ices itelvid	205 001	n/iava/	'iava y	video	lecture	otut e	rials nh	n				
$\frac{1. \underline{\text{nup.}}}{2 \text{ http:}}$	//www.nr	telvid		n/iava/	java_ 'iava_v	video	lectur	e tuto	rials ph	p n				
$2. \underline{\text{mp.}}$	//www.ll <u>p</u> //fue.exide			<u>11/ java/</u>	<u>java_v</u> 25.1	2/Iarra	Drag	<u>-s_tuto</u>	<u>11ais.pii</u>	<u>p</u>				
5. nup:	//ireevide	olectu	res.cor	u/Cour	se/231	J/Java	i-rrog	rammi	ng.					
		PO1	PO2	PO3	PO4	PO5	POA	PO7	PSO 1	PSO 2	,			
		101	102	105	104	105	100	10/	1501	130 2	-			
	CO 1	3	3	3	3	3	1	2	3	3				
	CO 2	3	3	2	2	2	1	2	3	3				

CO 3

CO 4

CO 5

Total

Course 3 3	2 2	2 1 1	3 3
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0-No relation 3- Highly relation 2- Medium relation 1- Low relation

# XCA403 RESOURCE MANAGEMENT TECHNIQUES

CO1	С	Understanding	<i>Explain</i> the basic concepts of optimization and to formulate
		Apply	and <i>Solve</i> Linear Programming problems.
CO2	С	Understanding	<i>Explain</i> and <i>Apply</i> the concepts of Transportation problem and
		Apply	Assignment problem.
CO3	С	Understanding	<i>Explain</i> and Apply the concepts of sequencing problem
		Apply	
CO4	С	Apply	Explain and Demonstrate the basic concepts of PERT-CPM
			and their applications in product planning control.
CO5	С	Understanding	Solve the Minimal Spanning Tree Problem, Shortest Route
		Apply	Problem, Maximal Flow Problem and Minimal Cost
			Capacitated Flow Problem.

COURSE	NAME		L	Т	Р	С
RESOURCE MANAG	EMENT		3	2	0	5
IECHNIQUES						
			_			
			L	Т	P	H
Basic Mathematics			3	2	0	5
AR MODELS						15
Decision making - Role	of computers	in OR,	Line	ar Pr	ogra	mming
tion, Graphical solution o	f two variables	s Canonic	al &	stand	ard f	orm of
od, Charne's method of p	enalties.					
PORTATION AND ASS	IGNMENT P	ROBLEN	<b>1S</b>			15
orithm - Degeneracy algo	orithm- Unbal	anced Tra	anspo	rtatio	n pr	oblem-
nent algorithm.			1		1	
ENCING PROBLEM						15
s through two machines -	Processing of	n jobs thr	ough	three	e mad	chines-
s through m machines.	C	5	0			
k CPM						15
n's rule- Measure of activ	ity- PERT con	nputation-	CPM	1 com	iputa	tion.
ORK MODELS						15
- Minimal spanning tree	problem- Sho	ortest rou	te pro	oblem	n- M	aximal
mal cost capacitated flow	problem.		-			
	LECTURE	TUTOR	IAL	Т	ОТА	L
	45	30	)		7	5
aha, Operations Rese	arch An Ir	ntroductio	n, l	Eightl	n E	dition,
n, Inc., 2008						
upta P.K and Manmohan	, Operations R	esearch, S	Sultar	h Cha	nd &	Sons,
	COURSE RESOURCE MANAGE TECHNIQUES Basic Mathematics AR MODELS Decision making - Role tion, Graphical solution of od, Charne's method of po PORTATION AND ASS orithm - Degeneracy algo nent algorithm. ENCING PROBLEM s through two machines - s through two machines. CPM n's rule- Measure of activ ORK MODELS - Minimal spanning tree mal cost capacitated flow Caha, Operations Rese n, Inc., 2008 upta P.K and Manmohan,	COURSE NAME RESOURCE MANAGEMENT TECHNIQUES Basic Mathematics AR MODELS Decision making - Role of computers tion, Graphical solution of two variables od, Charne's method of penalties. PORTATION AND ASSIGNMENT PI prithm - Degeneracy algorithm- Unbalanent algorithm. ENCING PROBLEM s through two machines -Processing of s through m machines. z CPM n's rule- Measure of activity- PERT con DRK MODELS - Minimal spanning tree problem- Sho mal cost capacitated flow problem. LECTURE 45 Caha, Operations Research An Ir n, Inc., 2008 upta P.K and Manmohan, Operations R	COURSE NAME         RESOURCE MANAGEMENT TECHNIQUES         RESOURCE MANAGEMENT TECHNIQUES         Basic Mathematics         Basic Mathematics         Basic Mathematics         Decision making - Role of computers in OR, tion, Graphical solution of two variables Canonic od, Charne's method of penalties.         ORTATION AND ASSIGNMENT PROBLEM         porthm - Degeneracy algorithm- Unbalanced Tra- nent algorithm.         ENCING PROBLEM         s through two machines -Processing of n jobs this s through m machines.         2       CPM         n's rule- Measure of activity- PERT computation-         IECTURE         COMM         activity- PERT computation-         RK MODELS         - Minimal spanning tree problem- Shortest rou mal cost capacitated flow problem.         LECTURE         TUTOR 45         30         Calaa, Operations Research An Introduction n, Inc., 2008         upta P.K and Manmohan, Operations Research, S	COURSE NAME       L         RESOURCE MANAGEMENT       3         TECHNIQUES       I         Basic Mathematics       3         AR MODELS       J         Decision making - Role of computers in OR, Line tion, Graphical solution of two variables Canonical & od, Charne's method of penalties.       ORTATION AND ASSIGNMENT PROBLEMS         ORTATION AND ASSIGNMENT PROBLEMS       Orithm - Degeneracy algorithm- Unbalanced Transponent algorithm.         ENCING PROBLEM       s through two machines -Processing of n jobs through s through m machines.         z CPM       n's rule- Measure of activity- PERT computation- CPM         ORK MODELS       -         - Minimal spanning tree problem- Shortest route promal cost capacitated flow problem.         Yaha, Operations Research An Introduction, In, Inc., 2008         upta P.K and Manmohan, Operations Research, Sultar	COURSE NAMELTRESOURCE MANAGEMENT TECHNIQUES32IITBasic Mathematics32AR MODELS32Decision making - Role of computers in OR, Linear Pr tion, Graphical solution of two variables Canonical & stand od, Charne's method of penalties.Note: IPORTATION AND ASSIGNMENT PROBLEMSPORTATION AND ASSIGNMENT PROBLEMSPORTATION AND ASSIGNMENT PROBLEMSPORTATION AND ASSIGNMENT PROBLEMSorithm - Degeneracy algorithm- Unbalanced Transportation nent algorithm.ENCING PROBLEMs through two machines -Processing of n jobs through threes through m machines.z CPMn's rule- Measure of activity- PERT computation- CPM corrPRK MODELS- Minimal spanning tree problem.I LECTURETUTORIALT4530	COURSE NAMELTPRESOURCE MANAGEMENT TECHNIQUES320IECHNIQUESIIIBasic Mathematics320RMODELSIIPDecision making - Role of computers in OR, Linear Progration, Graphical solution of two variables Canonical & standard for od, Charne's method of penalties.PPORTATION AND ASSIGNMENT PROBLEMSORTATION AND ASSIGNMENT PROBLEMSorithm - Degeneracy algorithm- Unbalanced Transportation proment algorithm.ENCING PROBLEMs through two machines -Processing of n jobs through three macks through m machines.z CPMn's rule- Measure of activity- PERT computation- CPM computationPRK MODELS- Minimal spanning tree problem- Shortest route problem- Mmal cost capacitated flow problem.IECTURETUTORIALAts307Taha, Operations Research An Introduction, Eighth En, Inc., 2008upta P.K and Manmohan, Operations Research, Sultan Chand &

#### REFERENCES

- 1. Prem Kumar Gupta and D.S. Hira, Operations Research, S. Chand and Co., Ltd. New Delhi, 2008.
- 2. Gupta R. K., Linear Programming, KrishnaPrakashanMedia(P) Ltd., 2009.

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1. Lecture Series on Fundamentals of Operations Research by Prof.G.Srinivasan, Department of Management Studies, IIT Madras. For more details on NPTEL visit http://nptel.iitm.ac.in

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2
CO 1	3	1	0	0	1	0	1	0	0
CO 2	3	1	0	0	1	0	1	0	0
CO 3	3	1	0	0	1	0	1	0	0
CO 4	3	1	0	0	1	0	1	0	0
CO 5	3	1	0	0	1	0	1	0	0
Total	15	5	0	0	5	0	5	0	0
Course	3	1	0	0	1	0	1	0	0

0-No relation 3- Highly relation 2- Medium relation 1- Low relation

## XCA404 OPERATING SYSTEMS

CO1	С	Understand	<i>Explain</i> the operating system functions					
CO2	С	Understand	<i>Express</i> the process and various process s	cheduli	ng alg	orithn	ns	
CO3	С	Understand	Discuss process cooperation and inter pro	cess co	mmun	ication	n	
CO4	С	Understand	Describe various memory management concepts					
CO5	С	Understand	<i>Infer</i> file organization					
COU	RSF	E CODE	COURSE NAME	L	Т	Р	C	
XCA4	404		OPERATING SYSTEMS	4	0	0	4	
C:P:A	<b>\</b> = 4	4:0:0						
				L	Т	P	Η	
PRER	EQ	UISITE	C++ concepts, Windows Programming	4	1	0	5	
UNIT	`I	<b>OVERVIEW</b>	OF OPERATING SYSTEMS				12	
Funct: execu	iona tion	lities and ob - interrupts- typ	jectives of operating Systems- processo es of interrupts.	r regi	ster- i	instru	ction	
UNIT		PROCESS MA	NAGEMENT				12	
Proces	ss c ulin	oncepts: proc g- scheduling al	ess states- process control block- process gorithms.	and th	reads-	proce	essor	

UNIT III PRINCIPLES OF CO	ONCURREN	CY		12
Critical Sections - Mutual Exclu	sion - Process	Cooperation-	Inter Process Comr	nunication-
Deadlock Prevention- Detection-	Avoidance- Se	emaphores- Mo	nitors-Message Pas	sing.
UNIT IV MEMORY MANAGI	EMENT			12
Virtual Memory Concepts- Pagi	ing and Segm	entation- Addre	ess Mapping- Virtu	ual Storage
Management- Page Replacement	Strategies.			
				10
UNIT V FILE UKGANIZATIO	UN	and dimension	atmustumes I/O de	12 vices dist
scheduling	escriptor- me	and directory	structures- 1/0 de	vices- disk
scheduling.	LECTURE	TUTORIAL	PRACTICALS	TOTAL
	60	0	0	60
<ol> <li>TEXT</li> <li>William Stallings, Operating S</li> <li>Abraham Silberschatz, Peter edition, Addison-Wesley (200</li> </ol>	Systems , Pren B. Galvin, Gr )3).	tice Hall of Ind	ia (P) Ltd, 7 <sup>th</sup> editio rating System Cond	n-2012. cepts, Sixth
REFERENCES				
1. Andrew Tanenbaum, "Moder	n Operating Sy	ystems", Pearso	n, 2008.	
2 Silborgabetz and D. D. Cal	vin "Onaratir	Contain Con	cents" 7 <sup>th</sup> Edition	Addison
Wesley Publication.	viii, Operatii	ig System Cor		n, Addison
2. Shoerschatz and P. B. Gar Wesley Publication. <b>E REFERENCES</b>	viii, Operatii	ig System Cor		n, Addison
<ul> <li>Z. Shoerschatz and P. B. Gar Wesley Publication.</li> <li>E REFERENCES</li> <li>1. http://www.nptel.ac.in/courses</li> </ul>	/106108101/	ig System Cor		n, Addison
<ul> <li>2. Shoerschatz and P. B. Gar Wesley Publication.</li> <li>E REFERENCES</li> <li>1. http://www.nptel.ac.in/courses/Webc</li> <li>2. http://nptel.ac.in/courses/Webc</li> </ul>	/106108101/ course-content	s/IISc-		n, Addison
<ul> <li>2. Shoerschatz and P. B. Gar Wesley Publication.</li> <li>E REFERENCES</li> <li>1. http://www.nptel.ac.in/courses/Webc BANG/Operating%20Systems</li> </ul>	/106108101/ course-content	s/IISc- html		n, Addison

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO 2
CO 1	3	3	2	2	2	1	2	3	3
CO 2	3	3	2	2	2	1	2	3	3
CO 3	3	2	2	2	2	1	2	3	3
CO 4	2	3	2	2	2	1	2	2	2
CO 5	3	2	2	2	2	1	2	2	2
Total	14	13	10	10	10	5	10	13	13
Course	3	3	2	2	2	1	1	3	3

0-No relation 3- Highly relation 2- Medium relation 1- Low relation

# XCA405 DATA ANALYTICS LABORATORY

Cour	se O	utcomes:	
CO1	C	Apply	Solve the data in worksheet

			<i>Performs</i> data organization in worksheet with variety of samples
CO2	С	Apply	Interpret Formulas in an Excel Spread sheet
			Selects formulas for calculating the data in a spread sheet
CO3	С	Apply	Apply the data with statistical and Mathematical functions
CO4	С	Apply	Displays the chart for any real time data
CO5	С	Apply	Starts to work with Analysis built in tools
			Practices built in tools with different samples

COURSE CODE	COURSE NAME	L	Т	P	С
XCA407	DATA ANALYTICS-LABORATORY	0	0	1	1
C:P:A =1:0:0					
		L	Т	Р	Η
PREREQUISITE	Nil	0	0	2	2
			••••••		30

Lab:

- 1. Create a table to perform statistical and mathematical functions.
- 2. Create a spreadsheet to sort data and print portions of a worksheet.
- 3. Import and Export the data from the database and files.
- 4. Create a spreadsheet to perform "What if?" calculations.
- 5. Demonstrates the ease of creating charts.
- 6. Draw a Histogram Diagram in MS-Excel using student data set.
- 7. Perform Regression analysis with given dataset.
- 8. Perform correlation analysis with given data.
- 9. Create pivot table and carry out the analysis with charts.

						LE	CTURI	E PRA	ACTICAL	TOTAL
							0		30	30
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	
CO 1	3	3	2	2	2	1	2	3	3	
CO 2	3	3	2	2	2	1	2	3	3	
CO 3	3	2	2	2	2	1	2	3	3	
CO 4	3	3	2	2	2	1	2	2	2	
CO 5	3	2	2	2	2	1	2	2	2	
Total	15	13	10	10	10	5	10	13	13	
Course	3	3	2	2	2	1	1	3	3	

0-No relation 3- Highly relation 2- Medium relation 1– Low relation

#### **XCA406 JAVA PROGRAMMING LABORATORY**

CO1	С	Apply	Solve the class, packages and interfaces
CO2	С	Apply	<i>Interpret</i> the inheritance concepts
CO3	С	Apply	Interpret various types of exception and its handling methods

			Build a program to implement exception handling concepts
CO4	С	Apply	Apply the Applets methods in Graphics, AWT controls and
			event handling
CO5	С	Apply	Use an application using event handling method

COURSE CODE	COURSE NAME	L	Т	Р	C
XCA406	JAVA PROGRAMMINGLABORATORY	0	0	1	1
<b>C:P:A = 1:0:0</b>					
		L	Т	Р	Η
PREREQUISITE	C++ Programming	0	0	2	2
				,	30

Lab

- 1. Program to implement simple programs based on operators, Loop and decision making statements.
- 2. Program to implement array
- 3. Program to implement a class and instantiate its object.
- 4. Program to demonstrate the use of interfaces.
- 5. Program to implement user-defined and pre-defined packages.
- 6. Program to implement constructor and overloading concepts
- 7. Program to implement wrapper classes.
- 8. Program to implement string class and string buffer class.
- 9. Program to implement single level and multi level inheritance.
- 10. Program to implement exception handling.
- 11. Program to implement a simple applet.
- 12. Program to implement an applet using graphics class.

LECTURE	TUTORIAL	PRACTICAL	TOTAL
0	0	30	30

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2
CO 1	3	3	3	3	3	1	2	3	3
CO 2	3	3	2	2	2	1	2	3	3
CO 3	3	3	2	2	2	1	2	3	3
CO 4	3	3	2	2	2	1	2	2	3
CO 5	3	3	2	2	2	1	2	2	3
Total	15	15	11	11	11	5	10	13	15
Course	3	3	2	2	2	1	1	3	3

0-No relation 3- Highly relation 2- Medium relation 1– Low relation

## XCA407 OPERATING SYSTEMS LABORATORY

CO1	С	Apply	Implement the process and various process scheduling algorithms
			<i>Executes</i> the different types of scheduling algorithms
CO2	С	Apply	<i>Recognize</i> the principles of concurrency
			Builds a program model for deadlock prevention and avoidance
CO3	С	Apply	Integrates different memory management techniques

CO4	С	Apply	Apply the fixed size and variable size page replacement algorithm
CO4	С	Apply	Implement and understand the file organization

COURSE CODE	COURSE NAME	L	Т	Р	C
XCA407	OPERATING SYSTEMS	0	0	1	1
	LABORATORY				
C:P:A = 1:0:0					
		L	Т	Р	Η
PREREQUISITE	C++ concepts, Windows Programming	0	0	2	2
					15

Lab :

1. Simulate the FCFS - CPU Scheduling Algorithms.

2. Simulate the SJF - CPU Scheduling Algorithms.

3. Simulate the Priority - CPU Scheduling Algorithms.

4. Simulate the Round Robin - CPU Scheduling Algorithms.

5. Simulate MVT and MFT

6. Simulate Bankers algorithm for Deadlock Avoidance (As per Industry Expert Recommendation)

7. Simulate Bankers Algorithm for deadlock Prevention (As per Industry Expert Recommendation)

8. Simulate FIFO Page Replacement Algorithms

9. Simulate LRU Page Replacement Algorithms

10. Simulate Optimal Page Replacement Algorithms

11. Simulate Paging Technique of Memory Management

Note: Use Unix or Ubuntu or Open Source

						LEC	ΓURE	TUT	ORIAL	PRACTICALS	TOTAL
							0		-	15	15
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO 2		
CO 1	3	3	2	2	2	1	2	3	3		
CO 2	3	3	2	2	2	1	2	3	3		
CO 3	3	2	2	2	2	1	2	3	3		
CO 4	2	3	2	2	2	1	2	2	2		
CO 5	3	2	2	2	2	1	2	2	2		
Total	14	13	10	10	10	5	10	13	13		
Course	3	3	2	2	2	1	1	3	3		

0-No relation 3- Highly relation 2- Medium relation 1- Low relation

### XCA501 XML AND WEB SERVICES

CO1	С	Understand	Explain the concepts of XML
CO2	С	Understand	<i>Demonstrate</i> the XML schema and DT

CO3 C	Understand	<i>Explain</i> the XML presentation and Transformation technique
CO4 C	Understand	<i>Explain</i> the Web Services Building Block
CO5 C	Understand	<i>Discuss</i> the XML concepts to work with Webservices

COURSE CO	DE	COURSE NAME		L	Т	P	C
XCA501		XML AND WEB SER	VICES	1	0	0	1
<b>C:P:A = 1:0</b>	:0						
				L	Т	P	H
PREREQUIS	ITE	HTML Concepts		1	0	0	1
UNIT-I:	FUNDAME	NTALS OF XML					5
Role of XM	L - XML ar	nd the Web - XML Lar	nguage Basics	- SOAP -	Web	Servic	es -
Revolutions	of XML - Ser	vice Oriented Architectu	re (SOA).				
UNIT –II: X	ML TECHN(	DLOGY FAMILY					5
XMI - Nam	e Spaces - "	Structuring With Schem	as and DTD -	Presentati	on Te	chniau	<u>ec</u> _
Transformati	on - XML In	frastructure.		1 resentati		ciiiiqu	
11411510111141							
UNIT – III:	WEB SERV	ICES BUILDING BLO	CK				5
Overview O	f SOAP -	HTTP - XML-RPC -	SOAP: Protoc	ol - Mess	sage S	Structu	re -
Intermediarie	s - Actors - I	Design Patterns and Fault	s - SOAP with	Attachmen	ts		
			LECTURE	PRACTIO	CAL	TOTA	L
			15	0		15	5
TEXT			1 1 51	1 (6		1 7	<b>TT 1</b>
I. Ron	Schmelzer,	Travis Vandersypen at	nd Jason Bloc	omberg, "	XML	and	Web
2 Emio	Ses <sup>-</sup> , Pearson	Education, 2002.	donaton din a S	OA with	Wah	Samia	
2. EIIC	newconiel a	and Greg Loniow, Of 2005	iderstanding 5	OA with	web	Servic	es,
3 Sande	en Chatterie	2005. e and James Webber "	Developing En	ternrise W	eh Se	rvices	Δn
J. Sana Archi	tect's Guide"	Prentice Hall 2004		terprise w		i vices.	71II
REFERENC	ES	, 11011100 11411, 2001.					
1. Frank	P.Coyle, "X	ML, Web Services and	the Data Revo	lution", Pe	arson	Educat	tion,
2002.	2			,			
2. Keith Ballinger, "NET Web Services Architecture and Implementation" Pearson							
2. itenii		.ILLI WED BEIVICES AI	chitecture and	implement	itution	,	13011
Educa	tion,2003.	INET Web Bervices A	chitecture and	mplemer	nunon	,	13011
Educa E REFERE	ution,2003. NCES		chitecture and	mplemer		,	
Educa E REFEREN 1. https	ntion,2003. NCES //www.w3.o	org/	chitecture and	Implemen		,	

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2
CO 1	3	3	2	2	2	1	2	3	3
CO 2	3	3	2	2	2	1	2	3	3
CO 3	3	2	2	2	2	1	2	3	3
CO 4	3	3	2	2	2	1	2	2	3

CO 5	3	2	2	2	2	1	2	2	3
Total	15	13	10	10	10	5	10	13	15
Course	3	2	2	2	2	1	1	3	3

0-No relation 3- Highly relation 2- Medium relation 1– Low relation

# XCA502A SOFTWARE ENGINEERING

CO1	С	Understand	<i>Explain</i> the various types of software process models
CO2	С	Understand	Demonstrate the concept of software planning activities, risk
			management and estimation
CO3	С	Understand	Describe the various software design models
CO4	С	Understand	Illustrate the test case and various testing methods
CO5	С	Understand	Interpret the software configuration management and
			quality assurance

COURSE CODE	COURSE NAME L T P								
XCA502A	SOFTWARE ENGINE	ERING		4	1	0	5		
<b>C:P:A = 4:0:0</b>									
				L	Т	P	Η		
PREREQUISITE	Basic Concepts of Progr	amming, Desig	;n	4	1	0	5		
UNIT-I: SOFTWARE	<b>PROCESS MODELS</b>						12		
A generic view of proces	ss - Process models: The	e waterfall mo	del – Ir	ncrem	ental	mode	el –		
Evolutionary model - Spe	cialized model – The unit	fied process-Ag	gile proo	cess –	Agile	moc	lels		
UNIT- II: SOFTWARE	PROJECT AND RISK	MANAGEME	NT				12		
Project management - Pro	oject planning – Resource	es – Project est	imation	n - So	ftware	e pro	ject		
scheduling- Risk management - System engineering — Requirements engineering									
UNIT- III: SOFTWARE DESIGN 12									
Design concepts – Design	models - Pattern based d	esign – Archite	ctural d	lesign	- Co	mpor	nent		
level design – User interfa	ce : analysis and design								
<b>UNIT- IV: SOFTWARE</b>	TESTING						12		
Software testing – Strateg	ies – conventional softwa	re - Object orie	ented so	ftwar	e – Va	alidat	tion		
testing – System testing –	- Debugging - Testing tac	ctics – Testing	fundam	entals	s - W	hite 1	box		
testing – Basis path testing	g – Control structure testin	ng – Black box	testing.						
UNIT -V: SCM AND Q	UALITY ASSURANCE						12		
Software configuration a	nd management – Featu	ires – SCM p	rocess	– Sof	ftware	qua	lity		
concepts – Quality assura	ance - Software review-	Technical revi	ews – l	Forma	l app	roacł	ı to		
software quality assurance	e – Statistical software	quality assurar	nce - R	eliabi	lity –	Qua	lity		
standards – Software qual	ity assurance plan								
		LECTURE	TUTO	RIAL	T	OTA	L		
		60		0		60			
ТЕХТ									

- 1. Roger Pressman.S., Software Engineering: A Practitioner's Approach, Sixth Edition, Mcgraw Hill, 2008.
- 2. Jalote Pankaj, An Integrated Approach to Software Engineering, Third Edition, Narosa Book Distributors Pvt Ltd, 2005.

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	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO	PSO
								1	2
CO 1	3	3	2	2	2	1	1	3	2
CO 2	3	3	2	2	2	1	1	3	2
CO 3	3	3	2	2	2	1	1	3	2
CO 4	3	2	2	2	2	1	1	3	2
CO 5	2	2	2	2	2	1	1	3	2
Total	14	13	10	10	10	5	5	15	10
Course	3	3	2	2	2	1	1	3	2

0-No relation 3- Highly relation 2- Medium relation 1- Low relation

#### XCA502B INTERNET OF THINGS

Cour	se U	utcomes:										
CO1	С	Remember	Describe the various types of software process models									
CO2	С	Remember	activi	ties, r	isk							
CO3	С	Remember	Describe the various software design me	odels								
CO4	С	Remember	<i>Recite</i> the test case and various testing n	nethod	ls							
CO5	С	Remember	<i>Memorize</i> the software configuration ma quality assurance	anagei	ment a	and						
C	OUI	RSE CODE	COURSE NAME	L	Т	Р	С					
<b>XCA</b>	502I	B	INTERNET OF THINGS	4	1	0	5					
C:P:A	<b>\</b> = 4	4:0:0										

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P H

PREREOUISITE Nil	4	1	0	5
UNIT-I: INTRODUCTION	I	-		12
Introduction Of Iot- Advantage And Disadvantage Of Iot- Embedded Sys	tem Of	Iot-		
Software & Hardware Embedded System – Iot Ecosystem – Iot Decision	Framev	vork.		
UNIT- II: ARCHITECTURE & DOMAIN				12
Components of Iot Architecture - Energy Domain - Biometric Domain -	Smart <b>a</b>	gricu	lture	eIot
Transforming Businesses.				
UNIT- III: IOT DEVICES				12
Smart Object - Iot Device - Major Iot Boards - Raspberry Pi - Arduino				
UNIT- IV: COMMUNICATIONS	_		-	12
Data Link Communication Protocol – Bluetooth - Z-Wave - Zigbee Sma	rt Ener	gy - I	Netw	vork
Layer Protocols - Rpl Protocol - Corpl Protocol - Carp Protocol - Session	on Laye	er Pro	otoco	ols -
$\frac{Wqu - Sinqu - Coap - Dus}{UNIT} = V_{2}SCM + ND OUALITY + SSUDANCE$			Ĩ	12
Challenges In Lot Implementation - Lot Applications - Lot Fo	or Sm	art (	<sup>¬</sup> ities	14
Malia Madatina 9 Advertising Let Visteralization				,
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Image: Advertising - fot-virtualization         LECTURE       TUTC         60       60         TEXT       David Hanes, Gonzalo Salgueiro, Patrick Grossetete, Robert Barton, Jero Fundamentals: Networking Technologies, Protocols, and Use Cases for Things", 1st Edition, Pearson Education (Cisco Press Indian Reprint)         REFERENCES	DRIAL 0 Dome He the Inf	Tenry, " ernet	OTA 60 IoT of	L
Image: Advertising - for-virtualization         LECTURE       TUTO         60       TEXT         David Hanes, Gonzalo Salgueiro, Patrick Grossetete, Robert Barton, Jero         Fundamentals: Networking Technologies, Protocols, and Use Cases for Things", 1st Edition, Pearson Education (Cisco Press Indian Reprint)         REFERENCES         1.Vijay Madisetti and ArshdeepBahga, "Internet of Things (A Hands	<b>DRIAL</b> <b>0</b> Dome He the Int ).	To enry, " ernet	DTA 60 IoT of	L ))",
Image: Advertising - for-virtualization         LECTURE       TUTC         60       Text         David Hanes, Gonzalo Salgueiro, Patrick Grossetete, Robert Barton, Jero         Fundamentals: Networking Technologies, Protocols, and Use Cases for Things", 1st Edition, Pearson Education (Cisco Press Indian Reprint)         REFERENCES         1.Vijay Madisetti and ArshdeepBahga, "Internet of Things (A Hands 1 stEdition, VPT, 2014. (ISBN: 978-8173719547)	<b>DRIAL</b> 0 Dome He the Int ).	To enry, " ernet Appr	DTA 60 IoT of	L 1)",
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Media, Marketing& Advertising - fot-virtualization         LECTURE       TUTC         60       Text         David Hanes, Gonzalo Salgueiro, Patrick Grossetete, Robert Barton, Jero         Fundamentals: Networking Technologies, Protocols, and Use Cases for Things", 1st Edition, Pearson Education (Cisco Press Indian Reprint)         REFERENCES         1. Vijay Madisetti and ArshdeepBahga, "Internet of Things (A Hands 1 stEdition, VPT, 2014. (ISBN: 978-8173719547)         2. Raj Kamal, "Internet of Things: Architecture and Design Principles McGraw Hill Education, 2017. (ISBN:978-9352605224)	ORIAL         O           0         0           ome         He           the         Int           ).         - on -           ", 1st Ed	Tenry, " ernet Appr lition	DTA 60 IoT of roach	L 1))",
Media, Marketing& Advertising - fot-virtualization         LECTURE       TUTC         60       TEXT         David Hanes, Gonzalo Salgueiro, Patrick Grossetete, Robert Barton, Jero Fundamentals: Networking Technologies, Protocols, and Use Cases for Things", 1st Edition, Pearson Education (Cisco Press Indian Reprint)         REFERENCES         1.Vijay Madisetti and ArshdeepBahga, "Internet of Things (A Hands 1 stEdition, VPT, 2014. (ISBN: 978-8173719547)         2. Raj Kamal, "Internet of Things: Architecture and Design Principles McGraw Hill Education, 2017. (ISBN:978-9352605224)	<b>PRIAL</b> <b>0</b> Dome He the Inf ). - on - ", 1 <sup>st</sup> Ee	Tenry, " ernet Appr dition	DTA 60 IoT of	L ))",
Media, Marketing& Advertising - for-virtualization         LECTURE       TUTC         60       Text         David Hanes, Gonzalo Salgueiro, Patrick Grossetete, Robert Barton, Jero         Fundamentals: Networking Technologies, Protocols, and Use Cases for Things", 1st Edition, Pearson Education (Cisco Press Indian Reprint)         REFERENCES         1. Vijay Madisetti and ArshdeepBahga, "Internet of Things (A Hands 1 stEdition, VPT, 2014. (ISBN: 978-8173719547)         2. Raj Kamal, "Internet of Things: Architecture and Design Principles McGraw Hill Education, 2017. (ISBN:978-9352605224)         E REFERENCES         1. NETEL         1. NETEL	DRIAL 0 Dome He the Int ). - on - ", 1st Ee	Tenry, " ernet Appr dition	DTA 60 IoT of	L 1)",
Media, Marketing& Advertising - fot-virtualization         LECTURE       TUTC         60       60         TEXT       David Hanes, Gonzalo Salgueiro, Patrick Grossetete, Robert Barton, Jere Fundamentals: Networking Technologies, Protocols, and Use Cases for Things", 1st Edition, Pearson Education (Cisco Press Indian Reprint)         REFERENCES         1.Vijay Madisetti and ArshdeepBahga, "Internet of Things (A Hands 1 stEdition, VPT, 2014. (ISBN: 978-8173719547)         2. Raj Kamal, "Internet of Things: Architecture and Design Principles McGraw Hill Education, 2017. (ISBN:978-9352605224)         E REFERENCES         1. NPTEL, Internet of Things, Prof. Sudip Mishra, Computer Science & Institute of Technology. Kharagapur	PRIAL 0 Dome He the Inf ). - on – ", 1st Ed Engin	Terry, " ernet Appr dition eering	DTA 60 IoT of roach	L ))", lian

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO	PSO
								1	2
CO 1	3	3	2	2	2	1	1	3	2
CO 2	3	3	2	2	2	1	1	3	2
CO 3	3	3	2	2	2	1	1	3	2
CO 4	3	2	2	2	2	1	1	3	2
CO 5	2	2	2	2	2	1	1	3	2
Total	14	13	10	10	10	5	5	15	10
Course	3	3	2	2	2	1	1	3	2

0-No relation 3- Highly relation 2- Medium relation 1- Low relation

# XCA503A UNIX AND SHELL PROGRAMMING

CO1	C	Understand		<i>Explain</i> UNIX operating system and architectures									
CO2	С	Understand		<i>Explain</i> UNIX Fi	le Systems and	Comm	ands						
CO3	C	Understand		Describe the oper	ating system pr	ocesses	and it	ts exec	utior	n			
CO4	C	Understand		<i>Explain</i> the Shell	Environment c	concepts	8						
CO5	C	Understand		<i>Explain</i> Shell Pro	gramming state	ements							
COUR	SE	CODE	COU	RSE NAME			L	Т	P	С			
XCA5	<b>03</b> A	Δ	UNIX	<b>KAND SHELL P</b>	ROGRAMMI	NG	4	1	0	5			
C:P:A	= 4	4:0:0											
012 112	-						L	Т	Р	н			
DRED	ΕOI	UISITE	Basic	Concepts of Prog	amming Desig	m	1	1	0	5			
			Dasic Concepts of Flogramming, Design   4   1   0   5										
Unit Operating System The System Administrator Legging in Legging out Hands													
Unix Operating System – The System Administrator - Logging in – Logging out – Hands on Session – POSIX and the Single UNIX Specification – Linux and GNU - The UNIX architecture – Features of UNIX.													
UNIT –II: FILE SYSTEM 12													
File –	File	e name – File S	System	Hierarchy – Univ	x File System	- Abso	lute P	Pathnan	nes s	and			
comme	and.	e hame i he c e Hor	ne	Directory	Univ Co	mman		nwd	105 0	cd			
mkdin	rma	s = 100	ne noro u	alp Converting 1	ontwoon DOS	and LIN	$\mathbf{MV}$	pwu, Comm	roca	ion			
Due ene	11IIC	iii,18,0p,111v,0at,1	nore,w	c,ip- Converting (	between DOS		NIA –	Comp	1688	1011			
Progra	uns.							- T	10				
UNIT-	• III	I: PROCESS				~			12				
Proces	s ba	asics – The shel	I and i	nit – Displaying F	Process Attribut	tes - Sy	ystem	proces	ses a	and			
init – F	Proc	cess creation me	chanisi	m – inherited proc	ess attributes –	Process	s state	s and z	omb	bies			
– signa	al ha	andling – Runni	ng jobs	in background.									
UNIT-	- IV	': SHELL							12				
The sh	ell	as command pro	ocessor	– Shell offerings -	– nattern match	ing _ F	scanin	o and	toun	ino			
Redi	rect	tion Collective	Manir	ulation - Special I	Files Pines	Creatin	σ a Τe		mme	and			
Substit	tuti	on Shall variat	log E	Invironment Veriel	blog	Cicatin		c – co	111116	ana			
Substit	luli	JII – Sheli variat	mes - r		bles.								
UNIT-	- V:	SHELL PROC	GRAM	MING					12				
Shell S	Scri	ipts – read – c	ommar	nd line arguments	– Exit status	of a c	comma	ind –	Logi	ical			
operati	ion	– The if condi	itional	<ul> <li>Using test and</li> </ul>	[] to evalua	te expr	ession	s = Tl	he c	ase			
conditi	ion	al – Computati	on and	String handling	= 1  opting	tatemei	nte _	Manir	ulat	ing			
nositio	mol	noromotore with	on and	d shift Shall Eur	etions	statemen		wiamp	Julai	mg			
positio	mai	parameters with	i set all	u shint – Shen Full	ctions.								
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				60			0		60				
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1. Su	ımit	tabha Das, "Uni	x and	Shell Programmin	g", Tata McGi	aw Hil	l Publ	ication	s, Fi	ifth			
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REFE	EURION, 2009, New Denni.												
REFERENCES													
1 Su	mit	NCES tabha Das "Uni	x - Co	ncents and Annlic	ations" Third	Edition	Tata	McGr	aw F	Hill			

Publications, New Delhi.

2. Graham Glass and King Ables, "Unix for Programmers and Users", Third Edition, Pearson Education India (Low Prices Edition).

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- 2. NPTEL, Prof. P.C.P.Bhatt, IISc Bangalore, "Operating System".

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2
CO 1	3	3	2	2	2	1	2	3	3
CO 2	3	3	2	2	2	1	2	3	3
CO 3	3	2	2	2	2	1	2	3	3
CO 4	2	3	2	2	2	1	2	2	2
CO 5	3	2	2	2	2	1	2	2	2
Total	14	13	10	10	10	5	10	13	13
Course	3	3	2	2	2	1	1	3	3

0-No relation 3- Highly relation 2- Medium relation 1- Low relation

## **XCA503B WEB SCRIPTING FRAMEWORK**

CO1	C	Understand	Explain Java Script concepts used in Web programming
CO2	С	Understand	Demonstrate VB Script concepts
CO3	С	Understand	<i>Explain</i> the concepts of Ruby on Rails
CO4	C	Understand	Explain the concepts of Struts
COS	C	Indonatord	Eurlain the concents of Hibernote
COS	C	Understand	Explain the concepts of Hibernate

COURSE CODE	COURSE NAME	L	Т	Р	C				
XCA503B	WEB SCRIPTING FRAMEWORK	4	1	0	5				
C:P:A = 4:0:0									
		L	Т	Р	Η				
PREREQUISITE	Basic Concepts of HTML	4	1	0	5				
UNIT- I: JAVA SCRI	РТ			12					
Introduction to Java Scri	pt: Adding Java Script to XHTML Documents	s – Jav	va Sci	ipt C	Core				
Features: Overview – Lar	nguage Characteristics – Arrays – Objects – Exp	ressio	ns – C	)pera	tors				
– Control Statements – I	Loop - Functions - Input/Output statements in	n Java	Scrip	t – I	Data				
types and Variables - Ope	erators, Expressions and Statements – Event Har	ndling.	•						
UNIT- II: VB SCRIPT				12					
Introductionto VB Script	- Data Types - Variables and Procedures - Cor	itrol of	f Flov	v – E	rror				
Handling and Debugging	- Client side Web Scripting - Script Encoding.								
UNIT-III: RUBY ON RAILS 12									

Introduction – Up and Running – Version Control with GIT – Deploying – A Demo App: Planning the Application – Static Pages: First Tests – Dynamic pages – Rails –Flavored Ruby: Strings and Methods – Ruby Classes.

#### **UNIT-IV: STRUTS**

12

12

Framework – MFC Architecture – Overview – Environment Set up – Struts Architecture - Struts Actions - Interceptors – UI component tag reference.

### **UNIT -V : HIBERNATE**

Hibernate Overview – Hibernate Architecture – Hibernate Environment setup – Hibernate Examples: Create POJO classes – Create Database Tables – Create Mapping configuration File – Application File – Compilation and Execution.

LECTURE	TUTORIAL	PRACTICAL	TOTAL
60	0	0	60

### TEXT

- 1. Thomas Powell and Fritz Schneider, "Java Script 2.0 The complete Reference", Second Edition, Tata McGraw Hill Publications, 2004.
- 2. Michael Hartl, "Ruby on Rails Tutorial", Second Edition, Addison Wesley Professional Ruby Series, 2015.
- 3. Donald Brown, Chad Michael Davis and Scott Stanlick, "Struts 2 in Action", Manning Publications Co., 2008.

### REFERENCES

- 1. Dave Minter and Jeff Linwood, "Beginning Hibernate From Novice to Profession", Apress Publications, 2006.
- 2. Adrian Kingsley-Hughes, Kathie Kingsley-Hughes, Daniel Read, "VBScript Programmer's Reference", Third Edition, Wiley Publications, 2007.

## **E REFERENCES**

- 1. <u>www.tutorialspoint.com</u> Hibernate Java Persistence Framework tutorials point.
- 2. <u>www.tutorialspoint.com</u> Struts 2.X tutorials point.
- <u>http://www.scribd.com/doc/25244173/Java-Struts-Hibernate-Tutorial</u> Java & Struts2 & Spring & Hibernate & Eclipse Tutorial Building a web app from scratch.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2
CO 1	3	3	2	2	2	1	2	3	3
CO 2	3	3	2	2	2	1	2	3	3
CO 3	3	3	2	2	2	1	2	3	3
CO 4	3	3	2	2	2	1	2	2	3
CO 5	3	2	2	2	2	1	2	2	3
Total	15	14	10	10	10	5	10	13	15
Course	3	3	1	0	2	1	1	2	3

0-No relation 3- Highly relation 2- Medium relation 1– Low relation

# XCA504A ENTERPRISE RESOURCE PLANNING

CO1	С	Understand	Explain the functionalities of Enterprise resource planning
CO2	С	Understand	Define the ERP implementation procedures
CO3	С	Understand	Describes the elements of ERP
CO4	С	Understand	Differentiate the available ERP packages
CO5	С	Understand	Summarize the models of ERP with other related technologies

COURSE CODE	COURSE NAME			L	Т	P	С
XCA504A	ENTERPRISE RESOURCE	PLANNIN	G	4	1	0	5
<b>C:P:A = 4:0:0</b>							
				L	Т	P	Η
PREREQUISITE	DBMS, Programming			4	1	0	5
UNIT -I: INTRODU	JCTION						12
ERP: An Overview, H	Benefits of ERP, ERP and Rel	ated Techr	nologies	s, Bus	siness	Proc	cess
Reengineering (BPR), I	Data Warehousing, Data Mining,	, OLAP, SC	CM				
UNIT- II: ERP IMPL	EMENTATION						12
ERP Implementation L	ifecycle, Implementation Metho	dology, Hi	dden C	osts, (	Organ	izing	the
Implementation, Vendo	rs, Consultants and Users, Contr	act with Ve	endors.				
UNIT- III: THE BUS	INESS MODULES						12
Business modules in a	an ERP Package, Finance, Mai	nufacturing	, Huma	in Re	sourc	es, P	lant
Maintenance, Materials	Management, Quality Managen	nent, Sales	and Dis	tribut	ion		
UNIT- IV: EKP PACI	AGES						12
ERP Market Place, SAI	PAG, PeopleSon, Baan, JD Edw	vards, Orac	ie, QAI	), 334	ł		10
UNII- V: EKP-PKE	SENI AND FUTURE	ammaraa	EDD	nd Ir	torno	+ <b>D</b> u	12
Directions	r System, EIA, EKF and e-C	.onninerce,	EKF a	ina n	llerne	ι, ги	luie
Directions	T.F	CTURE	TUTO	RIAI	T	ОТА	T.
		60	1010	0	<b>_</b>	60	
TEXT				•		00	
1. Alexis Leon, "ERP I	Demystified", Tata McGraw Hill	New Delh	i, 2000				
REFERENCES	<b>.</b>	·					
1.Joseph A Brady, Eller	n F Monk, Bret Wagner, "Conce	pts in Enter	rprise R	esour	ce Pla	nning	g",
ThompsonCourseTechn	nology,USA,2001.	1	1				
2. Vinod Kumar Garg a	nd Venkitakrishnan N K, "Enter	prise Resou	urce Pla	nning	s - Co	ncep	ts
and Practice", PHI, New	v Delhi, 2003						
E REFERENCES							
1. ERP, Prof. P. K. Bisv	was, Dept. of Electronics and Ele	ecrical Com	munica	tion I	Engg.,	IIT,	
Kharagpur							

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2
CO 1	3	3	2	2	2	1	1	2	2
CO 2	3	3	2	2	2	1	1	2	2

CO 3	3	3	2	2	2	1	1	2	2
CO 4	3	2	2	2	2	1	1	2	2
CO 5	2	2	2	2	2	1	1	2	2
Total	14	13	10	10	10	5	5	10	10
Course	3	3	2	2	2	1	1	2	2

0-No relation 3- Highly relation 2- Medium relation 1- Low relation

### **XCA504B ORGANIZATIONAL BEHAVIOR**

### **Course Outcomes**:

С	Understand	<i>Explain</i> the organizational behavior and human relations.
С	Understand	<i>Illustrate</i> the individual behaviors, perceptions and emotion
С	Understand	<i>Infer</i> the job characteristics and motivation theory.
С	Understand	Demonstrate the decision making and creativity.
С	Understand	Interrelate group behavior and teamwork.
	C C C C C	<ul><li>C Understand</li><li>C Understand</li><li>C Understand</li><li>C Understand</li><li>C Understand</li><li>C Understand</li></ul>

COURSE CODE	COURSE NAME	L	Т	P	С
XCA504B	ORGANIZATIONAL BEHAVIOR	4	1	0	5
<b>C:P:A = 4:0:0</b>					
		L	Т	P	Η
PREREQUISITE	Basic Concepts of Programming, Design	4	1	0	5
<b>UNIT-I:INTRODU</b>	CTION TO ORGANIZATIONAL BEHAVIO	UR			12

Introduction to Organizational Behavior -Understanding People at Work -The Evolution of the Field of Organizational Behavior-The Human Relations Movement-The Total Quality Management Movement-The Information Technology Revolution and E-Business-Workforce Diversity-Globalization.

## **UNIT- II: INDIVIDUAL BEHAVIOR**

Perception, Personality, and Emotion-Social Perception stages-Managerial Implications-Self-Perception-Self-Esteem-Self-Efficacy-Self-Monitoring-Causal Attributions -Attributional Tendencies-Personality Dynamics-The Big Five Personality Dimensions-Locus of Control: Self or Environment-Attitudes-Emotions in the Workplace-Positive and Negative Emotions-Research Insights-Emotional Intelligence.

#### **UNIT-III: MOTIVATION**

The Fundamentals of Employee Motivation-Need Theories of Motivation-Motivating Employees through Job Design-The Job Characteristics Model-Job Enlargement-Job Rotation-Job Enrichment-Process-Theories of Motivation-Equity Theory of Motivation-Expectancy Theory of Motivation-Motivation through Goal Setting-Putting Motivational Theories to Work.

**UNIT- IV: DECISION MAKING, CREATIVITY, AND ETHICS** 

12

12

12

Models of Decision Making-The Rational Model-Bounded Rationality Model-Dynamics of Decision Making-Personal Decision-Making Styles-Escalation of Commitment-CreativityGroup Decision Making-Advantages and Disadvantages of Group Decision Making-Participative Management-Group Problem-Solving Techniques-Fostering Ethical Decision Making-A Model of Ethical Behavior-Three Criteria for Ethical Decision Making -How to Improve the Organization's Ethical Climate.

## **UNIT- V: GROUPS AND TEAMWORK**

12

Fundamentals of Group Behavior-Formal and Informal Groups-The Group Development Process-Group Member Roles-Norms-Teams Trust, and Teamwork-A Team Is More Than Just a Group-Trust: A Key Ingredient of Teamwork -Self-Managed Teams-Virtual Teams-Why Do Work Teams Fail-Problems with Self-Managed Teams-Team Building.

,	<u> </u>	$\omega$	
	LECTURE	TUTORIAL	TOTAL
	60	0	60

#### TEXT

1. Robert Kreitner, Angelo Kinicki, Nina Cole, "Fundamentals of Organizational Behaviour Key Concepts, Skills, and Best Practices", Second Edition, McGraw Hill, 2002.

## REFERENCES

- 1. Slocum and Hell Riegel, "Fundamentals OrganisationalBehaviour", Cengage learning, 2007.
- 2. Steven L Mcshane, Mary Ann Von Glinow and Radha R. Sharma, "Organizational Behaviour", Tata Mcgraw Hill, 2014.
- 3. Paul Hersey Kenneth. H. Blanchard and Dewey, "Management of Organizational Behavior: Leading Human Resources", PHI Learning, 2008.

## **E-REFERENCES**

1.http://nptel.iitm.ac.in

2.http://www.nptel.ac.in/courses/110105034/

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2
CO 1	3	3	2	2	2	1	1	2	2
CO 2	3	3	2	2	2	1	1	2	2
CO 3	3	3	2	2	2	1	1	2	2
CO 4	3	2	2	2	2	1	1	2	2
CO 5	2	2	2	2	2	1	1	2	2
Total	14	13	10	10	10	5	5	10	10
Course	3	3	2	2	2	1	1	2	2

0-No relation 3- Highly relation 2- Medium relation 1– Low relation

## **XCA505 XML AND WEB SERVICES LABAROTARY Course Outcomes:**

CO1	С	Apply	Use to work with XML tags
CO2	C	Apply	Illustrate the middleware with XML schema and DTD
CO3	C	Apply	Infer all the CSS tags to represent the XML data

CO4	С	Apply	Organizes the web services with XML tags
CO5	С	Apply	Uses the XML concepts to perform the Web services

COURSE CODE	COURSE NAME	L	Т	P	C
XCA505	XML AND WEB SERVICES	0	0	1	1
	LABAROTARY				
C:P:A = 1:0:0					
		L	Т	Р	Η
PREREQUISITE	HTML Concepts	0	0	2	2
				30	

- 1. Create a XML document to store an address book.
- 2. Create a XML document to store information about books and create the Internal DTD files.
- 3. Create a XML document to store resumes for a job web site and create the External DTD file.
- 4. Create a XML schema for the book's XML document.
- 5. Present the book's XML document using cascading style sheets (CSS).
- 6. Write a XSLT program to extract book titles, authors, publications, book rating from the book's XML document and use formatting.
- 7. Use Microsoft DOM to navigate and extract information from the book's XML document.

PRACTICAL

TOTAL

30

8. Create a web service for temperature conversion with appropriate client program. LECTURE

						0			30
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2
CO 1	3	3	2	2	2	1	2	3	3
CO 2	3	3	2	2	2	1	2	3	3
CO 3	3	2	2	2	2	1	2	3	3
CO 4	3	3	2	2	2	1	2	2	3
CO 5	3	2	2	2	2	1	2	2	3
Total	15	13	10	10	10	5	10	13	15
Course	3	2	2	2	2	1	1	3	3

0-No relation 3- Highly relation 2- Medium relation 1– Low relation

## **XCA506A UNIX AND SHELL PROGRAMMING LABAROTARY Course Outcomes:**

CO1	С	Apply	<i>Use</i> an operating system environment to work with various applications.
CO2	С	Apply	Selects commands to perform the execution
CO3	С	Apply	Manipulate the UNIX processes
CO4	С	Apply	Displays the Shell environment and processing technique
CO5	С	Apply	Represent to work with Shell Programming

COURSE CODE	COU	RSE N.	AME							L	Т	Р	C
XCA506A	UND	K AND	SHE	LL PF	ROGR	AMM	ING I	ABAI	ROTARY	0	0	1	1
C:P:A =1:0:0													
										L	Т	Р	H
PREREQUISITE	Basic	Conce	epts of	Progra	ammin	g, Des	ign			0	0	2	2
												30	
Lab:													
1. Execution of various file/directory handling commands.													
2. Shell scripts to check various attributes of files and directories.													
3. Shell scripts to explore system variables such as PATH, HOME etc.													
4. Use seed instruction to process /etc/password file.													
5. Shell scripts to check and list attributes of processes.													
6. Write awk scri	6. Write awk script that uses all of its features.												
7. Write a shell so	ript to o	display	list of	fusers	curren	tly log	ged in	•					
8. Write a shell so	ript to	delete a	all the	tempo	rary fil	es.							
9. Write a shell so	ript to a	ask yoı	ır nam	e, prog	gram n	ame ar	nd enro	olment	number and	l print	it on	the scre	en.
10. Write a shell p	ogram	to excl	nange	the val	ues of	two va	ariable	S.					
11. Write a shell p	ogram	to find	the Fi	bonaco	ci serie	s.							
12. Write a shell p	ogram	to conc	catenat	te two	strings	and fi	nd the	length	of the resu	ltant s	tring.		
13. Write a shell p	ogram	to find	factor	rial of g	given n	lumbei	r.		_				
14. Write a shell p	ogram	to find	the su	m of a	Ill the c	ligits i	n a giv	en nur	nber.				
15. Write a shell pi	ogram	to find	the su	m of t	he serie	es sum	n=1+1/2	2++	l/n.				
16. Write a shell pi	ogram	to chec	k whe	ther a	given s	string i	is palir		e or not.		T A T		
			L	LECIU	KE	101		L Pr	20				
		1		U		-	U		30			30	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2				
CO 1	3	3	2	2	2	1	2	3	3				
CO 2	3	3	2	2	2	1	2	3	3				
CO 3	3	2	2	2	2	1	2	3	3				
CO 4	2	3	2	2	2	1	2	2	2				
CO 5	3	2	2	2	2	1	2	2	2				
Total	14	13	10	10	10	5	10	13	13				
Course	3	3	2	2	2	1	1	3	3				
0-No rela	tion	3- Hig	hly rel	ation	2- M	edium	relatio	on 1–	Low relation	n			
X	CA5061	B WEI	<b>B</b> SCR	IPTIN	NG FR	AME	WORI	K LAP	BAROTAR	Y			

CO1	С	Apply	Apply web programs with java script statements
CO2	С	Apply	Use the VB Script concepts to create the programs
CO3	С	Apply	Organizes the concepts to create the web pages
CO4	С	Apply	<i>Examine</i> a program with Struts
CO5	С	Apply	Interpolate to work with Hibernate

COURSE CODE	COURSE NAME	I	Т	P	•	С	
-			 				

XCA506B	WEB SCRIPTING FRAMEWORK LABAROTARY	0	0	1	1
<b>C:P:A = 1:0:0</b>					
		L	Т	Р	Η
PREREQUISITE	Basic Concepts of HTML	0	0	2	2
				30	÷

Lab:

- 1. Write a java script program with arrays.
- 2. Write a java script program using control structure.
- 3. Write a java script program using Functions.
- 4. Write a java script program with dialog boxes
- 5. Write a program to perform the events with java script
- 6. Write a program to perform the control structure in VB script.
- 7. Write a program to display the day in a week using VB script.
- 8. Write a program to calculate the simple interest using VB script events.
- 9. Write a program to validate the user using VB script with HTML form element
- 10. Writing a web application using ruby on rails.
- 11. Create a program using struts.

#### 12. Build a simple application with Hibernate

				LECI	URE		T	UTOR	IAL	P	RACTI	CAL	TOTAL
				0				0			30		30
	PO1	PO2	PO3	PO4	PO5	PO6	5	PO7	PSO 1	1	PSO 2		
CO 1	3	3	2	2	2	1		2	3		3		
CO 2	3	3	2	2	2	1		2	3		3		
CO 3	3	3	2	2	2	1		2	3		3		
CO 4	3	3	2	2	2	1		2	2		3		
CO 5	3	2	2	2	2	1		2	2		3		
Total	15	14	10	10	10	5		10	13		15		
Course	3	3	1	0	2	1		1	2		3		
0-No rela	ation	3- Hi	ghly re	elation	2-1	Medi	iur	n relat	ion 1	1–	Low re	lation	

### **XCA601 INTRODUCTION TO PYTHON**

CO1	С	Knowledge	Explain the functionalities of Python interpreter
CO2	С	Understand	Define the Data types and control structure
CO3	С	Understand	Describes Classes and modules
CO4	С	Understand	Define the use of Exception handling
CO5	С	Understand	Summarize the file organization and uses

COURSE CODE	COURSE NAME		L	Т	Р	С				
XCA601	INTRODUCTION TO I	PYTHON	1	0	0	1				
<b>C:P:A = 2:0:0</b>				-						
			L	Т	Р	Η				
PREREQUISITE	Basic Concepts of Program	mming, Design	1	0	0	1				
UNIT- I: INTROD	UCTION TO PYTHON					5				
Introduction - Using Output operations- D types, variables, expr operations -Control S	the Python interpreter -Intr ata types and control struct essions, and statements - A tructures: loops and decisio	oduction to binary ures -Operators (u ssignment stateme on	y computation mary, arithmet ents - Strings a	- Inj ic, e .nd s	put / etc.) -I string	Data				
UNIT- II: CLASSE	S AND MODULES					10				
Modularization and Classes - Standard modules - Packages - Defining Classes - Defining functions -Functions and arguments (signature)										
UNIT- III: EXCEP	<b>FION HANDLING</b>					10				
Exceptions and data structures Data Structures (array, List, Dictionary) Error processing Exception Raising and Handling- Principles of Object Orientation - Creating Classes - Instance Methods - File Organization										
	LECTURE	PRACTICAL	TUTORIAI	_ ]	ΓΟΤΑ	L				
	30	0	0		30					
TEXT 1.Mark Summerfield Language, Second Ec	, Programming in Python-A lition, Addision Wesley, 20	Complete Introd	uction to Pythe	on						
1.David M. Beazley, 2.Alex Martelli, Anna Edition, O'Reilly, 20	"Python Essential Reference a Martelli Ravenscroft, and 02.	ce" Third Edition, David Ascher, "P	Sams Publishi Python Cookbo	ng 2 ok"	2006. , Thire	d				

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2
CO 1	3	3	2	2	2	1	2	3	3
CO 2	3	3	2	2	2	1	2	3	3
CO 3	3	2	2	2	2	1	2	3	3
CO 4	3	3	2	2	2	1	2	3	3
CO 5	3	2	2	2	2	1	2	3	3
Total	15	13	10	10	10	5	10	15	15
Course	3	3	2	2	2	1	1	3	3

0-No relation 3- Highly relation 2- Medium relation 1- Low relation

# XCA 602A .NET TECHNOLOGIES

CO1	С	Knowledge	<i>Knowledge</i> on .Net Technologies basic controls and events
CO2	С	Understand	Knowledge on Object Oriented Programming with C#
CO3	С	Understand	Understand and implement VB.Net
CO4	С	Understand	Apply and Implement C#.Net and VB.Net using various tools
CO5	С	Understand,	Understand Framework and threads

COURSE CODE	COURSE NAME		L	T	P	C					
XCA602A	.NET TECHNOLOGIE	<b>S</b>	4	1	0	5					
<b>C:P:A = 5:0:0</b>											
			L	Τ	P	H					
PREREQUISITE	Basic Concepts of Progra	mming, Design	4	1	0	5					
UNIT- I: INTROD	UNIT- I: INTRODUCTION TO .NET TECHNOLOGIES 12										
Introduction to Web Technologies - HTML Basics – Scripts - Sample Programs – Advantages and Disadvantages of Client-side and Server-side Scripts –Overview of Client- side Technologies and Server-side Technologies. History of .NETNET Framework											
UNIT- II: INTRODUCTION TO C#											
Introduction to C# - Overview of C#, Literals, Variables, DataTypes, Operators, Expressions, Control Structures-Methods, Arrays, Strings, Structures, Enumerations – OOPS:Classes, Objects, Inheritance, Polymorphism, Interfaces, Operator Overloading - Delegates, Events, Errors and Exceptions											
UNIT- III: INTROI	DUCTION TO VB.NET					12					
Toolbar – Auto-hide, Properties Window Basic Keywords – I Select Case – Switc Arrays.	Toolbar – Auto-hide, Docking and Undocking, Placing and Resizing the Windows – Forms – Properties Window and Solution Explorer - Writing and Event Procedure – Execution - Basic Keywords – Data Types – VB.NET statements – Conditional statements - If Else – Select Case – Switch and Choose – Loops – Do – For Next – For Each Next – While –										
<b>UNIT- IV: APPLIC</b>	ATION DEVELOPMEN	Г ON .NET				12					
C#.NET : Building Controls – Timer, P. Numeric-up-down, T Database application	C#.NET : Building Windows Applications, VB.NET : Windows Forms – Working with Controls – Timer, Picture-box, Group-box, Combo-box, Horizontal and Vertical Scrollbar, Numeric-up-down, Track-bar, and Progress-bar – Subroutines and Functions in VB.NET – Database application										
UNIT- V: ADO .NE	TCONNECTIVITY					12					
Introduction to ADO.NET – ADO vs ADO.NET – Architecture – Data reader – data adopter - Accessing Data with ADO.NET, Programming Web Applications with Web Forms. ASP .NET applications with ADO.NE											
	LECTURE	PRACTICAL	TUTORIA	L ]	ΓΟΤΑ	L					
	60	0	0		60	)					
TEXT											
- 1. E. Balagurusamy, "Programming in C#", Tata McGraw-Hill, 2004.
- 2. ShirishChavan, "Visual Basic.NET", Edition 2009, Pearson Education.Matt J. Crouch, "ASP.NET and VB.NET Web Programming", Edition 2012.

#### REFERENCES

1. Art Gittleman, "Computing with C# and the .NET Framework", Jones & Bartlett Learning, 2011

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2
CO 1	3	3	2	2	2	1	2	3	3
CO 2	3	3	2	2	2	1	2	3	3
CO 3	3	2	2	2	2	1	2	3	3
CO 4	3	3	2	2	2	1	2	3	3
CO 5	3	2	2	2	2	1	2	3	3
Total	15	13	10	10	10	5	10	15	15
Course	3	3	2	2	2	1	1	3	3

0-No relation 3- Highly relation 2- Medium relation 1- Low relation

#### XCA602B PROGRAMMING WITH PHP AND MYSQL

Cours	se O	utcomes:	
CO1	С	Understand	<i>Explain</i> the basic function of PHP and uses of open sources technologies.
CO2	С	Understand	<i>Explain</i> the array and functions in PHP.
CO3	С	Understand	<i>Describe</i> the various DB architectures, constraints and normalization forms.
CO4	С	Understand	<i>Explain</i> the statements in MySQL and its effectiveness.
CO5	С	Understand	Describe to implement PHP and MySQL.

<b>COURSE CODE</b>	COURSE NAME	L	Т	P	С		
XCA602B	PROGRAMMING WITH PHP AND MYSQL	4	1	0	5		
C:P:A = 5:0:0							
		L	Т	Р	Η		
PREREQUISITE	Basic Concepts of Programming and DBMS	4	1	0	5		
UNIT- I: INTRODUCTION TO OPEN SOURCE AND PHP							

Introd																				
Introduction- open source-PHP – history- features-variables- statements operators- conditional statements-if-switch-nesting conditions-merging forms with conditional statements-loops-while-																				
do-for	- loop iter	ration v	vith bre	eak and	l contin	ue.						•								
UNIT-	II: ARR	AY AN	ND FUI	NCTIO	DNS							12								
Arrays: Creating an array- modifying array-processing array-grouping form with arrays- using																				
array functions- creating user defined functions- using files- sessions- cookies- executing																				
external programs- Creating sample applications using PHP.																				
UNIT-	III: DA	<b>FABAS</b>	SE MA	NAGE	EMEN'	Г SYS'	ГЕМ					12								
Compo	onents of	Databa	se syste	em-Det	finition	and b	enefits	of dat	abase-Da	ata Indep	bend	ence-Three	-							
level o	of databa	ise arc	hitectu	re-Data	abase	Manag	ement	syster	n- Clie	nt serve	er a	rchitecture-								
Distrib	uted proc	essing-	Domai	ns-Rel	ations-	Integri	ty cons	straints	-Candid	ate keys	-Priı	mary keys-								
Foreigi	n keys-Fu	nctiona	l deper	ndency	(Basic	definiti	ion)-No	ormal H	Forms ( 1	NF, 2NF	F, 3N	NF,								
BCNF	)-ER mod	lel – O	OAD n	nodel.																
UNIT-	IV: MyS	SQL										12	-							
Effecti	veness of	MySQ	L -My	SQL T	Tools-P	rerequi	sites fo	or MyS	SQL con	nection-	Dat	abases and	-							
tables-	MySQL o	data typ	bes-Cre	eating a	ind mai	nipulati	ing tab	les- Ins	sertion, u	pdation	and	deletion of								
rows in	n tables -	Retriev	ing dat	ta- Sor	ting ar	d filte	ring re	trieved	data -A	dvanced	l dat	a filtering-								
Data m	nanipulatio	on func	tions- A	Aggreg	ate fun	octions	-Group	oing da	ta- Sub	queries-	Join	ing Tables-								
Set ope	erators- Fu	all text	search																	
UNIT-	V: PHP	with N	<b>IySQL</b>	1								12								
Workir	ng MySQ	L with	ı PHP-	-databa	se con	nectivi	ity- us	age of	MYSQ	L com	nand	ls in PHP,	UNIT- V: PHP with MySQL 12							
process	sing result	processing result sets of queries- handling errors-debugging and diagnostic functions- validating								-										
user input through Database layer and Application layer, formatting query output with								ng and	diagnos	tic funct	ions	- validating								
user ir	nput thro	ugh D	atabase	es-nance layer	aling e	rrors-de Applic	ation	ng and layer-	diagnos formatti	tic funct	ions- y o	- validating utput with								
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CO 4

CO 5

Total	14	13	10	10	10	5	10	13	13
Course	3	3	2	2	2	1	1	3	3

0-No relation	3- Highly relation	2- Medium relation	1-Low relation
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## XCA603A MOBILE COMPUTING

Cours	se O	utcomes:	
CO1	С	Understand	Describes the medium access control layers
CO2	С	Understand	Characterize the wireless transmission technologies
CO3	С	Knowledge	Describe the mobile network layer and IP packet delivery
CO4	С	Understand	Comprehend TCP and the transmission mobile transport layer
	А	Originate	Characterizing mobile transport layer
CO5	С	Understand	Summarize the WAP and its applications

COURSE CODE	COURSE NAME			L	Τ	P	C			
XCA603A	<b>MOBILE COMPUTING</b>			4	1	0	5			
C:P:A = 5:0:0										
				L	Т	P	H			
PREREQUISITE	Basic Concepts of Programn	ning, Design		4	1	0	5			
UNIT-I: MEDIUM ACCESS CONTROL 12										
Multiplexing- Hidde	n and exposed terminals-Nea	ar and far terr	ninals. SI	OMA	A – I	FDM	A –			
TDMA – CDMA- Comparison of Access Mechanisms – Telecommunication: GSM. Satellite										
Systems: Basics- Rou	ting- Localization- Handover.									
UNIT- II: WIRELESS NETWORKS 12										
Wireless LAN: Ad	lvantages and Disadvantag	es-Infrared V	s Radio	Tra	insmi	issior	1 —			
Infrastructure Netwo	rks- Ad hoc Networks – Blu	etooth- Wirele	ess ATM:	Wo	orking	g Gro	oup-			
Services- Reference	Model - Functions - Radi	o Access Lay	er – Har	ndov	er- H	Hand	over			
reference model- Req	uirements and Types.									
UNIT- III: MOBIL	E NETWORK LAYER						12			
Mobile IP : Goals -	Assumptions and Requireme	nt – Entities –	IP packe	t De	eliver	y- A	gent			
Advertisement and D	iscovery - Registration - Tun	neling and Enc	apsulatior	1 – C	Optim	izati	on –			
Reverse Tunneling –	IPv6.									
UNIT- IV: MOBILI	E TRANSPORT LAYER						12			
Traditional TCP- Ind	irect TCP- Snooping TCP- Me	obile TCP- Fas	t retransm	nit/ F	ast R	ecov	ery-			
Transmission/ Timeo	ut Freezing – Selective Retran	smission.								
UNIT- V:WAP							12			
Architecture – Datagi	ram Protocol- Transport Layer	Security- Tran	saction Pr	rotoc	col- S	essic	n			
Protocol- Application	environment-Wireless Telep	hony Applicati	on.							
		LECTURE	TUTOR	IAL	<b>΄</b> Τ	OTA	L			
		60	0			60	l			
TEXT										
1. Jochen Schiller, M	obile Communications, Addis	on-Wesley, sec	ond edition	on, 2	004.					
2. Stojmenovic and Cacute, Handbook of Wireless Networks and Mobile Computing,										
Wiley, 2002, ISBN 04	Wiley, 2002, ISBN 0471419028.									
REFERENCES										
1. Reza Behravanfar,	Mobile Computing Principles	: Designing and	l Develop	ing ]	Mobi	le				

Applications with UML and XML, ISBN: 0521817331, Cambridge University Press, October 2004

2. Adelstein, Frank, Gupta, Sandeep KS, Richard III, Golden , Schwiebert, Loren, Fundamentals of Mobile and Pervasive Computing, ISBN: 0071412379, McGraw-Hill Professional, 2005.

### E REFERENCES

1. <a href="http://nptel.ac.in/video.php?subjectId=117102062">http://nptel.ac.in/video.php?subjectId=117102062</a>

	PO1	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2
CO 1	3	3	2	2	2	1	1	2	2	3
CO 2	3	3	2	2	2	1	1	2	2	3
CO 3	3	3	2	2	2	1	1	2	2	3
CO 4	3	2	2	2	2	1	1	2	2	3
CO 5	2	2	2	2	2	1	1	2	2	2
Total	14	13	10	10	10	5	5	10	10	14
Course	3	3	2	2	2	1	1	2	2	3

0-No relation 3- Highly relation 2- Medium relation 1- Low relation

#### **XCA603B DATA SCIENCE**

CO1.	С	Remember	Explain the Concept of Data Science
CO2.	С	Remember	Outline the concept of Foundation methods
CO3.	С	Remember	Describe the Data Wrangling concept.
CO4.	С	Remember	Demonstrate Online Analytical Processing concept.
CO5.	С	Remember	Describe Data Warehousing.

<b>COURSE CODE</b>	COURSE NAME	L	Τ	P	<b>C</b>			
XCA603B	DATA SCIENCE	4	1	0	5			
C:P:A 5:0:0								
		L	Т	P	H			
PREREQUISITE	Nil	4	1	0	5			
UNIT-I: BASICS	S OF DATA SCIENCE				15			
Evolution of Data	Science - Types of Data - Properties of Data -	Struct	tured	Dat	a -			
Unstructured Data	– Quantitative Data – Categorical Data – Big Data –	Little	Data	– D	)ata			
Visualization								
UNIT- II: MATHEMATICAL FOUNDATIONS FOR DATA SCIENCE 15								

Mean, Median and Mode – Standard Deviation and Variance – Probability – Probability Density Function – Types of Data Distribution – Percentiles and Moments – Correlation and Covariance – Conditional Probability – Regression – Hypothesis

UNIT- III: DATA PREPARATION AND REPRESENTATION15Data Preparation – Data Estimation – Data Wrangling - Importance of Data Wrangling –<br/>Tasks of Data Wrangling – Data Wrangling Tools – Data Representation15

UNIT –IV: ONLINE ANALYTICAL PROCESSING (OLAP)		15					
Online Analytical Processing (OLAP) - Need for OLAP - Multidimensional Data Model -							
OLAP Guidelines – Multidimensional vs Multirelational – OLAP tools.							
UNIT- V: DATA WAREHOUSING AND DATA MINING 15							
Data Warehousing - Need for data Warehousing - Characterist	cs of Data Warehousi	ng –					
Architecture - Components of Data Warehousing; Mining Primit	ives – Association Rul	es –					
Classification and Prediction – Clustering – Essential Data Science Packages							
LECTURE TUTORIAL	PRACTICAL TOTA	AL					

LECIUKE	IUIORIAL	PRACTICAL	IUIAL
60	0	0	60

#### **TEXT BOOKS**

- 1. Laura Igual, SantiSeguí, Introduction to Data Science: A Python Approach to Concepts, Techniques and Applications, 1st ed. 2017 Edition, Springer.
- 2. Steven S. Skiena, The Data Science Design Manual, 1st ed. 2017, Springer.
- 3. Jacqueline Kazil& Katharine Jarmul, Data Wrangling with Python, 2016, O'Reilly Media.
- 4. Alex Berson, Stephon and J. Smith, Data warehousing, Data Mining and OLAP, 2003, Tata McGraw Hill.
- 5. Jiawei han et, al., Data Mining: Concepts and Techniques , Morgan Kaufmaan Series , 2000.

#### REFERENCES

- 1. Margaret H. Dunham, Data Mining Introductory and Advanced Topics, 2003, Pearson Education, Prentice Hall.
- 2. SinanOzdemir, Principles of Data Science, 2016, Packt Publishing Limited.

#### **E-REFERENCES**

1.NPTEL Course : Data Science for Engineers, By Prof. RagunathanRengasamy, Prof. Shankar Narasimhan | IIT Madras

2.NPTEL Course : Data analytics with Python, By Prof. A. Ramesh | IIT – Roorkela

	PO1	PO2	PO3	PO4	PO5	PO6	<b>PO7</b>	PSO 1	PSO 2
CO 1	3	3	2	2	2	1	1	2	2
CO 2	3	3	2	2	2	1	1	2	2
CO 3	3	3	2	2	2	1	1	2	2
CO 4	3	3	2	2	2	1	1	2	2
CO 5	3	2	2	2	2	1	1	2	2
Total	15	14	10	10	10	5	5	10	10
Course	3	3	2	2	2	1	1	2	2

0-No relation 3- Highly relation 2- Medium relation 1- Low relation

#### XCA603C BLOCK CHAIN

#### **Course Outcomes:**

CO1	С	Knowledge	Describe distributed database
CO2	С	Understand	Understand block chain network
CO3	С	Understand	Understand crypto currency and bitcoin
CO4	С	Understand	Understand crypto currency regulation
CO5	С	Apply	Apply block chain applications

COURSE CODE	COURSE NAME	L	Т	P	С
XCA603C	BLOCK CHAIN	4	1	0	5
C:P:A = 5:0:0					
		L	Т	Р	Н
PREREOUISITE	Basic Concepts of Programming, Design	4	1	0	5

UNIT-I: INTRODUCTION TO BLOCK CHAIN12Introduction, Advantage over conventional distributed database, Blockchain Network, Mining<br/>Mechanism, Distributed Consensus, Merkle Patricia Tree, Gas Limit, Transactions and Fee,<br/>Anonymity, Reward, Chain Policy, Life of Blockchain application, Soft & Hard Fork, Private<br/>and Public blockchain.

#### **UNIT-II: DISTRIBUTED CONENSUS**

Distributed Consensus: Nakamoto consensus, Proof of Work, Proof of Stake, Proof of Burn, Difficulty Level, Sybil Attack, Energy utilization and alternate.

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#### **UNIT – III: CRYPTOCURRENCY**

Cryptocurrency: History, Distributed Ledger, Bitcoin protocols - Mining strategy and rewards, Ethereum - Construction, DAO, Smart Contract, GHOST, Vulnerability, Attacks, Sidechain, Namecoin

#### UNIT- IV: CRYPTOCURRENCYREGULATION

Cryptocurrency Regulation: Stakeholders, Roots of Bitcoin, Legal Aspects - Cryptocurrency Exchange, Black Market and Global Economy.

#### UNIT-V: BLOCK CHAIN APPLICATIONS

Blockchain Applications: Internet of Things, Medical Record Management System, Domain Name Service and future of Blockchain.

60 0 60	LECTURE TUTORIAL TOTAL
	60 0 60

# TEXT 1. Arvind Narayanan, Joseph Bonneau, Edward Felten, Andrew Miller and Steven Goldfeder, Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction, Princeton University Press (July 19, 2016).

2. Blockchain for Beginners: The Complete Step by Step Guide to Understanding Blockchain Technology by Mark Watney

#### Reference

- 1. Cryptocurrencies and Blockchains by Quinn DuPont
- 2. Blockchain Applications: A Hands-On Approach Paperback by ArshdeepBahga

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2
CO 1	3	3	2	2	2	1	1	2	2
CO 2	3	3	2	2	2	1	1	2	2
CO 3	3	3	2	2	2	1	1	2	2
CO 4	3	2	2	2	2	1	1	2	2
CO 5	2	2	2	2	2	1	1	2	2
Total	14	13	10	10	10	5	5	10	10
Course	3	3	2	2	2	1	1	2	2

0-No relation 3- Highly relation 2- Medium relation 1- Low relation

#### **XCA604 INTRODUCTION TO PYTHON LABORATORY**

Cours	se U	utcomes:	
CO1	С	Apply	Apply to work with Python concepts
CO2	С	Apply	<i>Use the</i> basic programs along with trim method
CO3	С	Apply	Interpret program with function
CO4	С	Apply	Interpret program with objects
CO5	С	Apply	Organizes the function with parameter passing

COURSE CODE	COURSE NAME	L	Т	P	С
XCA604	INTRODUCTION TO PYTHON	0	0	1	1
	LABORATORY				
C:P:A = 1:0:0					
		L	Т	Р	Η
PREREQUISITE	PYTHON Concepts	0	0	2	2
		i	<b>i</b>	30	
Lab: 1. Write python r	program to print Hello World				
1. White python p	of grain to print meno work				

- 2. Write python program to Hello World using string variable
- 3. Write python program to store data in list and then try to print them.
- 4. Write python program to do basic trim and slice on string.
- 5. Write python program to print list of numbers using range and for loop
- 6. Write python program to store strings in list and then print them.
- 7. Write python program to let user enter some data in string and then verify data and print welcome to user.
- 8. Write python program in which an function is defined and calling that function prints Hello World
- 9. Write python program in which an function(with single string parameter ) is defined and calling that function prints the string parameters given to function.
- 10. Write python program in which an class is define, then create object of that class and call simple print function define in class.

							LECT	TURE	PRAC	TICAL	TOTAL
							0			30	30
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	
С	01	3	3	2	2	2	1	2	3	3	
С	O 2	3	3	2	2	2	1	2	3	3	
С	03	3	2	2	2	2	1	2	3	3	
С	O 4	3	3	2	2	2	1	2	2	3	
C	05	3	2	2	2	2	1	2	2	3	
Т	otal	15	13	10	10	10	5	10	13	15	
C	ourse	3	2	2	2	2	1	1	3	3	

0-No relation 3- Highly relation 2- Medium relation 1- Low relation

XCA605A

## SA .NET TECHNOLOGIES LABORATORY

CO1	С	Apply	<i>Apply</i> C#.Net console applications
CO2	С	Apply	Interpret C# control statements
CO3	С	Apply	Apply C#.Net windows control
CO4	С	Apply	Apply C#.Net and VB.Net using various tools
CO5	С	Apply	<i>Explain</i> Framework and threads

COURSE CODE	COURSE NAME	L	Т	P	С
XCA 605A	.NET TECHNOLOGIES LABORATORY	0	0	1	1
C:P:A = 1:0:0					
		L	Т	P	Η
PREREQUISITE	Basic Concepts of Programming, Design	0	0	2	2
					30

#### Lab:

- 1. Develop a C# .NET console application to demonstrate the conditional statements.
- 2. Develop a C# .NET console application to demonstrate the control statements.
- 3. Develop an application in C#.NET that demonstrates the windows controls
- 4. Demonstrate Multithreaded Programming in C#.NET
- 5. Demonstrate subroutines and functions in C#.NET
- 6. Develop an application for deploying various built-in functions in VB.NET
- 7. Develop an MDI application for Employee Pay-roll transactions in VB.NET
- 8. Construct a console application to demonstrate the OOP Concepts
- 9. Develop a web application in VB.NET for dynamic Login Processing
- 10. Develop a Windows application with database connectivity for core-banking transactions

			]	LECTU	RE	PRAC	CTICA	L TU	TORIAL	TOTAL
				0			30		0	30
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1	PSO 2	
CO 1	3	3	2	2	2	1	2	3	3	
CO 2	3	3	2	2	2	1	2	3	3	
CO 3	3	2	2	2	2	1	2	3	3	
CO 4	3	3	2	2	2	1	2	3	3	
CO 5	3	2	2	2	2	1	2	3	3	
Total	15	13	10	10	10	5	10	15	15	
Course	3	3	2	2	2	1	1	3	3	

0-No relation 3- Highly relation 2- Medium relation 1- Low relation

#### XCA605B PROGRAMMING WITH PHP AND MYSQL LABORATORY

CO1	С	Apply	<i>Apply</i> a program in PHP to implement the looping and
			conditional
CO2	С	Apply	Selects the real word problems and applied techniques in
			cookies and session.
CO3	С	Apply	Selects the real word problems and applied techniques in file
			management
CO4	С	Apply	<i>Identifies</i> differences between the SQL and MySQL features
			and functions.
CO5	С	Apply	Build a application to implement PHP and MySQL.

COURSE CODE	COURSE NAME	L	Γ	' <b>P</b>	C	•
XCA605B	PROGRAMMING WITH PHP AND MYSQL	0	0	1	1	

		LA	BORA	ATOR	Y									
C:P:A =	= 1:0:0													
											L	Т	Р	Η
PREREC	QUISITE	E Ba	sic Cor	ncepts	of Prog	grammi	ng and	DBMS	5		0	0	2	2
														30
Lab:														
1. Crea	ting sim	ple wel	bpage u	ising P	HP									
2. Use	of condit	tional s	tateme	nts and	d loopi	ng stat	ements	in PHI	P					
3. Crea	ting diff	erent ty	pes of	arrays										
4. Crea	ting user	define	ed funct	tions										
5. File	manipula	ation u	sing PF	łΡ										
6. Crea	tion of s	essions												
7. Crea	tion of c	ookies	1:											
8. Crea	ting simj	pie app	011Cat101	ns usin	g PHP									
9. Crea	ting sim	ple lab	and Do	constra	aints of row	a in M	VSOL	hlag						
10. Ilisei 11 Dem	onstratic	uation on of io	ining t	ables	0110w	5 III IVI	ISQL	laules						
12 Usao	onstraid re of sub	aueries		aures										
12. Usag	e of ago	regate	, functio	ns and	set or	perators								
14. Worl	king with	h string	. nume	ric and	l date f	unction	, 1S							
15. Data	base con	inectivi	ity in P	HP wit	h MyS	OL								
			<del></del>	LEC	CTURI	E TU	JTORI	AL	PRAC	TICAL	S	T	ОТА	L
					0		0			30			30	
				i	1	i	1	1	i	1	_	<b>i</b>		
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO	PSO				
									1	2				
	CO 1	3	3	2	2	2	1	2	3	3				
	CO 2	3	3	2	2	2	1	2	3	3	1			
	CO 3	3	2	2	2	2	1	2	3	3	1			
	CO 4	2	3	2	2	2	1	2	2	2				

CO 5322221222Total14131010105101313Course332221133	001	2	5	-	-	1	-	1	2	2
Total         14         13         10         10         10         5         10         13         13           Course         3         3         2         2         2         1         1         3         3	CO 5	3	2	2	2	2	1	2	2	2
Course         3         3         2         2         2         1         1         3         3	Total	14	13	10	10	10	5	10	13	13
	Course	3	3	2	2	2	1	1	3	3

0-No relation 3- Highly relation 2- Medium relation 1- Low relation

## XCA606 PROJECT WORK

COU	RSE	CODE COUR	SE NAME	L	Т	Р	C
XCA	606	Project	Work	0	0	6	6
C:P:A	$\mathbf{A} = 0$	:6:0					
				L	Τ	Р	H
				0	0	8	8
CO1	Р	Guided Response	Practice the Requirements Analysis				

CO2 P Guided Response

Create the Design for their project

CO3	Р	Guided Response	Create the Coding
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CO4 P Guided Response Plan for Testing

CO5 P Guided Response Solve the Conclusion

	PO1	PO2	PO3	PO4	PO5	PO6	<b>PO7</b>	PSO 1	PSO 2
CO 1	3	3	2	2	2	2	2	3	3
CO 2	3	3	2	2	2	2	2	3	3
CO 3	3	3	2	2	2	2	2	3	3
CO 4	3	3	2	2	2	2	2	3	3
CO 5	3	3	2	2	2	2	2	3	3
Total	15	15	10	10	10	10	10	15	15
Course	3	3	2	2	2	2	2	3	3

## XCAOE1 C AND C++ PROGRAMMING LANGUAGE

CO1	С	Knowledge	Knowledge on C programming fundamentals
CO2	С	Understand,	Understand and Apply structure and union
		Apply	
CO3	С	Understand	Understand on advanced concept of pointers and files
CO4	С	Understand	Knowledge on object oriented technologies
CO5	С	Understand,	Apply and Implement levels of Inheritance
		Apply	

SUBCODE	SUB NAME	L	T	Р	С
XCAOE1	C AND C++ PROGRAMMING	3	0	0	3
	LANGUAGE				

			L	Т	P	H
		~~	3	0	0	3
JNITI INTRODUCTION	TO C LANGUAG	jE		-	•	9
Jverview of C – Constants,	, Variables and L	Data Types – Ope	erators and Making P	Expr	essioi	15 – if
nested if switch goto and L	ooping- while do.	for statements	waking - D		ing –	- 11,
UNIT II ARRAYS, FUNC	TIONS, STRUCT	URES AND UNI	ONS			9
Arrays – dynamic and multi andling Functions - User Structures and Unions – Array	defined Functions of Structures – St	ys - Character ar s – Categories of ructures and Funct	rays and So Functions tions	trings – Re	– St cursio	ring on -
UNIT III POINTERS AND	) FILE MANAGI	EMENT				9
Pointers – Declaration. Acce	ssing a variable.	character strings.	pointers to	func	tions	and
structures - File Manageme	nt in $C - Dynamic Dynamic C - Dynamic C $	mic Memory allo	ocation $-$ L	inkec	l List	ts –
Preprocessors.		2				
						<b>.</b>
UNIT IV INTRODUCTIO	DN TO C++					9
Overview of C++-Classes an	nd Objects-Friend	Functions-Friend	l Classes-In	line	Funct	ion-
Static Members-Arrays-Point	ters-References-Dy	mamic Allocation	n- Function	Ove	erload	ing-
Jverloading Constructor	Functions-Copy	Constructors-De	tault Arou	iment	-( )net	
			iuun 1115t	mem	Oper	aloi
Overloading-Member Operato	or Overloading		luun mge		oper	
Overloading-Member Operato	or Overloading EATURES	Functions Duro Vi	rtual Functio		oper	<b>9</b>
Overloading-Member Operato UNIT V ADDITIONAL FI Inheritance-Base Class-Access Generic Functions-Applying	or Overloading EATURES s Control-Virtual I Generic Function	Functions-Pure Vi	rtual Function	ons-T	empla	9 ates-
Overloading-Member Operato UNIT V ADDITIONAL FI Inheritance-Base Class-Access Generic Functions-Applying /O Streams-File I/O-STL-	or Overloading EATURES s Control-Virtual I Generic Function Overview-Contair	Functions-Pure Visses s-Generic Classes her Classes-Lists	rtual Function -Exception -Maps-Algo	ons-T Hanc rithm	empla lling-(	<b>9</b> ates- C++ sing
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Overloading-Member Operato UNIT V ADDITIONAL FI Inheritance-Base Class-Access Generic Functions-Applying I/O Streams-File I/O-STL- Functions and Objects-String ( <b>TEXT</b> 1. E.Balagurusamy, Progr	or Overloading EATURES s Control-Virtual I Generic Function Overview-Contair Class LECTURE 45 ramming in ANSI	Functions-Pure Viss-Generic Classes er Classes-Lists PRACTICAL 0 C , Tata McGraw	rtual Function -Exception -Maps-Algo TUTORL 0 Hill, 2008	ons-T Hanc orithm	empla lling- s U TOT 4	9 ntes- C++ sing AL 5
Overloading-Member Operato         UNIT V ADDITIONAL FI         Inheritance-Base Class-Access         Generic Functions-Applying         /O Streams-File I/O-STL-         Functions and Objects-String ( <b>TEXT</b> 1. E.Balagurusamy, Progr         2. Herbert Schildt, C++ T	or Overloading EATURES IS Control-Virtual I Generic Function Overview-Contair Class LECTURE 45 ramming in ANSI The Complete Refe	Functions-Pure Visses s-Generic Classes her Classes-Lists PRACTICAL 0 C , Tata McGraw rence, Tata McGraw	rtual Function -Exception -Maps-Algo TUTORL 0 Hill, 2008 awHill Edition	ons-T Hand orithm AL	empla lling-( s U <b>TOT</b> 45	9 ntes- C++ sing AL
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Overloading-Member Operato         UNIT V ADDITIONAL FI         Inheritance-Base Class-Access         Generic Functions-Applying         /O Streams-File I/O-STL-         Functions and Objects-String (         I. E.Balagurusamy, Progr         2. Herbert Schildt, C++ T         REFERENCES         1. Deitel and Deitel CH	or Overloading EATURES s Control-Virtual I Generic Function Overview-Contair Class LECTURE 45 ramming in ANSI The Complete Refe	Functions-Pure Vi s-Generic Classes ner Classes-Lists PRACTICAL 0 C , Tata McGraw rence, Tata McGraw	rtual Function -Exception -Maps-Algo TUTORL 0 Hill, 2008 awHill Edition	ons-T Hanc orithm AL on, 20	empla lling- s U <b>TOT</b> 45	9 ntes- C++ sing AL 5
Display="block-color: block-space;">	or Overloading EATURES s Control-Virtual I Generic Function Overview-Contair Class LECTURE 45 ramming in ANSI The Complete Refe ow to Program, Ad	Functions-Pure Vir s-Generic Classes her Classes-Lists PRACTICAL 0 C , Tata McGraw rence, Tata McGraw rence, Tata McGraw	rtual Function -Exception -Maps-Algo TUTORL 0 Hill, 2008 awHill Edition 11 Edition W	ons-T Hanc orithm AL on, 20	empla lling-( s U <b>TOT</b> 4:	9 ntes- C++ sing AL 5
<ul> <li>Overloading-Member Operato</li> <li>UNIT V ADDITIONAL FI</li> <li>Inheritance-Base Class-Access</li> <li>Generic Functions-Applying</li> <li>/O Streams-File I/O-STL-</li> <li>Functions and Objects-String (</li> </ul> <b>TEXT</b> <ol> <li>E.Balagurusamy, Prograding</li> <li>Herbert Schildt, C++ T</li> </ol> <b>REFERENCES</b> <ol> <li>Deitel and Deitel, C Ho</li> <li>K. N. King,C Program Company: 2 edition 20</li> </ol>	or Overloading EATURES s Control-Virtual I Generic Function Overview-Contair Class LECTURE 45 ramming in ANSI The Complete Refe ow to Program, Ad mming: A Moderr	Functions-Pure Vi s-Generic Classes ner Classes-Lists PRACTICAL 0 C , Tata McGraw rence, Tata McGraw Idison Wesley , 20 n Approach, 2nd 1	rtual Function -Exception -Maps-Algo TUTORL 0 Hill, 2008 awHill Edition 11 Edition, W.	ons-T Hanc orithm AL on, 20 W. 1	empla lling- s U <b>TOT</b> 45	9 ntes- C++ sing AL 5
<ul> <li>Overloading-Member Operato</li> <li>UNIT V ADDITIONAL FI</li> <li>Inheritance-Base Class-Access</li> <li>Generic Functions-Applying</li> <li>(/O Streams-File I/O-STL- Functions and Objects-String (</li> <li>Functions and Objects-String (</li> <li>E.Balagurusamy, Progra</li> <li>2. Herbert Schildt, C++ T</li> <li>REFERENCES</li> <li>1. Deitel and Deitel, C Ho</li> <li>2. K. N. King,C Prograr Company; 2 edition,20</li> <li>3. Robert Lafore OOP in</li> </ul>	or Overloading EATURES s Control-Virtual I Generic Function Overview-Contair Class LECTURE 45 ramming in ANSI The Complete Refe ow to Program, Ad mming: A Moderr 08	Functions-Pure Vir s-Generic Classes her Classes-Lists PRACTICAL 0 C , Tata McGraw rence, Tata McGraw rence, Tata McGraw dison Wesley , 20 h Approach, 2nd 1	rtual Function -Exception -Maps-Algo TUTORL 0 Hill, 2008 awHill Edition 11 Edition, W.	ons-T Hand orithm AL on, 20 W. 1	empla lling-0 s U <b>TOT</b> 45	9 ntes C++ sing AL 5

## XCAOE2 DIGITAL IMAGING AND EDITING TECHNIQUES

#### **Course Outcomes:**

CO1 C Understanding *Explain* the various attributes of Photoshop basics.

CO2	С	Understanding	Identify	the concept	of working	with layers
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- CO3 C Knowledge *Describe* the various forms of Painting tools
- CO4 C Understanding *Recognize* the advanced tools for making colors
- CO5 C Understanding *Describe* advanced techniques for selection and masking

COURSE CODE	COURSE NAME	L	Т	P	С
XCA OE2	DIGITAL IMAGING AND EDITING TECHNIQUES	3	0	0	3
C:P:A = 3:0:0					
		L	Т	P	H
		3	0	0	3
UNIT INTROD	UCTION				У
Introduction to Ph selections – reposit	otoshop basics – tools - palettes and the marvel ioning – transforming – cropping	s of undoi	ng –	Mak	ing
UNIT II LAYERS					9
Working with layer duplicating – flatte	rs: adding – organizing – hiding – copying –movir ning - opacity changes. Fonts - raster vs. vector gra	ıg – linking aphics.	g — m	ergin	g –
UNIT III PAINTIN	IG TOOLS				9
Viewing related an painting modes - o loading custom ma	twork- Technique demos: Digital painting tools color palettes – gradients - editing brush shapes de brushes.	- tool op – creating	tion j - sav	pallet ring a	ts - and
UNIT IV WORKI	NG WITH COLOURS				9
Photo retouching u healing brush - spo	sing color replacement - hue saturation levels -pate nge tool - dodge - burn tools	ch tool - clo	oning	stan	np -
<u> </u>	<u> </u>				9
UNIT V ADVAN	CED TECHNIQUES				
Advanced selectio layers.	n - masking techniques - layer mask - gradient	t masking	- adj	ustm	ent
	1	LECTURE	TC	TAL	4
		45		45	
TEXT BOOK 1. Digital Illustration REFERENCE 1. Photoshop CS E	and Art Techniques covering Photoshop CS3, Derek	Lea, Wiley,	2007		
	Solitiais David D. Busch et. al., 1111, 2014.				
1. NPTEL, Digital Communication	Image Prof .P. K. Biswas Department of Electroni Engineering Indian Institute of Technology, Khar	cs and Elec agpur	trical		

## XCAOE3 BUSINESS ANALYTICS WITH WORKSHEET

CO1	С	Understanding	Demonstrate Data Management in Worksheet
	Р	Guided Response	Organises the data in worksheet
CO2	С	Understanding	Interpret Formulas in an Excel Spread sheet

	Р	Perception	Selects formulas for calculating the data in a spread sheet
CO3	С	Apply	<i>Apply</i> Statistical and Mathematical functions for given samples
	Р	Guided Response	Manipulate the data with statistical and Mathematical functions
CO4	С	Apply	<i>Apply</i> the types of chart to analyse the data
	Р	Guided Response	Displays the chart for any real time data
CO5	С	Understanding	Explain Analysis Toolpak for statistical concepts
	Р	Set	Starts to work with Analysis Toolpak

COURSE CODE	COURSE NAME		L	Т	Р	С		
XCAOE3	<b>BUSINESS ANALYTICS V</b>	VITH WORKSHI	EET 3	0	0	3		
C:P:A = 2:1:0								
			L	Т	Р	H		
			3	0	0	3		
UNIT I INTRODUCT	ION TO WORKSHEET					09		
Getting Started with Exce	el: Excel and Spread Shee	ets – Excel Wor	rkbooks an	d Wo	rkshee	ets –		
Worksheet Cells - Excel A	Add-Ins – Working with D	ata: Data Entry	– Formula	s and	Funct	ions		
– Querying Data – Import	ing Data from Databases.							
UNIT II DATA ANALYS	IS IN CHARTS					09		
Working with Charts: Ex	xcel Charts – Scatter Plo	ots – Editing a	chart – I	dentif	ying l	Data		
Points: Creating Bubble	Plots – Breaking a scatte	er plot into cate	egories – I	Plottin	g Sev	<i>r</i> eral		
Variable.						-		
UNIT III STATISTICAL ANALYSIS 09								
Describe Data: Variables and Descriptive Statistics - Frequency Tables : Creating a								
Frequency Table – Usin	ig Bins in a Frequency	Table – Wo	rking with	H1St	ogran	18 —		
and the Mode Measures	of Variability Working	with Boxplots	le Center: r	vieans	, Med	lans		
	and the Mode – Measures of Variability – Working with Boxpiots.							
UNIT IV STATISTICA	L ANALYSIS – Part I					09		
Probability Distributions	– Normal Distributions –	Excel Workshe	et Functior	ns – C	onfide	ence		
Intervals – Hypothesis Te	sting – "t" Distribution.							
UNIT V STATISTICA	L ANALYSIS – Part II					09		
Pivot tables – Performin	ng a Regression Analysi	s – Checking	the Regre	ssion	Mod	el –		
Correlation – Creating Co	rrelation Matrix.	LECTUDE	TUTODIA	-	TOTA	-		
				L				
TEXT BOOKS		43	U		43	,		
1. Kenneth N.Berk& Pat	rick Carev. "Data Analys	sis with Microso	oft Excel".	3 <sup>rd</sup> Ed	lition.			
2. John Walkenbach, "M	icrosoft Office Excel 2007	7", Wiley Publi	shing Inc.,	2007.				
<b>REFERENCES BOOKS</b>								
1. Curtis Frye, "Step by	Step Microsoft Office Exc	el 2007", First	Edition, M	icroso	ft Pres	ss.		
2. Marg, Craig Stinson,	"Microsoft Office Excel	2007 inside an	nd outside'	', Firs	t Edit	tion,		
Microsoft Press.								
<b>E REFERENCES</b>								
						_		

Analytics".

#### **XCAOE4 ANIMATION AND IMAGING**

#### **Course Outcomes:**

CO1	С	Understand	Understanding basic concepts of animation
CO2	С	Knowledge	Demonstrate tools and software for animation
CO3	С	Apply	Applying imaging techniques
CO4	С	Apply	Applying various graphic editing techniques
CO5	С	Understand	Differentiate various transformation techniques

COURSE CODE	COURSE NAME		L	T	P	С
XCAOE4	ANIMATION AND IN	IAGING	3	0	0	3
C:P:A 3:0:0						
			L	Т	P	Η
			3	0	0	3
UNIT I INTRODUCT	<b>FION TO ANIMATION</b>					09
Digital 2D Animation of	rientation – Basic factors af	fecting the illus	sion of motio	n – Ir	npact	of
digital techniques on the	craft of film and video anim	mation – Profes	ssional anima	tion p	oracti	ce
and job description – Pr	evailing file format standard	is and other con	mpatibility is	sues -	- Hist	ory
and future trends of com	puter animation application	in the visual a	rts.			
UNIT II SOFTWARE	, INTERFACE FOR ANIN	MATION				09
2D animation applicat	ion software interface –	Default setting	g and user	prefe	rence	s –
Document setup. Impor	rt and export formats – D	ocument and t	imeline win	dow	featu	re –
Tools and commands p	alettes – Media-selection t	ools and techn	iques - Asse	et-mai	nagen	nent
features.						
UNIT III IMAGING	rechniques					09
2D graphics-creation fea	atures – Underlying data typ	pe: raster – vec	tor – Raster p	painti	ng an	d/or
import features – Vect	or shapes $-$ Vector free-fo	orm and contro	ol-point Plac	emen	t too	ls –
Features specific to the	program in use.					00
UNIT IV GRAPHIC E	DITING			~		09
2D graphics editing fe	atures – Basic geometric	transformation	– Boolean	Opera	itions	, on
snapes – Object stroke	facts (axtansions – Dug in	(ridules – Snac	aific to the p	lues (	bienc m in 1	1S –
gradients) = rackageu e	NEODMATION	s) reatures spe		logia	11 111 (	15C.
2D animation frame-sec	uencing features Straight	ahead animatic	on Key Fra	mega	nima	tion
– Motion naths – Ann	ving geometric transforma	tions over time	e – Intertwi	ning a	ontion	18 _
Looping and motion – F	eatures specific to the program	ram in use.	e merewn	iiig (	prior	15
		LECTURE	TUTORIA	L 1	OTA	<b>L</b>
		45	0		45	
ТЕХТ			~			
1. Richard William	s.The Animator's Survival	Kit: A Manual o	of Methods. 1	Princi	ples.	and
Formulas for Cla	ussical, Computer, Games, S	Stop Motion, an	d Internet A	nimat	ors,	
Faber & Faber P	ublishing ,2002.	1 /			,	
2. Frank Thomas an	nd Olle Johnson, The Illusic	on of Life: Disn	ey Animatio	n, Dis	sney	
Editions,1995.			-		•	
REFERENCES						
1. Preston Blair, Ca	rtoon Animation (How to I	Draw and Paint	series), Walt	er Fo	ster	
Publishing, 1994	- -					

## **XCAOE5 MOBILE APPLICATION DEVELOPMENT**

#### **Course Outcomes:**

CO1	С	Understand	<i>Understand</i> the mobile application architecture.
CO2	С	Understand	Configure and Install Java JDK and Android SDK toolkits.
CO3	С	Knowledge	<i>Describe</i> the user interface and different kinds of layouts.
CO4	С	Application	Implement multimedia applications using android.
CO5	С	Analyze	Create SQL database and establish connectivity with the
			database.

COURSE CODE	COURSE NAME	L	Т	Р	C
XCAOE5	MOBILE APPLICATIONS DEVELOPMENT	3	0	0	3
C:P:A = 3:0:0					
		L	Т	Р	H
		3	0	0	3
UNIT I INTROD	UCTION				09
Introduction to Mo	obile Applications - Characteristics - Benefi	ts -	Overv	view	of
Availaboratoryle Tec	chnologies - Mobile Application Design - App	olicatio	on Mo	odel	and
Infrastructure - Man	aging Resources - About Android.				
UNIT II CONFIGU	<b>JRATION OF ANDROID ENVIRONMENT</b>				09
Java JDK – Android	SDK – Android Development Tools – Android Virt	ual De	vices	(AV	Ds)
– Emulators – JVM –	- DVM.				
UNIT III USFR I	NTEREACE				09
Understanding the c	components of a screen J inear I avout – Absolu	te I a	vout -	– Fr	ame
Lavout – Relative La	vout – Table Lavout	te Lu	your	110	anne
Luyout Romarve Ed	ING USER INTERFACE WITH VIEW				09
Text view – Button –	Checkbox – Toggle Button Radio Button Progress	Bar	Auto	nun	lete
TextView Spinner –	List View, Grid View, Image View, Scroll View	Dui, I	1010	omp	1010
UNIT V MULTIN	IEDIA & DATABASE IN ANDROID				09
Android System Arcl	hitecture – Play Audio and Video – Text to Speech	- SQL	ite Da	itaba	se –
Creation and Connect	tion of the database – Extracting value from a Curson	rs – Tı	ansac	tions	
	LECTURE TUTO	RIAL	Т	ОТА	L
	45	0		45	
TEXT					
1. Reto Meier, Pro	ofessional Android <sup>TM</sup> Application Development P	ublish	ed by	y W	iley
Publishing, Inc., O	Copyright © 2009 by Indianapolis, Indiana				
2. Wei-Meng Lee, A	Android <sup>™</sup> Application Development Cookbook: 93 I	Recipe	s for ]	Build	ling
Winning Apps P	ublished by John Wiley & Sons, Inc., Copyright @	2013	India	inapo	olis,
Indiana.					
DEFEDENCES					
1 Presenne Kumer D	IXIT Android by VIKAS Professional Master Fi	ret Ed	ition (	2014	
F _ REFERENCES		15t EU	111011 2	-014.	
1  http://freevideolect	ures com/Course/3184/Android-Application-Develo	nment	#		
1. http://necvideolect		Pinein			

## **XCAOE6 PROGRAMMING IN PYTHON**

CO1	С	Understand	<i>Explain</i> various types of operators, Data type	pes, Id	lentifi	ers ar	ıd
			string handling methods.				
CO2	U	Understand	utline the concept of collection data types.				
CO3	U	Understand,	xplain the control structures and looping.				
	Р	Guided	<i>Construct</i> programs with control structures.				
		Response					
CO4	U	Understand	Explain Pythons standard library, file and D	irector	ry han	dling	,
CO5	С	Understand	Summarize the object oriented concepts.				
	Р	Set	Construct a program with OOPS concepts				
COU	COURSE CODECOURSE NAMELTPC						

COURSE CODE	COURSE NAME		L	L	I		
XCAOE6	<b>PROGRAMMING IN PYTH</b>	ON	3	0	0	3	
C:P:A =2:1:0							
			L	Т	Ρ	Η	
			3	0	0	3	
UNIT I INTRODU	<b>JCTION TO PYTHON PROG</b>	RAMMING				09	
Creating and Runn	ing Python Programs -Data Ty	pes-Object Reference	es- Co	ollecti	on I	Data	
Types-Logical Ope	erations-Control Flow Statemer	ts- Arithmetic Opera	tors-	Input	/Out	put-	
Creating and Calli	ing Functions-Examples-Data	<b>Fypes-Identifiers</b> and	Keyv	words	-Inte	gral	
Types-Integers-Boo	pleansFloating-Point Types-Flo	ating-Point Numbers-	Comp	lex N	umb	ers-	
Decimal Numbers-	Strings-Comparing Strings-Slic	ing and triding Strin	gs-Str	ing O	pera	tors	
and Methods-String	Formatting with the str.format(	Method-Character E	ncodir	ngs.			
UNIT II COLLEO	CTION DATA TYPES					09	
Sequence Types-Tu	ples-Named Tuples-Lists-Set Ty	pes-Sets-Frozen Sets-	Mapp	ing T	ypes	-	
Dictionaries-Defaul	t Dictionaries-Ordered Dictional	ries-Iterating and Cop	ying C	Collect	ions	-	
Iterators and Iterabl	e Operations and Functions-Cop	ying Collections					
UNIT III CONTI	UNIT III CONTROL STRUCTURES AND FUNCTIONS 09						
Control Structures-Conditional Branching-Looping-Exception Handling-Catching and							
Raising Exceptions	-Custom Exceptions- Custom Fu	nctions-Names and D	ocstri	ngs-A	rgun	nent	
and Parameter Unpa	acking-Accessing Variables in th	e Global Scope					
UNIT IV MODUI	LES AND PACKAGES					09	
Packages-Custom	Modules-Overview of Python	n's Standard Librar	y-Strii	ng H	andl	ing-	
Command-Line Pro	ogramming-Mathematics and N	umbers-Times and Da	ates-A	lgorit	hms	and	
Collection Data Ty	pes-File Formats, Encodings, a	nd Data Persistence-	File, I	Direct	ory,	and	
Process Handling							
UNIT V OBJECT	FORIENTED PROGRAMMIN	١G				09	
The Object-Oriente	d Approach-Object-Oriented Co	ncepts and Terminolo	gy-Cu	stom	Clas	ses-	
Attributes and Meth	nods-Inheritance and Polymorph	ism-Using Properties	to Co	ntrol A	Attril	oute	
Access-Creating Co	omplete Fully Integrated Data T	ypes-Custom Collecti	on Cla	asses-	Crea	ting	
Classes That Aggre	gate Collections-Creating Collection	ction Classes Using A	ggrega	ation-	Crea	ting	
Collection Classes	Using Inheritance						
		LECTURE		TOT	'AL		
		45		45	5		
	······································						
TEXT							

1.Mark Summerfield, Programming in Python-A Complete Introduction to Python Language, Second Edition, Addision Wesley, 2010.

## REFERENCES

1. David M. Beazley, "Python Essential Reference" Third Edition, Sams Publishing 2006.

2. Alex Martelli, Anna Martelli Ravenscroft, and David Ascher, "Python Cookbook", Third Edition, O'Reilly, 2002.

#### XCAOE7 SYSTEM AND NETWORK ADMINISTRATION

CO1	С	Understand	Explain the various System Management Principles
	Р	Guided	Assembles various system components.
		Response	
CO2	С	Understand	Outline the concept of Operating System
	Р	Guided	Performs the installation with Operating System
		Response	
CO3	С	Knowledge	Describe the Host and Server Management
	Р	Guided	Identifies the Web Server management.
		Response	
CO4	С	Understand	Demonstrate the Network Management
	Р	Guided	<b>Constructs the IP configuration and network management</b>
		Response	
CO5	С	Understand	Describe the Virtualization concepts

COURSE CODE	E CODE       COURSE NAME         E7       SYSTEM AND NETWORK ADMINISTRATION         = 2:1:0	L	Т	Р	С
XCAOE7	SYSTEM AND NETWORK	3	0	0	3
	ADMINISTRATION				
C:P:A = 2:1:0				-	
		L	P	H	
COURSE CODECOURSE NAMELTPCXCAOE7SYSTEM AND NETWORK ADMINISTRATION3003C:P:A = 2:1:0LTPH11TPH11TPH11TPH11TPH11TPH11TPH11TPH11TPH11TPH11TPH11TPH11TPH11TPH11TPH11TPH11TPH11TPH11TNPAdding/Removing Hardware – Monitoring & Troubleshooting of the system – PC hardware –BiOS, Devices and Drivers – Operating Systems: Linux/Unix – Windows-history & versions.UNIT II INSTALLING AN OPERATING SYSTEM9Windows –Linux –VMware–Boot Process – Boot Process Steps – Kernel Initialization –Hardware Configuration – Recovery Mode – Activation of Startup Scripts – Dual booting –Single User Mode – Rebooting & Shutting down–Windows: Creating users – workgroupand domain – Active Directory.9Not Privileges – User Management – Disk Storage – Controlling Processes	3				
UNIT I SYSTEM	IS MANAGEMENT				9
Adding/Removing	Hardware – Monitoring & Troubleshooting of the syste	em– P	C har	dwa	re –
BIOS, Devices an	d Drivers – Operating Systems: Linux/Unix – W	vindov	vs–his	story	&
versions.					
UNIT II INSTALI	LING AN OPERATING SYSTEM				9
Windows –Linux –	VMware–Boot Process – Boot Process Steps – Kernel	nitial	izatio	n —	
Hardware Configura	ation-Recovery Mode - Activation of Startup Scripts -	– Dua	l boot	ing -	_
Single User Mode	- Rebooting & Shutting down- Windows: Creating use	ers – w	vorkg	roup	
and domain – Activ	e Directory.			T	•
UNIT III HOST M	ANAGEMENT & SERVER MANAGEMENT				9
Root Privileges – U	ser Management – Disk Storage – Controlling Processe	es – F	ile Sy	stem	L
Web Server (Apach	e & IIS) – DNS Server – Mail Server – Proxy Server				
UNIT IV NETWO	ORK MANAGEMENT				9
Network Configura	tion – Host Name & IP configuration – Configuration of	of the	Basic		
Routing and Defaul	t Gateway – Name Resolution – Dynamic Host configu	ratior	n (DH	CP)	_
Configuration of a :	Linux Box as a router			······	
COUNSE CODE       COUNSE NAME       I	9				
Full virtualization-	- Para virtualization – Native virtualization – Cl	oud (	Comp	uting	z —
					3

		LECTURE	TUTORIAL	PRACTICAL	TOTAL
		45	0	0	45
TEXT					
1. I	Principles of Network and System	Administration,	Mark Burgess,	Oslo University (	College,
No	rway Second edition 2004, John	Wiley & Sons L	td		-
REFEI	RENCES				
1.T	The Practice of System and Net	work Administr	ation, Thomas	A. Limoncelli, C	Christina
J. H	Hogan, Strata R. Chalup, Pearso	on Education, S	econd edition	2007	
E REF	ERENCE				
1.	http://citeseerx.ist.psu.edu				
2.	http://almus.net/docs/System	and Network	Administration		
3.	http://www.bit.lk/downloads/s	yllaboratoryus/	sem6/IT6204_	Syllaboratoryus.	pdf
4	http://www.nptel.ac.in/download	s/106108101/	_		L

#### XCAOE8 PHP ANDMYSQL

## **Course Outcomes:**

CO1	С	Understand	Explain the basic function of PHP and uses of open sources					
	Р	Guided	technologies.					
		Response	<b>Build</b> a program in PHP to implement the looping and conditional statements					
CO2	С	Understand	<i>Explain</i> the array and functions in PHP.					
	Р	Guided	Build a program to implement cookies, session and file					
		Response	concept.					
CO3	С	Knowledge	<i>Describe</i> the various DB architectures, constraints and normalization forms.					
CO4	С	Understand	<i>Explain</i> the statements in MySQL and its effectiveness.					
	Р	Guided	Build a application to construct various queries in MySQL					
		Response						
CO5	С	Understand	Describe to implement PHP and MySQL.					
	Р	Guided	Build an application to implement PHP and MySQL.					
		Response						

<b>COURSE CODE</b>	COURSE	NAME
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L T P C

XCAOE8	PHP AN	DMYSQL				3	0	0	3
C:P:A = 2:1:0									
						L	Τ	P	Η
						3	0	0	3
UNIT I INTROD	UCTION TO	) OPEN SO	URCE AN	D PHP					9
Introduction- open	source-PHP	– history- f	eatures-var	iables- s	statements operation	ators-	- coi	nditio	onal
statements-if-switc	h-nesting con-	ditions-mer	ging forms	with con	nditional statem	ents-	loop	os-wł	nile-
do-for – loop iterat	ion with breal	k and contin	ue.						-
UNIT II ARRAY	AND FUNC	TIONS							9
Arrays: Array creat	ion and mani	pulation- us	ing array fi	nctions	- creating user d	lefine	ed fu	inctio	ons-
using files- session	s- cookies- ex	xecuting ext	ernal progr	ams- Cr	eating sample a	pplic	atio	ns u	sing
PHP.									·
UNIT III DATA	BASE MANA	AGEMENT	SYSTEM						9
Components of Dat	tabase system	s-Definitior	n and benef	its of da	tabase-Data Ind	epen	den	ce-Tl	hree
level of database	architecture-	Database N	/Ianagemen	t Syster	m- Client serv	er ai	chit	ectu	re -
Domains-Relations	-keys-Primary	y keys-Fore	eign keys-F	unctiona	al dependency(I	Basic	def	finitio	on)-
Normal Forms ( IN	F, 2NF, 3NF,	, BCNF )-EI	R model – (	DOAD n	nodel.				
UNIT IV MySQL		or m 1 b	• •.	0.35		~			9
Effectiveness of M	ySQL -MySQ	QL Tools-P	rerequisites	for My	SQL connection	n- Da	atab	ases	and
tables- MySQL dat	a types-Creat	ing and mar	npulating t	ables- In	sertion, updatio	n and	d de	letio	n of
rows in tables -Re	trieving data-	- Sorting an	d filtering	retrieve	d data -Advanc		ata 1	filter	ing-
Sat operators Full	toxt coorching		ctions -Gro	uping d	ata- Sub queries	- J01	ning		nes-
<b>UNIT V DUD</b> with		2							0
Working MySOI	WIYSQL	atabasa san	naatirriter		f MVCOL aam			in D	9 11D
processing result se	will FHF-ua	handling er	rors_debug	usage 0	l diagnostic fun	ction	us	111 F alida	ΠP,
user input through	h Database	laver and	Application	laver-	formatting au	erv	outr	anua	with
Character Numeric	Date and tin	ne –sample o	latabase an	plication	is in atting the	Ul y	սպ	Jui	W IUII
Character, Pullerk	, Dute undthi	ie sumple (	uuuuouse up	pileutioi	15				
		LECTURE	E TUTO	RIAL	PRACTICA	LS	Т	OTA	١L
		45		)	0			45	, ,
TFYT			L				L		
1 Vikram Vaswani	PHP and My	SOL Tata	McGraw-H	ill 2005					
2 Ben Forta MvS	OL Crash cou	irse SAMS	2006	m, 2003					
3 C I Date An Int	roduction to 1	Database Sv	stems Add	ison We	eslev Sixth Edit	ion			
4. Ramesh Elmasri	and Shamkar	nt B Navathe	e. Fundame	ntals of	DataBaseSyster	ns.Pe	earso	on	
Education, Third Ed	lition.		- ,		j =	~,			
REFERENCES									
1. Tim Converse, Jo	oyce Park and	l Clark Mor	gan, PHP 5	and My	SQL, Wiley Inc	lia re	prin	t, 20	08.
2. Robert Sheldon,	Geoff Moes,	Beginning N	MySQL, W	rox, 200	5		•		
<b>E REFERENCES</b>		<u> </u>							
1. NPTEL, Databa	se manageme	nt systems, l	Dr. Arnab I	Bhattach	arya,IIT Kanpur				