

ABOUT THE INSTITUTION

The Kovai Kalaimagal Educational Trust established in the year 1992 with an aspiration to quench the educational thirst of the poor and the needy strata of the society particularly from rural area. It sprouted with the establishment of a school and soon extended to add Kovai Kalaimagal College of Arts and Science in the year 1996 – 1997, Coimbatore Institute of Management and Technology in 1996 – 1997, Coimbatore Institute of Engineering and Technology in 2001 – 2002 and CIET School of Architecture in 2013 – 2014. The trust is managed by the dedicated team of trustees Dr. T. Banumathi, Dr. T. Namradha, Dr. K. A. Chinnaraju, Tmt. P. Shanmugadevi, Thiru. S. Subramanian and Thiru. M. Thangavelu who fully devote their time for the development of the institutions under the trust and it is due to their tireless efforts, the colleges have carved a name for themselves in the academic circle.

The college is situated in a serene atmosphere surrounded by picturesque mountains offering a very conducive environment for the academic perseverance. It is an ISO 9001:2008 certified institution and it has also been accredited by NAAC with ‘A’ grade. Committed to make quality education affordable especially to economically weaker sections particularly from rural area and strengthen the areas of research, enhance the process of sensitizing the students to personal values, spiritual growth and social responsibility. The college has taken every effort to ensure sustenance and enhancement of the quality in education.

Promoting Body

The Kovai Kalaimagal Educational Trust (KKET) was started in 1992 to establish educational institutions with the motto: ‘Light the Light within’. The trust has, so far, established Kovai Kalaimagal College of Arts and Science, Coimbatore Institute of Engineering and Technology, CIET School of Architecture and Coimbatore Institute of Management And Technology at Vellimalaipattinam, Narasipuram Post, Thondamuthur Via, Coimbatore - 641 109.

Environment

KKCAS is located at Vellimalaipattinam, near Narasipuram, sprawling over a land area of 10.58 acres, surrounded by green hillocks. The campus has a serene and studious atmosphere with least disturbance and distraction. The students find the environment to be very conducive for their studies. Facilities in the campus meet their needs for extra / co-curricular activities.

ISO 9001:2008

As our institution is an ISO 9001:2008 certified institution, we have a strong system which takes care of the planned activities for enhancing quality in every respect. The institution implemented the Quality Management System and registered for the ISO certification since 2002. After implementation of the Quality Management System, not a single non-conformance was noticed in any of the QMS audit.

NAAC

Our institution was accredited with “A” grade by NAAC in the year 2011 and again Re-accredited with “A” grade by NAAC from September 2016.

Centre for Research

There is a research committee constituted in KKCAS which takes care of the promotion of research activities. Majority of members of faculty of Computer Science are the research guides guiding the scholars who pursue MPhil programme. This committee motivates the eligible faculty to apply for more number of research projects sponsored by UGC in topics of current interest.

The committee reviews the progress made by the research scholars periodically and advises them accordingly. In case the progress is not satisfactory, the reason for the same is found out and a solution to progress further is provided.

The committee recommends the research scholars and faculty pursuing Ph.D to participate and present papers in seminars and conferences and also publish research articles in reputed national and international journals. Those who are yet to register for pursuing M.Phil or Ph.D programmes are advised to register immediately and necessary support is also provided for finding suitable guides. The committee also recommends cash awards to those who publish research articles in refereed journals and sanction of additional increments and promotions to those who complete the Ph.D degrees. This has created a good impact as is evidenced by the number of faculty coming forward to pursue Ph.D programme.

Placement Cell

The institution has a placement cell which is effectively functioning under a placement officer and a placement coordinator. The responsibility of the placement officer is to identify the skills that are required to be possessed by the students as per the requirements of the companies

and arrange for training programs for developing such skills among the students. Thus a number of training programs are organized to develop the communication skills, mathematical and English aptitude, group discussion and technical skills by the professors and professional trainers. It also arranges career-counselling programmes through psychometric tests. These tests bring out the students' strengths, weaknesses and their personal interests and attitude towards various career options available to them. If needed, it arranges for any follow-up programmes to overcome the weaknesses. Regular seminars are organized to enhance their capability for grabbing various career options. As a result, nearly 75% of students are able to get placements from reputed companies.

Hostel

Separate and comfortable accommodation for boys and girls is provided within the college campus to accommodate 650 boys and 750 girls. Facilities for playing indoor games and common reading rooms with audio visual equipments are available in all the hostels.

The institution plans for providing residential accommodation to the staff and there is a proposal for the construction of staff quarters. As there is a separate RO plant, purified and safe drinking water is provided to all the students.

Recognitions

The college has been recognized for the welfare schemes implemented for the benefit of the students and has been rewarded with “Best College Award” during 2007 – 2008 by the Bharathiar University. It has also been awarded with “Third Best College Award” for overall performances during the year 2008-2009 based on ten different criteria such as Results of University Examinations, Conducting Seminars, Workshops, Symposia and State and National Level Conferences, Self Development Programmes for Students, Number of Placements made in the Campus Interviews, Student Supporting Services, Faculty Development Programmes, Publication of Books and Research articles in Journals and Magazines, Research Activities, Social Service through NSS, YRC and RRC and achievements in Sports and Games. The institute was awarded with “A” Grade by National Assessment and Accreditation Council (NAAC). The college was granted Autonomous status by UGC, New Delhi for six years with effect from 2016-2017.

KOVAI KALAIMAGAL COLLEGE OF ARTS AND SCIENCE

(An Autonomous Institute Affiliated to Bharathiar University)

Re-accredited with “A” grade by NAAC

Regulations for Post Graduate Programmes

(Under Choice Based Credit System)

1. REGULATIONS

This regulation is effective from the academic year 2017 -‘18.

1.1 Eligibility for Admission

S.No.	Course	Eligibility Condition
1.	M.Sc(CS)	A pass with 50% marks in B.Sc (Computer Science) / Computer Technology / Information Technology / Electronics / Software Systems /Applied Sciences /BCA.

1.2 Duration and Course of study

Two Academic years with four semesters, the duration of the first and third from June to November and the second and fourth semesters from December to April. The duration of each semester is 90 working days with 5 hours a day.

1.3 The Medium of Instruction and Examinations

The medium of instruction and examinations shall be English.

1.4 Requirements for Attendance

- A candidate will be permitted to take the examination for any semester, if he/she secures not less than 75% of attendance out of the 90 working days during the semester.
- A candidate who has secured attendance less than 75% but 65% and above shall apply with the prescribed fee for the condonation of lack of attendance. On the recommendation of the Principal, he will be permitted to take up the examination.

- A candidate who has secured attendance less than 65% but 55% and above in any semester, will be permitted to continue the course but will not be permitted to appear for the examination in the current papers. However he/she will be permitted to appear for the examination in the papers in which he/she has arrears. He/she will have to compensate the shortage of attendance in the subsequent semester and take the examination in the papers of both the semester together .
- A candidate who has secured less than 55% of attendance in any semester will not be permitted to take the regular examinations and to continue the study in the subsequent semester. He/she has to re-do the course by rejoining in the semester in which the attendance is less than 55%.
- A candidate who has secured less than 65% of attendance in the final semester has to compensate his / her attendance shortage in a manner to be decided by the Head of the Department concerned after rejoining the course.

1.5 Restriction to take the Examinations

1. Any candidate having arrear paper(s) shall have the option to take the examinations in any arrear paper(s) along with the subsequent regular semester papers.
2. Candidates who fail in any of the papers shall pass the paper(s) concerned within five years from the date of admission to the said course. If they fail to do so, they shall take the examination in the revised text / syllabus, if any, prescribed for the immediate next batch of candidates. If there is no change in the text / syllabus they shall take the examination in that paper with the syllabus in vogue, until there is a change in the text or syllabus.

In the event of removal of that paper consequent to the change of regulations and / or curriculum after a five year period, the candidates shall have to take up on equivalent paper in the revised syllabus as suggested by the chairman and fulfil the requirements as per regulations/curriculum for the award of the degree.

1.6 The Evaluation System

The major objective of the institution's evaluation system is to motivate all students to

excel in their performance. The students' performance is continually assessed through Continuous Internal Assessment (CIA) and End Assessment Examinations(EAE). The CIA, EAE break up for theory papers is 25:75 and practical is 40:60.

1.6.1 Break Up of Continuous Internal Assessment (CIA) Marks

For PG Courses - Theory

Content	Marks Awarded
Internal Assessment Test	05
Online Test	05
Model Examination	10
Assignment (1 Number) & Seminar (1 Number)	05
Total	25

For PG Courses - Practical

Content	Marks Awarded
Minimum ten Experiments / Practical Paper / Semester	20
Internal Assessment Tests	05
Model Examination	10
Record Note Book	05
Total	40

For PG Courses - Project Viva Voce

Content	Marks Awarded
Review & Content Presentation (3 Reviews) 3*40	120
Record	40
Total	160

1.6.2 End Assessment Examination (EAE)

1. Semester examination will be conducted at the end of each semester after completing a minimum of 90 working days.
2. End Assessment Examination for the odd semester will generally be held during November and even semester during April.
3. The question papers for all the courses will be set by the external examiners.
4. The exams for Major & Elective will be conducted for a maximum of 75 marks for three

hours. The passing minimum is 50% (38 out of 75 marks) and overall passing minimum putting the CIA and EAE marks together will be 50%.

5. Question Paper Pattern: (Major & Elective)

Part A	10 Marks	10 Questions - 1 Mark each-Objective Type
Part B	25 Marks	5 Questions- 5 Marks each – either or type.
Part C	40 Marks	5 Questions- 8 Marks each – either or type.
Total	1. Marks	

6. Extra Credit Course will be valued for a total of 100 marks. The pattern of the Question paper will be as follows:

Question paper pattern: (Extra Credit Courses)

Part A	40 Marks	5 Questions- 8 Marks each – either or type.
Part B	60 Marks	5 Questions- 12 Marks each – either or type.
Total	100 Marks	

7. The marks secured in the extra credit course will get reflected in the mark sheet only if the candidate has secured 50% marks and above.

8. The students will be allowed to opt for only two papers per semester under the extra credit courses from first semester onwards.

9. The extra credit courses are self learning courses for which only guidance will be provided by the faculty.

10. There will be two independent valuations for all theory PG courses with first valuation by the course faculty and the second valuation by external examiner. The average marks of first and second valuation will be taken as the final marks. If there is a difference of 15% or more between the first and second valuations, then paper will be referred for third valuation and the average of the marks which are closer among the three valuations will taken as the final marks.

11. Supplementary examination will be conducted for the benefit of final year students after 15 days of the declaration of the final semester results. Candidate who has arrears in any semester subject to maximum of three papers can appear for the supplementary exam conducted after the final semester.

12. A candidate may request for re-totalling of his/her answer script by applying

application addressing to the Controller of Examination through the Principal, paying prescribed fees. This provision is available for all theory papers taken in the EAE. However there is no provision for revaluation of theory/ practical papers.

13. Candidates desirous of improving the marks awarded in a passed subject in their first attempt shall reappear once within a period of subsequent two semesters. The improved marks shall be considered for classification but not for ranking. When there is no improvement, there shall not be any change in the original marks already awarded.

1.6.3 Break Up of End Assessment Examination (EAE) Marks

PG Courses – Practical

Content	Marks Awarded
Program - 1	20
Program - 2	20
Viva voce	10
Record	10
Total	60

PG Courses - Project Viva Voce

Content	Marks Awarded
Report	10
Power Point Presentation	10
Viva Voce	20
Total	40

1.7 Grading

The following table gives the marks grade points, letter grades and classification to indicate the performance of the candidate.

Conversion of Marks to Grade Points and Letter Grade

Range of Marks	Grade Points	Letter Grade	Description
90-100	9.0-10.0	O	Outstanding

80-89	8.0-8.9	D+	Excellent
75-79	7.5-7.9	D	Distinction
70-74	7.0-7.4	A+	Very Good
60-69	6.0-6.9	A	Good
50-59	5.0-5.9	B	Average
00-49	0.0	RA	Re – Appear
ABSENT	0.0	AB	Absent

C_i = Credits earned for course i in any semester

G_i = Grade Point obtained for course i in any semester

n = refers to the semester in which such course were credited

For a Semester:

$$\text{GRADE POINT AVERAGE [GPA]} = \frac{\sum_i C_i G_i}{\sum_i C_i}$$

GPA = $\frac{\text{Sum of the multiplication of grade points by the credits of the courses}}{\text{Sum of the credits of the courses in a semester}}$

For the Entire Programme:

$$\text{CUMULATIVE GRADE POINT AVERAGE [CGPA]} = \frac{\sum_n \sum_i C_{ni} G_{ni}}{\sum_n \sum_i C_{ni}}$$

CGPA = $\frac{\text{Sum of the multiplication of grade points by the credits of the entire programme}}{\text{Sum of the credits of the courses of the entire programme}}$

CGPA	Grade	Classification of Final Result
9.5 and above up to 10.0	O+	First Class – Exemplary*
9.0 and above but below 9.5	O	
8.5 and above but below 9.0	D++	First Class with Distinction*
8.0 and above but below 8.5	D+	
7.5 and above but below 8.0	D	
7.0 and above but below 7.5	A++	First Class
6.5 and above but below 7.0	A+	
6.0 and above but below 6.5	A	
5.5 and above but below 6.0	B+	Second Class
5.0 and above but below 5.5	B	
0.0 and above but below 5.0	U	Re – Appearance

Classification of Successful Candidates

A candidate who passes all the examinations in Part I to Part V securing following CGPA and Grades shall be declared as follows for each part:

CGPA	Grade	Classification of Final Result
9.5 and above up to 10.0	O+	First Class – Exemplary*
9.0 and above but below 9.5	O	
8.5 and above but below 9.0	D++	First Class with Distinction*
8.0 and above but below 8.5	D+	
7.5 and above but below 8.0	D	
7.0 and above but below 7.5	A++	First Class
6.5 and above but below 7.0	A+	
6.0 and above but below 6.5	A	
5.5 and above but below 6.0	B+	Second Class
5.0 and above but below 5.5	B	
0.0 and above but below 5.0	U	Re - Appearance

* **The candidates who have passed in the first appearance and within the prescribed semester of the Programme (Major and Elective Course alone) are eligible.**

1. **Course Completion**

Students shall complete the programme within a period not exceeding two years for PG courses from the date of admission.

SCHEME OF EXAMINATION AND PROGRAMME STRUCTURE

M.Sc (Computer Science) (2017 -2019)

Part	Sub Code	Study Components	Ins.hours per week	CIA	Exam	Total	Credits
Semester – I							
III	17P1CSCT01	Core 1: ASP. NET	4	25	75	100	4
	17P1CSCT02	Core 2: Data Mining and Warehousing	4	25	75	100	4
	17P1CSCT03	Core 3: Cyber Law and Security	4	25	75	100	3
	17P1CSCT04	Core 4: Advanced Computer Networks	4	25	75	100	3
	17P1CSCT05	Core 5: Advanced Software Engineering	4	25	75	100	4
	17P1CSCP06	Core 6: ASP.NET – Practical	3	40	60	100	3
	17P1CSCP07	Core 7: Data Mining Using WEKA Tool - Practical	3	40	60	100	3
		Skill Based Subject 1: Communication Skill-I	2	50	--	50	2
		Library Work	2	--	--	--	--
Total Credits							26
Semester – II							
III	17P2CSCT08	Core 8: Distributed Computing and Linux	5	25	75	100	4
	17P2CSCT09	Core 9: Cloud Computing	5	25	75	100	4
	17P2CSCT10	Core 10: Advanced Java Programming	4	25	75	100	4
	17P2CSCP11	Core 11: Linux using Shell Scripting – Practical	4	40	60	100	3
	17P2CSCP12	Core 12: Advanced Java Programming – Practical	4	40	60	100	3
			Elective 1	4	25	75	100
		Skill Based Subject 2: Mathematical Aptitude I	2	50	--	50	2
		Library Work	2	--	--	--	--
Total Credits							24
Semester – III							
III	17P3CSCT13	Core 13: Digital Image Processing	4	25	75	100	4
	17P3CSCT14	Core 14: Python	4	25	75	100	4
	17P3CSCT15	Core 15: Android and its Applications	4	25	75	100	3
	17P3CSCT16	Core 16: Big Data and Data Analytics	4	25	75	100	3
	17P3CSCP17	Core 17: Digital Image Processing - Practical	3	40	60	100	3
	17P3CSCP18	Core 18: Python - Practical	3	40	60	100	3

		Elective 2	4	25	75	100	4
		Skill Based Subject 3: Technical Seminar and Report Writing	2	50	--	50	2
		Library Work	2	--	--	--	--
Total Credits							26
Semester – IV							
III	17P4CSCV19	Core 19: Project Work and Viva Voce	-	-	200	200*	14
Total Credits							14
Total			90			2200	90

Project Work carries 200 marks with 20 credits. The breakup of marks will be as follows:-

Internal Assessment: 160 marks (40 Marks for 3 reviews and 40 Marks for Record) and External Assessment : 40 marks (Viva Voce).

List of Electives

List of Electives		
	Sub Code	Name of the Subjects
Elective 1	17P2CSET1A	Grid Computing
	17P2CSET1B	Neural Networks and genetic algorithm
	17P2CSET1C	E- Technologies
	17P2CSET1D	Multimedia and its applications
Elective 2	17P3CSET2A	Enterprise Resource Planning
	17P3CSET2B	Software Testing
	17P3CSET2C	Compiler Design
	17P3CSET2D	Software Project Management

List of Extra Credit Courses

Extra Credit Courses		Credits
Sub.Code	Subjects	2
17PCSECC01	Fuzzy Mathematics	2
17PCSECC02	Operation Research	2
17PCSECC03	Financial Accounting	2
17PCSECC04	Management Information System	2
17PCSECC05	Human Resource Management	2
16PCSECC06	Principles of Marketing	2

SEMESTER – I

CORE 1 : ASP . NET

Subject Code: 17P1CSCT01

Total Hrs:60

No. of Credits: 4

Objective:

- On Successful Completion of this subject the students should have knowledge on Asp.net Concepts.
- To inculcate knowledge on ASP.Net.
- got the skill of developing Web Applications
- knowledge to develop database applications in .

UNIT I

Hours:12

Getting Setup - what is ASP.NET- Setting up for ASP.NET- The development environment – ASP & ASP.NET. An overview – ASP.NET Programming Languages. Programming Basics: Basics of Programming - Program Flow – Effective Coding Techniques – Designing Applications.

UNIT II

Hours:12

How Dynamic Website Applications work- Processing ASP.NET with Visual basic. NET:VB.NET Programming Language Structures –Built in ASP.NET objects & Interactivity- The response object –The ASP Server object.

UNIT III

Hours:12

Web forms & ASP.NET: Web forms- ASP.NET Configuration, Scope and State: ASP.NET and configuration- ASP.NET and state –The application object –ASP sessions – The session object.

UNIT IV

Hours:12

ASP.NET objects and components: The Scripting Object Model- Active Server Components and Controls –More Active Server Components.

UNIT V

Hours:12

Web services & ASP. NET –WSDL & SOAP- Web services Background – ASP.NET &SQL server- using SQL server –using databases in ASP.NET applications-ActiveX data objects- the ADO.NET objective model –coding structured query language.

REFERENCE BOOKS:

1. Dave Mercer, —ASP. NET A Beginner_s Guide, Tata McGraw –Hill Pub. Company Ltd, 2002
2. AI Williams , Kim Barber ,”ASP Solutions” , DreamTech Press 2000.
3. ASP.Net The Complete Reference,Mathew MacDonald,*ata McGraw-Hill Publishing Company Limited New Delhi*
4. Kirk Allen Evans, Ashwin Kamanna, Joel Mueller,“XML and ASP.NET”, Pearson Education, 2002.

SEMESTER – I
CORE 2 : DATA MINING AND WAREHOUSING

Subject Code:17P1CSCT02

Total Hrs:60

No. of Credits: 4

Objectives:

- To enable the students to learn the Data Mining Tasks and data warehousing Techniques.
- To understand the Association Rules, Clustering Techniques in Data Mining.
- To know about the OLAP and OLTP Concepts in Data Warehousing.

UNIT I

Hours: 15

Introduction : Basic Data Mining Tasks- Data Mining Versus Knowledge Discover in Databases-Data Mining issues-Data Mining Metrics-Social Implication of Data Mining – Data Mining from Database Perspective.**Data Mining Techniques**-Introduction - A statistical perspective on Data Mining :Point Estimation-Model Based Summarization-Bayes Theorem-Hypothesis Testing-Regression and correlation- Decision Trees-Neural networks-Genetic Algorithms.

UNIT II

Hours: 15

Classification:Introduction- A statistical Based Algorithms-Distance Based Algorithms-**Decision Tree Algorithms:** ID3-C4.5,CART-**Neural Network Based Algorithms:**Introduction-Propagation-Perceptrons.Rule Base Algorithms-Combining Techniques.

UNIT III

Hours: 15

Clustering:Introduction-Similarity and Distance Measures-Outliers-Hierarchical Algorithms- Partitional Algorithms:Introduction-Minimum Spanning Tree-Squared Error Clustering Algorithm-K-Means Clustering.**Association Rules:**Introduction-Large Item Sets-Basic Algorithms-Parallel and Distributed Algorithms-Measuring Quality of Rules.

UNIT IV

Hours: 15

Data Warehousing:An Introduction-Characteristics of Data Warehousing-Data Marts-Other Aspects of Data marts-OLAP.

UNIT V

Hours: 15

Developing Data Warehousing-Applications of Data Warehousing and Data Mining in Government.**Case Study:**DW in Tamil Government-DW in the World Bank-A typical Business DW for a Trading Company.

Text Books:

1. Data Mining Introductory and Advanced topics by Margaret H.Dunham
2. Data Warehousing concepts ,Techniques,products and Applications-C.S.R.Prabhu,PHI

Reference Books:

1. Principles of Data Mining by David Hand,Heikki Mannila & padhraic Smyth-PHI
2. DM Techniques By Arun.K.Pujari,universities press(India) Pvt Ltd,2003.
3. Alex berson,Stephen J.Smith,Data warehousing,Data Mining and OLAP,TMCH,2001.
4. Jiawei Han and Micheline Kamber,"Data Mining Concepts and Techniques",2001,Academic Press.

SEMESTER - I
CORE 3 : CYBER LAW AND SECURITY

Subject Code:17P1CSCT03

Total Hrs:60

No. of Credits: 3

Objectives:

- To understand the Concepts of Cyber Law and Data Security.
- To understand the Intellectual Property Rights, the Evidence and Criminal Aspect in Cyber Law

UNIT I

Hours: 12

Concept of cyber law and space : Introduction – Meaning – Features – Significant of cyber law – Advantages of cyber law – Cyber law governance – Cyber space – meaning – Inclusive of cyber space – Facilitating functions of cyber space – Major issues in cyber space -
E commerce & Cyber law : Meaning – History – Division – Benefits – Major Issues – E commerce in India – Privacy Factor – cyber law in E-commerce – contract – meaning – Essentials of online contract.

UNIT II

Hours: 12

Data Security : Meaning – Fundamental requirements – Precautions – Encryption – Advantages of Encryption technology – Means of encryption of data – Public key Infrastructure – Cyber Security issues in India – Digital signature – Features– Types– Components of a Digital Signature Certificate – Use of Digital Signature Certificate –
Intellectual Property Rights : Introduction – Laws - Law Firms – Need of Intergovernmental Intellectual Property Organization – Mission of WIPO – Global Innovation Index(GII) – Advantages of GII – Electronic Copyright Management System(ECMS) – Advantages – Indian Copy Rights Act on Soft Property Works - Indian Patents Act on Soft Property Works.

UNIT III

Hours: 12

The Evidence Aspect in Cyber Law: Evidence as Part of the Law of Procedures – Applicability of the Law of Evidence on Electronic Records - The Indian Evidence Act –
The Criminal Aspect in Cyber Law: What is Crime? – What is Computer Crime – Factors Contributing to Computer Crime - Strategy for prevention of Computer crime – Amendments.

UNIT IV

Hours: 12

Global Trends in Cyber Law: The Contract Aspect – The Security Aspect – The Intellectual Property Aspects – The Criminal Aspect – Global Miscellany –
Legal Framework for Electronic Data Interchange : The EDI Mechanism – The Electronic Data Interchange Scenario in India.

UNIT V

Hours: 12

The Information Technology Act : Definition – Authentication of electronic records Electronic Governance – Attributes, Acknowledgment and dispatch of Electronic Records – Secure Electronic Records and Secure Digital Signatures – Digital Signature Certificates

Reference Book :

1. Dr.B.Kirubashini., P.Kavitha., “Cyber Law” Nandhini Pathippagam, 2013 .(Unit I & II)
2. Suresh T.Viswanathan., N.Chanrababu Naidu ., Bharath Law House PVT .LTD. 2001 (Unit III,IV,V).

SEMESTER – I

CORE 4 : ADVANCED COMPUTER NETWORKS

Subject Code: 17P1CSCT04

Total Hrs:60

No. of Credits: 3

Objectives:

To enable the students

- To learn the digital networks & internet protocols
- To have a clear idea about various functions of TCP and UDP.
- To learn about user networks interfaces and protocols of on B-ISDN and its operations and maintenance.

UNIT I

Hours: 12

ISDN Overview: The Integrated Digital Network -OSI Reference Model & TCP/IP– A Conceptual Overview of ISDN – ISDN Standards – ISDN Interfaces and Functions: Transmission Structure – User-Network Interface Configuration – ISDN Protocol Architecture – ISDN Connections – Addressing – Interworking.

UNIT II

Hours: 12

ISDN Physical Layer: Basic User- Fiber Optics Media -Network Interface – Primary Rate User-Network Interface – U Interface – ISDN Data Link Layer: LAPD – Terminal Adaption – Bearer Channel Data Link Control Using I.465/V.120,207.

UNIT III

Hours: 12

ISDN Network Layer: Overview – Basic Call Control – Control of Supplementary Services – ISDN Services: Service Capabilities – Bearer Services and Teleservices – Basic and Supplementary Services - B-ISDN network concept: General Architecture of the B-ISDN – Networking Techniques – Signaling Principles – Broadband network Performance – Traffic management aspects – Operation and maintenance aspects – Customer network aspects.

UNIT IV

Hours: 12

B-ISDN user-network interfaces and protocols: B-ISDN protocol reference model – General aspects of the user-network interface – Physical layer of the user-network interface at 155/622 Mbit/s Additional user-network interfaces – Equipment-internal interfaces – ATM layer – ATM adaptation layer.

UNIT V

Hours: 12

Operation and maintenance of the B-ISDN UNI: Network configuration for OAM of the customer access – OAM functions and information flows – Implementation issues – Integrated local management interface – Traffic management: Traffic control procedures and their impact on resource management – Mechanisms to achieve a specified QoS – Statistical multiplexing in ATM networks – Congestion control Signaling , routing and addressing - ATM switching: Switching elements – Switching networks – Switches and cross-connects.

Reference Books:

1. William Stallings, ISDN and BroadBand ISDN with Frame Relay and ATM, Pearson Education, 4 th Edition, 2009
2. Rainer Handel, Manfred N Huber, Stefan Schroder, ATM Networks Concepts Protocols

- Applications, Pearson Education Asia, Latest Edition.
3. John M.Griffiths, ISDN Explained, 2e, March 1995, Willey & Sons.
 4. Koji Kobayashi, Computers and Communications, The MID Press (a Version of c and C) 1986.
 5. Walter, J., Gooralski , J., Introduction to ATM networking , MCGraw-Hill Inc.,

SEMESTER – I

CORE 5 :ADVANCED SOFTWARE ENGINEERING

Subject Code:17P1CSCT05

Total Hrs:60

No. of Credits: 4

Objectives:

To enable the students

- To provide knowledge on Software engineering concepts
- To make the students understand various techniques of cost estimation of software , software design and software Requirements.
- To understand various issues in implementation of software , verification , validation and maintenance of software.

UNIT I

Hours: 12

Introduction to Software Engineering: Definitions – Size Factors – Quality and Productivity Factors. **Planning a Software Project:** Planning the Development Process – Planning an Organizational Structure.

UNIT II

Hours: 12

Software Cost Estimation: Software cost Factors – Software Cost Estimation Techniques – Staffing-Level Estimation – Estimating Software Estimation Costs.

UNIT III

Hours: 12

Software Requirements Definition: The Software Requirements specification – Formal Specification Techniques. **Software Design:** Fundamental Design Concepts – Modules and Modularization Criteria.

UNIT IV

Hours: 12

Design Notations – Design Techniques. **Implementation Issues:** Structured Coding Techniques – Coding Style – Standards and Guidelines – Documentation Guidelines.

UNIT V

Hours: 12

Verification and Validation Techniques: Quality Assurance – Walkthroughs and Inspections – Unit Testing and Debugging – System Testing. **Software Maintenance:** Enhancing Maintainability during Development – Managerial Aspects of Software Maintenance – Configuration Management.

REFERENCE BOOKS:

1. Software Engineering Concepts – Richard Fairley, Latest Edition., TMH.
2. Software Engineering for Internet Applications – Eve Anderson, Philip Greenspun, Andrew Grumet, 2006, PHI.
3. Software Engineering Project Management – 2nd Edition, Wiley India.
4. Software Quality Engineering – Jeff Tian, Student edition, 2006, Wiley Indi

SEMESTER - I

CORE 6 : ASP .NET PROGRAMMING - PRACTICAL

Subject Code:17P1CSCP06

Total Hrs:45

No. of Credits: 3

PROGRAM LIST

1. Program to demonstrate the textbox control in ASP.NET
2. Program to demonstrate the button as image control in ASP.NET
3. program to demonstrate the checkbox control in ASP.NET
4. program to demonstrate the radio button control in ASP.NET
5. program to convert decimal number to binary, octal and hexadecimal.
6. program to design simple registration form using asp .net objects.
7. Program to design a registration form by using ASP.NET objects.
8. Program to develop Date & time using ASP.Net
9. Create an application in ASP .Net for student information database and perform the following operations: i.Addition ii.Deletion
10. Program to develop a Calculator using ASP.NET
11. Program to develop a Image using ASP.NET.
12. Develop a database application system using ADO.Net in Railway reservation system.

SEMESTER - I
CORE 7 : DATA MINING USING R TOOL -PRACTICAL

Subject Code: 17P1CSCP07

Total Hrs:45

No. of Credits: 3

PROGRAM LIST

1. Demonstration of preprocessing on dataset student.arff
2. Demonstration of preprocessing on dataset labor.arff
3. Demonstration of Association rule process on dataset contactlenses.arff using apriori algorithm
4. Demonstration of Association rule process on dataset test.arff using apriori algorithm
5. Demonstration of classification rule process on dataset student.arff using j48 algorithm
6. Demonstration of classification rule process on dataset employee.arff using j48 algorithm
7. Demonstration of classification rule process on dataset employee.arff using id3 algorithm
8. Demonstration of classification rule process on dataset employee.arff using naïve bayes algorithm
9. Demonstration of clustering rule process on dataset iris.arff using simple k-means
10. Demonstration of clustering rule process on dataset student.arff using simple k-means .\
11. Demonstration of Hierarchical Clustering process on dataset iris.arff.
12. Demonstration of Decision Trees process on dataset student.arff using simple k-means .

SEMESTER-I

SKILL BASED SUBJECT 1: COMMUNICATION SKILLS

Subject Code:17P1SBST01

Total Hrs: 30

No. of Credits: 2

Objectives:

- To enhance Listening, Speaking, Reading and Writing Skills among students.
- To familiarise the students with the Sounds and Symbols used in English Language.
- To emphasize the importance of Communication in the Global Scenario.

Unit –I- Communication Theory

(Hours:10)

1. Process of Communication

Barriers to Communication

Corporate Communication

2.Communication through BodyLanguage

Personal Appearance

Posture

Gesture

Facial Expression

Eye Contact

3.Communication through Technology

Word Processor

Desktop Publisher

Power point Presentation

Electronic mail

Voice mail

Unit II- Oral Communication

(Hours:10)

1.Seminar and Conferences

Types of Discussion groups

Conducting Seminars

Organising Conferences

2.Audio-Visual aids

Basic Principles & Guidelines

Types of Audio-Visual aids & thier use

3.Effective Speaking

Presentation and Speeches

Rules of Pronunciation

Unit III-Written Communication

(Hours:10)

1.Memorandum Writing

Contents

Types

Structure

2.Research Papers & Articles

3.Advertising & Job Description

Text Books:

1.Communication Skills by Meenakshi Raman (Oxford University Press)

2.Developing Communication Skills by Krishna Mohan(Macmillan)

Reference Books:

1.Communication Skills a multi- skill course by Course team, Bharathiyar University(Macmillan)

2.Essential Communication Skills by Shalini Aggarwal (Ane Books Pvt.Ltd. New Delhi)

3.Technical English – II by Joyce Pereire(Vijay Nicole Imprints Pvt.Ltd.)

SEMESTER – II

CORE 8: DISTRIBUTED COMPUTING AND LINUX

Subject Code: 17P2CSCT08

Total Hrs:75

No. of Credits: 4

Objectives:

To enable the students

- To provide knowledge in the concepts of operating system and shell programming
- To make the students understand the various techniques of Models in operating systems
- To provide the knowledge in linux concepts
- To understand various issues in Synchronization techniques

UNIT I

Hours:15

Fundamentals: Evolution- Models- Distributed OS – Issues – Distributed Computing Environment(DCE). Computer Networks: Types – LAN – WAN – Communication Protocols - Internetworking – ATM Technology.

UNIT II

Hours:15

Message Passing : Synchronization – Buffering – Multigram Messages – Encoding and Decoding – Process Addressing – Failure Handling - Group Communication.Remote procedure Calls: The RPC Models – Transparency – Implementation – Stub generation -RPC messages - Marshaling Arguments and Results – Server management- Parameter passing Semantics – Cell Semantics- Counciation Protocols.

UNIT III

Hours:15

Synchronization – Clock Synchronization – event ordering -0 mutual exclusion – deadlock – election algorithms. Resource Management: Global Scheduling Algorithm – Task Assignment Approach – Load balancing Approach – Load sharing approach . Process management : Process migration – Threads.

UNIT IV

Hours:15

Introduction to Linux: Operating system and linux – History – Open source software – linux software. The shell: command line – filename expansions – Standard input / output and redirection-pipes-shell variables – shell scripts -jobs. Shell Configuration : Command and file name completion – command line editing – history – Aliases – controlling shell operations – variables and subshells – configuring shell and shell varaibles.

UNIT V

Hours:15

Linux File Structure:Files and directories – Permissions – mtools utilities -archieive files and compressions . TCP/IP networks: Network address : Class based IP Addressing – netmask – CIDR – obtaining IP address – broad addresses – gate way addresses – name server addresses. TCP/ IP configuration files: identifying host names – network names-domain name service

REFERENCE BOOKS:

1. “ Distributed Operating Systems – Concepts and Design”, Pradeep K.Sinha, Prentice hall of India.

2. “Linux -The Complete reference”, Richard peterson, tata McGraw Hill Publications, Fifth edition.
3. Andrew S.Tanenbaum and Marten Van Steen, Distributed Systems – Principles and Paradigms , PHI, 2004.
4. Richard Petersen , The Complete Reference – Linux , TMH, 1998.
5. Pradeep K.Sinha, Distributed Operating Systems , PHI, 2001.
6. George coulouris, Jean Dollimore and Tim Kindberg, Distributed Systems – Concepts and Design , 3rd Edition, Pearson Education,2002.

SEMESTER – II
CORE 9 :CLOUD COMPUTING

Subject Code: 17P2CSCT09

Total Hrs:75

No. of Credits: 4

Objectives:

To enable the students

- To learn the basics of cloud computing .
- To Understand the Cloud computing architectures, applications and challenges
- To learn about various cloud storages.

UNIT I

Hours:15

INTRODUCTION: Cloud Computing Introduction, From, Collaboration to cloud, Working of cloud computing, pros and cons, benefits, developing cloud computing services, Cloud service development, discovering cloud services.

UNIT II

Hours:15

CLOUD COMPUTING FOR EVERYONE: Centralizing email communications, cloud computing for community, collaborating on schedules, collaborating on group projects and events, cloud computing for corporation, mapping schedules managing projects, presenting on road.

UNIT – III

Hours:15

USING CLOUD SERVICES : Collaborating on calendars, Schedules and task management, exploring on line scheduling and planning, collaborating on event management, collaborating on contact management, collaborating on project management, collaborating on word processing, spreadsheets, and databases.

UNIT – IV

Hours:16

OUTSIDE THE CLOUD : Evaluating web mail services, Evaluating instant messaging, Evaluating web conference tools, creating groups on social networks, Evaluating on line groupware, collaborating via blogs and wikis

UNIT – V

Hours:14

STORING AND SHARING: Understanding cloud storage, evaluating on line file storage, exploring on line book marking services, exploring on line photo editing applications, exploring photo sharing communities, controlling it with web based desktops.

REFERENCE BOOKS:

1. Michael Miller, “Cloud Computing”, Pearson Education, New Delhi, 2009
2. Anthony T. Velte, Cloud Computing A Practical Approach 1st Edition, Tata Mcgraw Hill Education Private Limited (2009)
3. Cloud Computing: A Hands-On Approach Paperback – Import, 9 Dec 2013 by Arshdeep Bahga

SEMESTER – II
CORE 10: ADVANCED JAVA PROGRAMMING

Subject Code: 17P2CSCT10

Total Hrs:60

No. of Credits: 3

Objectives:

To enable the students

- To learn the digital networks & internet protocols
- To have a clear idea about various functions of TCP and UDP.
- To learn about user networks interfaces and protocols of on B-ISDN and its operations and maintenance.

UNIT I

Hours: 12

ISDN Overview: The Integrated Digital Network -OSI Reference Model & TCP /IP– A Conceptual Overview of ISDN – ISDN Standards – ISDN Interfaces and Functions: Transmission Structure – User-Network Interface Configuration – ISDN Protocol Architecture – ISDN Connections – Addressing – Interworking.

UNIT II

Hours: 12

ISDN Physical Layer: Basic User- Fiber Optics Media -Network Interface – Primary Rate User-Network Interface – U Interface – ISDN Data Link Layer: LAPD – Terminal Adaption – Bearer Channel Data Link Control Using I.465/V.120,207.

UNIT III

Hours: 12

ISDN Network Layer: Overview – Basic Call Control – Control of Supplementary Services – ISDN Services: Service Capabilities – Bearer Services and Teleservices – Basic and Supplementary Services - B-ISDN network concept: General Architecture of the B-ISDN – Networking Techniques – Signaling Principles – Broadband network Performance – Traffic management aspects – Operation and maintenance aspects – Customer network aspects.

UNIT IV

Hours: 12

B-ISDN user-network interfaces and protocols: B-ISDN protocol reference model – General aspects of the user-network interface – Physical layer of the user-network interface at 155/622 Mbit/s Additional user-network interfaces – Equipment-internal interfaces – ATM layer – ATM adaptation layer.

UNIT V

Hours: 12

Operation and maintenance of the B-ISDN UNI: Network configuration for OAM of the customer access – OAM functions and information flows – Implementation issues – Integrated local management interface – Traffic management: Traffic control procedures and their impact on resource management – Mechanisms to achieve a specified QoS – Statistical multiplexing in ATM networks – Congestion control Signaling , routing and addressing - ATM switching: Switching elements – Switching networks – Switches and cross-connects.

Reference Books:

1. William Stallings, ISDN and BroadBand ISDN with Frame Relay and ATM, Pearson Education, 4 th Edition, 2009
2. Rainer Handel, Manfred N Huber, Stefan Schroder, ATM Networks Concepts Protocols Applications, Pearson Education Asia, Latest Edition.
3. John M.Griffiths, ISDN Explained, 2e, March 1995, Willey & Sons.
4. Koji Kobayashi, Computers and Communications, The MID Press (a Version of c and C)

1986.

5. Walter, J., Gooralski, J., Introduction to ATM networking, McGraw-Hill Inc.,

SEMESTER – II

CORE 11 : LINUX USING SHELL SCRIPTING- PRACTICAL

Subject Code:17P2CSCP11

Total Hrs:60

No. of Credits: 4

PROGRAMS LIST

1. Write the shell script to check the status of file using test command.
2. Write the shell script to find the grade of student's marks.
3. Write a menu driven shell program to perform the following.
 - i) Enter the sentence in file.
 - ii) Search a whole worded in an existing file.
 - iii) Quit.
4. Write a shell script to perform case conversion.
5. Write a shell script to find the sum of digits.
6. Write a shell script to find the biggest of three numbers using command line arguments.
7. check for sufficient number of command line arguments.
7. Write a shell script to copy, delete and renaming a file.
8. Write a shell script to Check Server Utilization.
9. Write a shell script to Encrypt the File / directory.
10. Write a shell script to create colorful texts.
11. Implementation of system calls – Open, read and close. Create, write, lseek, stat, fstat.
12. Implementation of fork & exec.

SEMESTER – II

CORE 12: ADVANCED JAVA PROGRAMMING -PRACTICAL

Subject Code:17P2CSCP12

Total Hrs:45

No. of Credits: 3

PROGRAMS LIST

1. Create an employee package to maintain the information about the employee Using constructors
2. Program to implement inheritance.
3. Java program to handle different mouse events.
4. Create an applet for a calculator application.
5. Implementation of I/O streams.
6. Implementation of Multi-threading and Exceptions Handling Concepts.
7. Create a login form using Swing Components.
8. Java program to maintain the student information in text file.
9. Animate images at different intervals by using multi-threading concepts.
10. Program to send a text message to another system and receive the text message from the system (use socket programming).
11. Java program by using JDBC concepts to access a database.
- 12.**Java program to implement RMI.

SEMESTER- II

Common to Branches (M.Sc., (CS) / M.Sc .,(IT))

SKILL BASED SUBJECT 2 : MATHEMATICS FOR COMPETITIVE EXAMINATIONS

Subject Code: 17P1SBST02

Total Hrs: 30

No. of Credits:

2

Objectives:

13. To make the students to understand Verbal Reasoning , Analogy and Problem solving
14. To acquire knowledge in coding and Decoding of letter and words

15. To solve problems related to Blood relations , Puzzles and Non-verbal reasoning.

UNIT I (Hours:6)

Verbal Reasoning – Analogy - Completing the analogous pair - Simple analogy - Choosing the analogous pair.

UNIT II (Hours:6)

Series completion – Number Series – Alphabet series.

UNIT III (Hours:6)

Coding – Decoding – Letter coding – To form the code for another word (Coding) – To find the word by analysing the given code (Decoding) – Number coding – When numerical code values are assigned to words – Number to letter coding – when alphabetical code values are assigned to the numbers.

UNIT IV (Hours:6)

Blood relations – Deciphering jumbled up descriptions – Relation puzzle – Logical Venn diagram.

UNIT V (Hours:6)

Non-Verbal Reasoning – Series – Five figure series – Four figure series – Analogy – Choosing one element of a similarly related pair.

(Simple Problems Only)

Text Book:

1. *R. S. Agarwal : A Modern Approach to Verbal and Non-Verbal Reasoning, S. Chand and Company Limited, New Delhi – 2004.*

Unit I : Part I : Section 1- Pg : 1- 67

Unit II : Part I : Section 1- Pg : 139 - 161

Unit III : Part I : Section 1- Pg : 169 - 189

Unit IV : Part I : Section 1- Pg : 220 – 233, 346 - 366

Unit V : Part II : Pg : 1-31, 77-97, 136-146

Reference Books:

1. *Hand Book On Mental Ability And Logical Reasoning prescribed by Bharathiar University.*
2. R.V.Praveen: Quantitative Aptitude and Reasoning, PHI Learning pvt. Ltd-2012.

SEMESTER – III

CORE 13: DIGITAL IMAGE PROCESSING

Subject Code: 17P3CSCT13

Total Hrs:60

No. of Credits: 4

OBJECTIVES:

- To provide an idea about the fundamentals of Digital image processing and the methods of Representation
- To understand about various methods image Transformation and different approaches for image Enhancement.
- To Understand about Compression and Restoration of image using Matlab.

UNIT I

Hours:12

Fundamental Of Digital Image Processing : Steps in Image Processing – Building blocks of a digital image processing system – **Digital Image Representation** : Introduction - Digital image representation - Sampling and Quantization – Basic Relationship between pixels - Neighbors and Connectivity – Distance Measure.

UNIT II

Hours:12

Image Transformation : Introduction – Fourier Transformation – Discrete Fourier transformation – Properties – Fast Fourier Transformation – Discrete Cosine Transformation – The Haar Transformation

UNIT III

Hours:12

Image Enhancement : Introduction – Sample Domain and Frequency Domain Approaches – Techniques – Spatial Domain Techniques – Spatial Filtering – Frequency Domain – Gray Level to Color Transformation

UNIT IV

Hours:12

Image Compression : Introduction – Coding Redundancy – Inter Pixel Redundancy - Psycho Visual Redundancy – Image Compression models – The Source Encoder and Decoder – Lossy Compression Techniques – Threshold Coding – Vector Quantization – Image Compression Standard(JPEG)-Image Restoration .

UNIT V

Hours:12

Image Segmentation : Introduction – Detection of Isolated Points – Line Detection – Edge Detection – Edge Linking and Boundary Detection – Region Oriented Segmentation – Segmentation using Thresholding – Accumulative Difference Image

REFERENCE BOOKS:

1. S.Annadurai & R. Shanmugalakshmi, “ Fundamentals of Digital Image Processing “, Dorling Kindersley (India) PVT., Ltd,2007.
2. Rafael c. Gonzalea, Richard E. Woods, “Digital Image Processing” ,econd Edition, PHI/Person Education
3. B.Chabds, D.Dutta Majumder, “ Digital image Processing and Analysis “, PHI, 2003
4. Nick Efford, “Digital image Processing indroduction using Java”, Person Education , 2004.

SEMESTER – III

CORE 14: PYTHON

Subject Code: 17P3CSCT14

Total Hrs:60

No. of Credits: 4

OBJECTIVES:

- Develop a basic understanding of Python programming language.
- To understand various forms of data representation and structures supported by the Python language
- How to develop and implement various types of programs in the Python language .

UNIT I

Hours:12

Welcome to PYTHON: What is PYTHON-Origins-Features-Downloading and Installing PYTHON-Running PYTHON - PYTHON Documentation - comparing PYTHON-Other Implementation.**GETTING STARTED:**Comments-Operators-Variables and Assignments-Numbers-Strings-Lists and Tuples-Dictionaries-Code Blocks use Indentation-if statement-While Loop-For Loop and range() Built in Function-List Comprehensions-Files and the open () and File() Built in Function-Errors and Exception -Functions-Classes-Modules-Useful Functions. **PYTHON Basics:**Statements and Syntax-Variable Assignments-Identifiers-Basics style Guidelines-Memory Management -First PYTHON Programs-Related Modules/Developer Tools.

UNIT II

Hours:12

Numbers:Introduction to Numbers-Integers-Double Precision Floating point Numbers-Complex Numbers-Operators- Built in and Factory Function-Others Numeric Types-Related Modules.

UNIT III

Hours:12

Sequences:Strings,Lists and Tuples-Sequences-String-Strings and Operators-String Only Operators-Built-in Functions-String Built in Methods-Special Features of Strings-Unicode-Related Modules-Summary of String Highlights-Lists-Operators-Built in Functions-List type Built in Methods-Special Features of Lists-Tuples-Tuple Operators and Built in Functions-Special Features of Tuples-Related Modules-Copying Python Objects and Shallow and Deep Copies **Mapping and Set Types** mapping type dictionaries-operators-built in and factory function-built in methods-dictionary key-set types-set type operators-built in function-set type built in method-operators,function/method summary table for set types-related modules.

UNIT IV

Hours:12

Conditional Loops:If Statements-else statements-elif(aka else if Statements)-Conditional Expression-While Statements-for Statements-Break statement-Continue statement-Pass statement-Else statement...Take Two-Iterators and the iter() Function-List comprehensions-Generator Expressions-Related Modules. **Files and Input/Output:** File objects-file Built-in methods-File Built-in Attributes-Standard Files-Command-Line Arguments-File System-File Execution-Persistent Storage Modules-Related Modules.

UNIT V

Hours:12

Errors and Exceptions: What are exceptions?-Exceptions in python-Detecting and Handling Exceptions-Context Management- Exceptions as strings-Raising Exceptions-Assertions-Standard Exceptions- Creating Exceptions-Why Exceptions(Now)?-Why Exceptions atAll?-Exceptions and the sys Module-Related Modules. **Functions and Functional Programming:** What are Functions?-Calling Functions-Passing Functions-Formal Arguments-Variable-Length Arguments-Functional Programming-Variable scope-*Recursion-Generators. **Execution Environment:** Callable Objects-Code Objects-Executable Object Statements and Built-in Functions-Executing Other (python) programs-Executing Other (Non python) programs-Restricted Execution-Terminating Execution-Miscellaneous Operating System Interface-Related Modules.

REFERENCE BOOKS:

1. Core Python Programming 2 nd Edition , **Wesley J.Chun** .
2. Python Cookbook by David Beazley,Brain K.Jones.
3. Fundamentals of Python:First programs*(Introduction to Programming)1 st Edition By KennethA.Lambert.
4. Fundamentals of Python:Data Structures by Kenneth Lambert,January 1,2014,Nelson Education.

SEMESTER – III

CORE 15: MOBILE APPLICATIONS

Subject Code: 1P3CSCT15

Total Hrs:60

No. of Credits: 3

OBJECTIVES:

- To understand the knowledge of Android and Its Applications
- To understand the testing , security design and architecture in Android

UNIT I

Hours:12

Getting Started-Understanding The Android Life Cycle-Installing .apk Files Onto An Emulator Via The Adb-Installing Apps Onto An Emulator Via Slideme-Sharing Java Classes From Another Eclipse Project-Referencing Libraries To Implement External Functionality-Using SDK Samples To Help Avoid Head Scratching-Keeping The Android Sdk Updated

Testing-Doing Test-Driven Development(TDD)In Android-Setting Up In Android Virtual Device (AVD) For App Testing-Testing On A Huge Range Of Devices With Cloud Based Testing-Creating And Using A Test Project –troubleshooting Application Crashes-Getting Bug Reports From Users Automatically With Bug Sense-Reproducing Activity Life Cycle Scenario For Testing.

UNIT II

Hours:12

Inter-/Intra-ProcessCommunication-Introduction: Inter-/Intra-Process Communication-Opening A Webpage, Phone Number Or Anything Else With An Intent-Emailing Text From A View-Sending An Email With Attachments-Creating a Responsive Application using Threads-Sending Messages Between Threads Using An Activity Thread Queue And Handler-Creating An Android Epoch HTML/JAVA Script Calendar.

Content Provider-Introduction-Content Provider-Retreiving Data From A Content Provider-Writing A Content Provider-Writing An Android Remote Service.

UNIT III

Hours:12

Graphics-Introduction-Using A Custom Font-Drawing A Spinning Cube With Opengl Es-Adding Controls To The Opengl Spinning Cube-Freehand Drawing Smooth Curves Taking A Picture Using Intent –taking A Picture Using Android.Media.Camera-Scanning A Barcode Or Qr Code With The Google ZXing Barcode Scanner-Using Androidplot To Display Charts And

Graphs-Using Inkspace To Create An Android Launcher Icon-Creating Easy Launcher Icons From Open Clipart.Org Using Paint.Net-Using Nine Patch Files-Creating HTML5 Charts With Android RGRAPH-Adding A Simple Raster Animation-Using Pinch To Zoom.

UNIT IV **Hours:12**

Android Security Design And Architecture-Understanding Android System Architecture-Understanding Security Boundaries And Enforcement-Androids Sandbox-Android Permissions-Looking Closer At The Layers-Android Applications-The Android Framework-The Dalvik Virtual Machine-User-Space Native Code-The Kernel-Complex Security,Complex Exploits.

UNIT V **Hours:12**

Case Study-Telephone Applications-Networked Applications-Gaming And Animation-Social Networking-Location And Map Applications.

REFERENCE BOOKS:

1. Android Cook Book-Edited by Ian F. Darwin Shroff Publishers and Distributors PVT Limited.
2. Android Hackers Handbook -Wiley , Joshua J . Drake

SEMESTER – III

CORE 16: BIG DATA ANALYTICS

Subject Code: 17P3CSCT16

Total Hrs: 60

No. of Credits: 3

OBJECTIVES:

- To explore the fundamental concepts of big data analytics
- To develop in-depth knowledge and understanding of the big data analytic domain.
- To learn to analyze the big data using intelligent techniques.
- To understand the various search methods and visualization techniques.
- To learn to use various techniques for mining data stream.
- To understand the applications using Map Reduce Concepts

Unit-I

Hours:12

Introduction To Big Data: Introduction to BigData Platform – Traits of Big data - Challenges of Conventional Systems -Web Data – Evolution Of Analytic Scalability - Analytic Processes and Tools - Analysis vs Reporting - Modern Data Analytic Tools - Statistical Concepts: Sampling Distributions - Re-Sampling - Statistical Inference - Prediction Error.

Unit-II

Hours:12

Data Analysis: Regression Modeling - Multivariate Analysis - Bayesian Modeling - Inference and Bayesian Networks - Support Vector and Kernel Methods - Analysis of Time Series: Linear Systems Analysis - Nonlinear Dynamics - Rule Induction - Neural Networks: Learning And Generalization - Competitive Learning - Principal Component Analysis and Neural Networks -Fuzzy Logic: Extracting Fuzzy Models from Data - Fuzzy Decision Trees - Stochastic Search Methods.

Unit -III

Hours:12

Mining Data Streams: Introduction To Streams Concepts – Stream Data Model and Architecture - Stream Computing -Sampling Data in a Stream – Filtering Streams – Counting Distinct Elements in a Stream –Estimating Moments – Counting Oneness in a Window – Decaying Window - Real time Analytics Platform(RTAP) Applications - Case Studies - Real Time Sentiment Analysis, Stock Market Predictions.

Unit -IV

Hours:12

Frequent Itemsets And Clustering : Mining Frequent Itemsets - Market Based Model – Apriori Algorithm – Handling Large Data Sets in Main Memory – Limited Pass Algorithm – Counting Frequent Itemsets in a Stream –Clustering Techniques – Hierarchical – K-Means – Clustering High Dimensional Data –CLIQUE And PROCLUS – Frequent Pattern based Clustering Methods – Clustering in Non-Euclidean Space – Clustering for Streams and Parallelism.

Unit -V

Hours:12

Frameworks And Visualization :Map Reduce – Hadoop, Hive, MapR – Shading –

NoSQL Databases - S3 - Hadoop Distributed File Systems – Visualizations - Visual Data Analysis Techniques - Interaction Techniques; Systems and Analytics Applications - Analytics using Statistical packages-Approaches to modelling in Analytics – correlation, regression, decision trees, classification, association-Intelligence from unstructured information-Text analytics-Understanding of emerging trends and technologies-Industry challenges and application of Analytics.

REFERENCE BOOKS:

1. Michael Berthold, David J. Hand: “Intelligent Data Analysis”, Springer, 2007.
2. AnandRajaraman and Jeffrey David Ullman: “Mining of Massive Datasets”, Cambridge University Press, 2012.
3. Bill Franks: “Taming the Big Data Tidal Wave: Finding Opportunities in Huge Data Streams with Advanced Analytics”, John Wiley & sons, 2012.
4. Glenn J. Myatt: “Making Sense of Data”, John Wiley & Sons, 2007
5. Pete Warden: “Big Data Glossary”, O’Reilly, 2011.
6. Jiawei Han, MichelineKamber: “Data Mining Concepts and Techniques”, Second Edition, Elsevier, Reprinted 2008.

SEMESTER – III

CORE 17: DIGITAL IMAGE PROCESSING - PRACTICAL

Subject Code: 17P3CSCP17

Total Hrs:45

No. of Credits: 3

PROGRAM LIST

1. Write a program to convert Gray Scale image to Binary Image.
2. Write a program in MATLAB for finding Negative of an Image.
3. Write a program for color image processing
4. Write a program to Implement Image enhancement Technique.
5. Write a program in MATLAB for Histogram Equalization.
6. Write a program to implement Image Restoration
7. Write a program to implement Gaussian High pass Filter.
8. Write a program to detect Edge detection using Operators (Roberts, Prewitts and Sobel operators)
9. Write a program to implement Erosion & Dilation of an Image.
10. Write a program to implement image compression.
11. Write a program to implement Boundary Extraction using morphology.
12. Write a program to implement Image Segmentation

SEMESTER – III

CORE 18: PHYTHON - PRACTICAL

Subject Code: 17P3CSCP18

Total Hrs:45

No. of Credits: 3

PROGRAM LIST

1. Write a Program to Print the Fibonacci sequence
2. Write a Program to Convert Decimal to Binary Using Recursion
3. Write a Program to Add Two Matrices
4. To Create Program to Check Whether a String is Palindrome or Not
5. To Create Program to Sort Words in Alphabetic Order
6. Write a Program to Magic 8-ball written in Python
7. Write a Program to 8-Queens Problem (recursion)
8. Write a Program to XML/HTML parsing
9. Write a Program to "Guess the Number" Game.
10. Write a Program for nested tuple using nested indexing
11. Write a Program to set type operators .
- 12. Write a Program for Exception Handling.**

SEMESTER - III

SKILL BASED SUBJECT 3: TECHNICAL SEMINAR AND REPORT WRITING

Subject Code: 17P3SBST03

Total Hrs: 30

No. of Credits: 2

Guidelines for Technical Seminar & Report Writing

Technical Seminars

Seminar is a course requirement wherein under the guidance of a faculty member a student is expected to do an in depth study in a specialized area by doing literature survey, understanding different aspects of the problem and arriving at a status report in that area. While doing a seminar, the student is expected to learn investigation methodologies, study relevant research papers, correlate work of various authors/researchers critically, study concepts, techniques, prevailing results etc., analyze it and present a seminar report. It is mandatory to give a seminar presentation before a panel constituted for the purpose. The grading is done on the basis of the depth of the work done, understanding of the problem, report and presentation by the student concerned.

Seminar Report

Students must carefully go through the report preparation guidelines.

The first draft of the report complete in all respects must be submitted at least one month prior to the date of submission of the final report.

The report must reflect the students' understanding of the problem.

The student is expected to write his own report without plagiarism

Presentation

Students also need to make a mock presentation to the M.Sc students one week prior to the final presentation date. This would enable the student to make corrections either in the slides or in the presentation so that he/she is better prepared for the final presentation.

Report Writing

This document may be referred as report writing guide It may be used for the preparation of seminar and project reports associated with M.Sc Programs.

Contents

Sr. No.	Title	Page No.
1	Explanation of Terms Used	1
	1.1 Title Page	1
	1.2 Abstract	1
	1.3 Sequence of Contents	1
	1.4 Table of Contents (ToC)	1
	1.5 The Chapters	2
	1.6 Equations	3
	1.7 Acronyms	3
	1.8 Tables And Figures	3
	1.9 References	4
	1.10 The Appendices	5
2	Additional Guidelines for Seminar/ Project Reports	5
	2.1. Interaction With Your Guide	5
	2.2. Submission	5
	2.3. Format	5
	2.3.1 Text and Units	5
	2.3.2 Page Limits	5
	2.3.3 Format for Top Cover	5
	2.3.4 Certification Page	6
	2.3.5 Declaration Page	8
	2.3.6 Acknowledgement	9
	2.3.7 ToC	9
	2.3.8 List of Figures	10
	2.3.9 List of Tables	10
	2.3.10 Nomenclature	10
	2.4 Main Pages	10
	2.5 General Guidelines	10
3	Expectations From Work	11

Merits of evaluation

1. Regularity:

Based on:

Whether the student has kept the guide updated on his progress (at least one contact hour per week).

2) Quality of work:

Based on:

Depth of work done and understanding of the problem.

Whether the student has learnt investigation methodologies described above.

3) Quality of report:

Based on:

Whether the student has expressed his/her understanding of the topic.

Whether the student has followed the guidelines given for report preparation.

4) Quality of presentation:

Based on:

Whether the student has been able to express his/her understanding of the topic.

Whether the student has been able to satisfactorily answer questions of the panel members.

Evaluation weightages

Merit of evaluation	Guide	Examiner	Panel member
Regularity	15%	-	-
Quality of work	15%	15%	10%
Quality of report	10%	15%	-
Quality of presentation	-	-	20%

SEMESTER – IV

CORE 19 : PROJECT VIVA VOCE

Subject Code : 17P4CSCV19

No of Credits :14

GUIDELINES FOR PROJECT WORK

1. The aim of the project work is to acquire practical knowledge on the implementation of the programming concepts studied.
2. Each student should carry out individually one project work and it may be a work using the software packages that they have learned or the implementation of concepts from the papers studied or implementation of any innovative idea focusing on application oriented concepts.
3. The project work should be compulsorily done in the college only under the supervision of the department staff concerned.

FINAL VIVA

1. Project work carries 200 marks with 20 credits
2. Internal Assessment: 160 marks (40 marks for 3 reviews and 40 marks for record) and External Assessment : 40 marks (Viva Voce)
3. For awarding a pass, a candidate should have obtained 50% of the total 200 Marks.(Viva - Voce)
4. The evaluation would be done jointly by both the examiners(Internal and External). Students who fail in the project work and viva-voce examination or who are absent for the project viva-voce who fail to submit the project report before the due date will have to re-submit the project work and appear for the viva-voce examination during the subsequent year.

PROJECT WORK

TITLE OF THE PROJECT
Bonafide Work Done by
STUDENT NAME
REG. NO.

Project submitted in partial fulfillment of the requirements

for the award of Mastor of Computer Science of
Bharathiar University,Coimbatore-46

College emblem

GUIDE

HOD

Submitted for the Viva-Voce Examination held on _____

Internal Examiner

External Examiner

MONTH – YEAR

CONTENTS

DECLARATION

CERTIFICATE

ACKNOWLEDGEMENT

CONTENTS

SYNOPSIS

1. INTRODUCTION

1.1 ORGANIZATION PROFILE

1.2 SYSTEM SPECIFICATION

1.2.1 HARDWARE CONFIGURATION

1.2.2 SOFTWARE SPECIFICATION

2. SYSTEM STUDY

2.1 EXISTING SYSTEM

2.1.1 DRAWBACKS

2.2 PROPOSED SYSTEM

2.2.1 FEATURES

3. SYSTEM DESIGN AND DEVELOPMENT

3.1 FILE DESIGN

3.2 INPUT DESIGN

3.3 OUTPUT DESIGN

3.4 DATABASE DESIGN

3.5 SYSTEM DEVELOPMENT

3.5.1 DESCRIPTION OF MODULES

(Detailed explanation about the project work)

4. TESTING AND IMPLEMENTATION

5. CONCLUSION

BIBLIOGRAPHY

APPENDICES

A. DATA FLOW DIAGRAM

B. TABLE STRUCTURE

C. SAMPLE CODING

D. SAMPLE INPUT

E. SAMPLE OUTPUT

SEMESTER – II ELECTIVE 1 : GRID COMPUTING

Subject Code:17P2CSET1A

Total Hrs:60

No. of Credits: 4

OBJECTIVES :

- To get Knowledge on Grid Computing , and its environment
- To get Knowledge on its techniques and Architecture and Implementation
- To get Knowledge on Cluster , managing grid and its services.

UNIT I

Hours:12

About Grid : Introduction – Basic Concepts – Entering into grid – Definition – Grid Projects – Grid Layered Architecture – Distributed Computing – Computational Grids – Data Grids – Dynamic Virtual Organization – Distributed Shared Memory in Grid Environment .

UNIT II

Hours:12

Grid Computing Technologies : Service Oriented Architecture (SOA) – Introduction – Reference Architecture – Design and Development – Executive Paradigm-Web Services in Grid – Web service Technologies – Technologies for Web Services – Simple Object Access Protocol (SOAP)- SOAP Processing – Supporting MEP – SOAP Modules .

UNIT III

Hours:12

Grid Platforms: Open Grid Service Architecture (OGSA) – Introduction – Architecture – Grid Service Description – OGSA Core Services- OGSA Basic Services – **Open Grid Services Infrastructure (OGSI) :** Introduction – OGSI Authorization and Attributes – Requirements – Standard and Specification of Attributes – OGSI Components – Web Service Resource Framework (WSRF)

UNIT IV

Hours:12

Grid Implementation : Grid Computing Security – Introduction – Security Fundamentals – Authentication Schemes – Standard Protocols – Grid Taxonomy – Grid Security Infrastructure (GSI) – security – Web Service Security – Different Emerging Security Technologies in Grid – Globus Toolkit - Data Management – Resource Management – Information Services – Security – Architecture .

UNIT V

Hours:12

Cluster : Introduction – History – Cluster organization – Desktop Supercomputing : Native Programming for grids – grid Enabling software applications – Managing Grid Environments – Grid Computing adoption in Research and Industry.

REFERENCE BOOKS:

1. P.Venkata Krishna , M.Rajasekhara Babu, V.Saritha, “ Principles of Grid Computing concepts and Applications”.Ane Books Pvt.Ltd.2010.
2. Ahmar Abbas : “ Grid Computing – A practical guide to technology and applications, firewall Media , 2008
3. Joshy Joseph, Craig Fellenstein , “Grid Computing “, Indian Edition 2004.
4. MaoghenLI,Mark Baker: “Grid Core Technologies” , Indian Edition 2010.

SEMESTER – II
ELECTIVE 1 : NEURAL NETWORKS AND GENETIC ALGORITHM

Subject Code:17P2CSET1B

Total Hrs:60

No. of Credits: 4

Objectives:

To enable the students

- To learn about the basics of neural networks and its applications and artificial neural networks and its processes.
- To understand the concept of Genetic Algorithms.

UNIT I

Hours :12

Introduction : Neural Networks - Fundamentals Of Neural Networks : Basic Concepts of Neural Networks- Human Brain - Model Of an Artificial Neuron - Neural Network Architectures - Characteristics of Neural Networks - Learning Methods - Taxonomy of Neural Networks Architectures - History of Neural Networks Research - Early Neural Network Architectures (chapter : 1 & 2)

UNIT II

Hours:12

Backpropagation Networks : Architecture of a Backpropagation Network – The perception Model – solution – single layer artificial neural network – Model for Multilayer Perceptron – Backpropagation Learning – Input Layer – Hidden Layer – output layer – Calculation of error- training of Neural Network - Illustration – Application (chapter 3)

UNIT III

Hours:12

Backpropagation Networks: Effect of Tuning Parameter of the Backpropagation Neural Network – Selection of various parameter in BPN – Variations of Standard Backpropagation Algorithm-Research Direction.(chapter : 3)

UNIT IV

Hours:12

Adaptive Resonance Theory : Introduction – Cluster Structure – Vector Quantization – Classical ART Networks – Simplified ART Architecture - ART1 - Architecture – Special features of ART1 Models – Algorithms - ART2 - Architecture - Algorithms -Application. (chapter : 5)

UNIT V

Hours:12

Genetic Algorithms : Fundamentals of Genetic Algorithms – History – Basic Concepts – Creation of offsprings – working principle – Encoding – Fitness Functions – Reproduction.(chapter : 8)

REFERENCE BOOKS:

5. S. Rajasekaran, G.A.Vijayalakshmi Pai , “Neural Networks, Fuzzy Logic and Genetic Algorithms Synthesis and Applications” Prentice Hall of India PLTD, 2004.
6. “Neural Networks A comprehensive foundations”, Simon Haykin, Pearson Education 2nd Edition 2004
7. “Neural Networks in Computer Intelligence”, Li Min Fu TMH 2003
8. Fakhreddine O. Karray, Clarence De Silva, Soft Computing and Intelligent Systems Design, Pearson, 2009.
9. Sivanandam. S. N and Deepa S. N, Principles of Soft Computing, Wiley India, 2008

SEMESTER – II
ELECTIVE 1: E –TECHNOLOGIES

Subject Code: 17P2CSET1C

Total Hrs:60

No. of Credits: 4

Objectives:

To enable the students

- To have an understanding of the Basics of E-Commerce and Technology infrastructure require for implementing the same.
- To have a knowledge on various methods and strategies for selling on the web
- To Know about web server and software require for implementing E-Commerce.
- To Know in detail about E-Marketing and Intalligent Agents.

UNIT I :INTRODUCTION

Hours: 12

Traditional commerce and E commerce-Internet and WWW-role of WWW-value chains-Strategic business and industry value chains-role of e commerce.

UNIT II :INFRASTRUCTURE FOR E COMMERCE

Hours: 12

Packet Switched Networks-Tcp/Ip Protocol Script-Internet Utility Programmes-Sgml,Html And Xml-Web Client And Servers-Web Client/Server Architecture-Intranet And Extranets.

UNIT III :WEB BASED TOOLS FOR E COMMERCE

Hours: 12

Web Sercer-Performance Evaluation—Web Server Software Feature Sets-Web Server Software And Tools-Web Protocol-Search Engines-Intelligent Agents-EC Software-Web Hosting-Cost Analysis.

UNIT IV :SECURITY

Hours: 12

Computer Security Classification-Copy Right And Intellectual Property-Electronic Commerce Threats-Protecting Client Computers-Electronic Payment Systems-Electronic Cash-Strategies For Marketing-Sales And Promotion-Cryptography-Authendication.

UNIT V : INTELLIGENT AGENTS

Hours: 12

Definition and capabilities -Limitation of agents-Security-Web based marketing-Search engines and Directory registration-Online advertisments-Portables anf info mechanics-Website design issues.

REFERENCE BOOKS:

1. V.Thomas Sacraties, E-Commerce Mailam Engineering collage.
2. N.Mary Shyamala, E-Commerce I.F.E.T.Collage of Engineering.
3. E-Commerce (Concepts and Applications) Nidhi Dhawan,*International Book House PVT.LTD-1941.*
4. *E-Commerce Strategy,Technologies and Applications,David Whiteley,Manchester Metropolitan University,Tata McGraw-Hill Publishing Company Limited New Delhi*

SEMESTER – II
ELECTIVE 1: MULTIMEDIA AND ITS APPLICATIONS

Subject Code: 17P2CSET1D

Total Hrs:60

No. of Credits: 4

Objectives:

To enable the students

- To learn about the concepts of Multimedia.
- To Understood the various animation techniques in multimedia.
- To learn about HDTV and Desktop Computing Technologies.

UNIT I

Hours: 12

What is Multimedia –Introduction to making Multimedia –Macintosh and Windows Production platforms –Basic Software tools.

UNIT II

Hours: 12

Making Instant Multimedia –Multimedia authoring tools –Multimedia building blocks –Text –Sound.

UNIT III

Hours:12

Images –Animation –Video.

UNIT IV

Hours:12

Multimedia and the Internet –The Internet and how it works –Tools for World Wide Web – Designing for the World Wide Web.

UNIT V

Hours: 12

High Definition Television and Desktop Computing –Knowledge based Multimedia systems.

REFERENCE BOOKS:

- 1.Tay Vaughan, “Multimedia making it work”, Fifth Edition, Tata McGraw Hill.
- 2.John F. Koegel Bufford, “Multimedia Systems”, Pearson Education.
- 3.Judith Jeffloate, “Multimedia in Practice (Technology and Applications)”, PHI, 2003

SEMESTER – III
ELECTIVE 2: ENTERPRISE RESOURCE PLANNING

Subject Code: 17P3CSET2A

Total Hrs:60

No. of Credits: 4

OBJECTIVES:

- To understand capability to streamline the different organizational processes and work flows in ERP
- To learn about the improved efficiency, performance, and productivity levels of ERP
- To know the basics of ERP, key implementation, business modules and future trends in ERP.

UNIT 1

Hours:12

ERP: Introduction : Define – Functional Module in ERP System – Evolution of ERP Systems - Characteristics of ERP – Process Integration With ERP Systems. Benefits of ERP Applications – Technology Behind ERP Systems. **ERP Market and Vendors:** ERP Market – ERP Vendors – Service Oriented Architecture - ERP Package features.

UNIT II

Hours:12

Extended ERP Services: Defining Extended ERP – SCM and ERP – ERP and BI – ERP and E-Commerce. **Business Process Re-engineering And ERP:** Defining Business Process Reengineering- Enterprise redesign principles – Business process reengineering - BPR and Change Management – Different Approaches BPR Implementation – Methodology for BPR Implementation – Role of IT in BPR – BPR and ERP Systems – BPR success / failure factors.

UNIT III

Hours:12

Planning for ERP – Planning for ERP Implementation – Understanding Organizational Requirements. - Understanding Economic and Strategies Justification – Analysing Project Scope – Determining Resources – Creating Budget for ERP Implementation – Selecting the Right ERP Package- Preparing Organizations for ERP Implementation. **Implementation of ERP:** Designing for ERP systems – ERP implementation approaches – ERP implementation Life cycle.

UNIT IV

Hours:12

Managing ERP Projects: Risk Failure factors in ERP Implementation – Examples of ERP Failure- Mitigating implementation risks – Management and complexity of Large scale ERP Projects- Training users to use ERP Systems. - Evaluating ERP Projects.

UNIT V

Hours:12

ERP Going live and post implementation: Preparing to go live – Strategies for migration – to new ERP systems – Go live performance surprises – Managing ERP after go live – Maintenance of ERP Systems. **Expanding ERP Boundaries:** Service oriented architecture – Enterprises application integration – Application Services provider – Model for ERP implementation.

REFERENCE BOOKS:

1. Ashim raj singla – Enterprise Resource Planning – Cengage Learning india Pvt . Ltd 2008.
2. Alexis Leon, " ERP Demystified" II Edition , Tata McGraw Hill, New Delhi, 2000
3. Alexis Leon," Enterprise Resource Planning: II Edition, Tata McGraw Hill.

SEMESTER – III

ELECTIVE 2: SOFTWARE TESTING

Subject Code: 17P3CSET2B

Total Hrs:60

No. of Credits: 4

OBJECTIVES:

- To understand the Software Testing.
- To discuss the distinctions between validation tests and defect testing.
- To describe the principles of system and component testing.
- To describe strategies for generating system test cases.
- To understand the essential characteristics of tool used for test automation.

UNIT I

Hours:12

Software Development Life Cycle models: Phases of Software project – Quality, Quality Assurance, Quality control – Testing, Verification and Validation – Process Model to represent Different Phases - Life Cycle models. White-Box Testing: Static Testing – Structural Testing – Challenges in White-Box Testing.

UNIT II

Hours:12

Black-Box Testing: What is Black-Box Testing? - Why Black-Box Testing? – When to do Black-Box Testing? – How to do Black-Box Testing? – Challenges in White Box Testing - Integration Testing: Integration Testing as Type of Testing – Integration Testing as a Phase of Testing – Scenario Testing – Defect Bash.

UNIT III

Hours:12

System and Acceptance Testing: system Testing Overview – Why System testing is done? – Functional versus Non-functional Testing - Functional testing - Non-functional Testing – Acceptance Testing – Summary of Testing Phases.

UNIT IV

Hours:12

Performance Testing: Factors governing Performance Testing – Methodology of Performance Testing – tools for Performance Testing – Process for Performance Testing – Challenges. Regression Testing: What is Regression Testing? – Types of Regression Testing – When to do Regression Testing – How to do Regression Testing – Best Practices in Regression Testing.

UNIT V

Hours:12

Test Planning, Management, Execution and Reporting: Test Planning – Test Management – Test Process – Test Reporting –Best Practices. Test Metrics and Measurements: Project Metrics – Progress Metrics – Productivity Metrics – Release Metrics.

REFERENCE BOOKS:

1. Software Testing Principles and Practices, Srinivasan Desikan & Gopalswamy Ramesh, 2006, Pearson Education.
2. Effective Methods of Software Testing, William E. Perry, 3rd ed, Wiley India.
3. Software Testing, Renu Rajani, Pradeep Oak, 2007, TMH

SEMESTER – III**ELECTIVE 2: COMPILER DESIGN****Subject Code: 17P3CSET2C****Total Hrs:60****No. of Credits: 4****To enable the students**

- To learn the fundamentals of Compiler Designes
- To gain knowledge on High level Programming languages
- To gain an insight into the lexical Analysis components viz. the algorithms for implementation of finite automata
- To know the components and management aspects of parsing tables, types of Error and the methods Detection and Recovery

UNIT I**Hours:12**

Introduction to Compilers: Compilers and Translators – The Structure of a Compiler
 Lexical Analysis – Syntax analysis – Intermediate Code generation – Optimization – Code generation- Book keeping – Error handling – Compiler writing tools. **Programming languages:**
 High level Programming languages- Definitions – lexical and Syntactic structure of a language – data elements data structures – operators – assignment – statements – program units – data environments - parameter transmission – storage management.

UNIT II**Hours:12**

Finite Automata and lexical Analysis: The role of the lexical analyzer – simple approach – regular expressions -finite automata – from regular expressions to finite automata – minimizing the number of states – implementation of lexical analyzer. The Syntactic Specifications of programming languages : Context free Grammers – Derivations and Parse Trees – Capabilities of Context free Grammers. Basic Parsing Techniques: Parsers – Shift – reduce parsing – operator- precedence parsing – Top down parsing – Predictive parsers.

UNIT III**Hours:12**

Automatic Constuction of Effective parsers : LR parsers – Canonical Collection of LR (0) items - Constructing SLR parsing tables – Constructing Canonical LR paqrsing tables – Constructing LALR parsing tables – Using ambiguous grammers – an automatic parser generator – Implemenatation of LR parsing tables – Constructing LALR sets of items.
 Symbol tables : the Contents of a symbol tables – data structures – Representing scope information.

UNIT IV**Hours:12**

Error Detection and Recovery : Errors – Lexical phase errors – Syntactic phase errors – Semantic errors. Introduction to Code Optimization :The principal sources of optimization – Loop Optimization – DAG representation of basic blocks – Value numbers and algebraic laws- global data flow analysis.

UNIT V**Hours:12**

Loop Optimization: Dominators – Reducible Flow graphs – depth first search – Loop invariant computations – Induction variable elimination – Some other loop optimizations. Code generation: object programs – Problems in code generation – A machine model – A simple code generator – Register allocation and assignment – Code generation from DAG's – Peephole Optimization.

2REFERENCE BOOKS:

1. Principles of Compiler Design, Alfred V. Aho, Jeffrey D. Ullman, Narosa publishing house.
2. Compilers : Principles, Techniques and Tools (2nd Edition) by Alfred V. Aho and Monica S. Lam, Sep 10 , 2006.

SEMESTER – III

ELECTIVE 2: SOFTWARE PROJECT MANAGEMENT

Subject Code: 17P3CSET2D

Total Hrs:60

No. of Credits: 4

OBJECTIVES:

- To get knowledge of how to handle project development activities
- To understand the threats and opportunities in Project managements
- To study various project cost, time estimation models and how to make quality software products.

UNIT - I

Hours : 10

SOFTWARE PROJECT MANAGEMENT :Introduction, Need for Software Project Management – Software Project versus other projects – Overview of Project planning.

UNIT - II

Hours:10

PROJECT EVALUATION :Introduction, Strategic assessment, Technical Assessment, Cost benefit Analysis, Cash flow forecasting, Cost benefit Evaluation Techniques Risk Evaluation – Selection of appropriate project planning.

UNIT III

Hours:14

ACTIVITY PLANNING :Objectives of activity planning, Project schedules, Projects and activities, Sequencing and scheduling activities, Network Planning models –Formulating network models, Using dummy activities, Identifying critical path, identifying critical activities. Risk Analysis and Management: Nature of risk, Managing risk, Risk identification, Risk analysis, reducing the risks, evaluating the risks.

UNIT IV

Hours:14

SOFTWARE EFFORT ESTIMATION: Problems with over and under estimate, the basis for software estimation, software estimation Techniques. Expert judgments, Estimating by analogy, Function point analysis. Resource Allocation: Identifying resource requirements, Scheduling resources, Monitoring and control, Managing people and organization teams.

UNIT V

Hours:12

PROJECT MANAGEMENT :Project Management in the Testing phase – Introduction, test scheduling, test types, issues, management structures for testing, metrics for testing phase, Project Management in the Management phase – Introduction, activities, management issues, configuration management, estimating size, effort and people resources, advantages, metrics.

REFERENCE BOOKS:

1. Bob Hughes and Mike Cotterell, “Software Project Management”, Hill 5th Edition, Tata McGraw
2. Gopaldaswamy Ramesh, “Managing Global Software Projects”, 2001, TMH.
3. Walker Royce, “Software Project Management”, 1998, Addison Wesley
4. Stellman & Greener, ”Applied software project management” SPD.

EXTRA CREDIT COURSES : FUZZY MATHEMATICS

Subject Code : 17PCSECC01

No.of Credits : 2

Objectives:

- To understand the concepts of Fuzzy sets and Crisp Sets
- To understand the concepts of Fuzzy Arithmetic and Fuzzy Relations.

UNIT I

From classical sets to Fuzzy sets: Introduction-Crisp Sets: An overview-Fuzzy set: Basic types-Fuzzy sets: Basic Concepts-Characteristics and significance of the paradigm Shift

UNIT II

Fuzzy sets versus crisp sets: Additional properties of α -Cuts- Representations of fuzzy sets-Extension Principle of Fuzzy sets.

UNIT III

Operations on fuzzy sets: Types of Operations-Fuzzy complements-Fuzzy Intersections: t -Norms-Fuzzy unions: t -conorms

UNIT IV

Fuzzy Arithmetic: Fuzzy Numbers-Linguistic Variables-Arithmetic Operations on intervals

UNIT V

Fuzzy Relations: Crisp versus Fuzzy Relations-Projections and Cylindric Extensions-Binary Fuzzy Relations-Binary relations on a single set-Fuzzy Equivalence Relations-Fuzzy Compatibility Relations.

REFERENCE BOOKS:

1. Fuzzy Sets Uncertainty and Information, George, J.Klir and Tina A, Folger, Printice Hall of India Pvt Ltd, New Delh, 2006
UNIT 1: Page no: 1-30 **UNIT 2:** Page no: 35-48 **UNIT 3:** Page no: 50-96
UNIT 4: Page no: 97-102 **UNIT 5:** Page no: 119-135
2. Fuzzy Logic Intellegence, Control and information, John Yuan, Reza Langari, Pearson Education, New Delh, 1999
3. Fuzzy logic and Neural Networks, M.Amirthavalli, Scitech Publications Pvt Ltd, Chennai and Hydrabad, 2007
4. Fuzzy Lgic with Engineering Applications, Timothy , Jo Ross, McGraw-Hill INC, New York, 1996.

EXTRA CREDIT COURSES : OPERATION RESEARCH

Subject Code : 17PCSECC02

No.of Credits : 2

Objectives:

- To understand the basic concepts of Operations Research and Solving LPP
- To solve Transportation and Assignment problems
- To understand the concept of Game theory , Queuing theory PERT and CPM.

UNIT I

Introduction to Operations Research - Meaning - Scope – Models - Limitation. Linear Programming - Formulation – Graphical method only.

UNIT II

Transportation (Non- degenerate only) - Assignment problems - Problems.

UNIT III

CPM - Principles - Construction of Network for projects – Types of Floats – Slack- crash programme.

UNIT IV

PERT - Time scale analysis - critical path - probability of completion of project - Advantages and Limitations.

UNIT V

Game Theory: Graphical Solution – $mx2$ and $2xn$ type. Solving game by Dominance property - fundamentals - problems . Replacement problem – Replacement of equipment that deteriorates gradually (value of money does not change with time).

*** Questions in problems and theory carry 80% and 20% marks respectively.**

REFERENCE BOOKS:

1. Prof. V. Sundaresan., K.S. Ganapathy Subaramanian ., K.Ganesan: Resource Management Techniques (Operations Research) A.R.Publications- 2002
Unit I : Chapter 1 – Section 1.1,1.2,1.4,1.9, Chapter 2 – Section 2.1- 2.5
Unit II : Chapter 7 – Section 7.1- 7.2, Chapter 8 – Section 8.1 ,8.2,8.4,8.5
Unit III : Chapter 15 – Section 15.1,15.2,15.5,15.8
Unit IV : Chapter 15 – Section 15.6
Unit V : Chapter 16 – Section 16.6, 16.7, Chapter 11 – Section 11.1, 11.2
2. Kanti Swarup, Gupta P.K, Man Mohan : Operations Research, Sultan Chand & Sons- 1997
3. P.R. Vittal and V.Malini : Operations Research, Margham Publications -2011.
4. P.K.Gupta.,ManMohan: Problems in Operations Research,Sultan Chand &sons-2004
5. V.K.Kapoor: Operations research, Sultan Chand&sons-2007

EXTRA CREDIT COURSES : FINANCIAL ACCOUNTING

Subject Code : 17PCSECC03

No.of Credits : 2

Objectives:

- To enable the students to learn principles and concepts of accountancy
- To make the students understand basic accounting framework
- To provide adequate knowledge on consignment, joint venture and depreciations

UNIT I

Fundamentals of Book Keeping- Accounting Concepts and Convention – Objectives of Accounting – Advantages of Accounting – Limitations of Accounting - Journal-Ledger -Subsidiary books - Trial balance- Errors and Rectification.

UNIT II

Final Accounts of a sole trader with adjustments - Trading Account – Profit and Loss Account – Balance sheet.

UNIT III

Accounts of Non Trading Concerns - Receipts and Payments Account - Income and Expenditure Accounts and Balance Sheet - Bank Reconciliation Statement.

UNIT IV

Accounting for Consignments – Account Sales – Valuation of Stock – Normal Loss – Abnormal Loss - Joint ventures – Joint Venture Vs. Consignment – Accounting for Joint Ventures – Separate books.

UNIT V

Accounting for depreciation –Methods of depreciation - Straight line method, Diminishing balance method, Annuity method – Single entry system – Single entry system Vs. Double entry system – Statement of Affairs method – Conversion method - Total Debtors – Total Creditors – Bills Receivable – Bills Payable.

Note: Distribution of marks between problems and theory shall be 80% and 20%.

REFERENCE BOOKS:

1. T.S.Reddy and Dr.A. Murthy:“Financial Accounting”, Margham Publications, Chennai, Reprint 2016.
2. S.P.Jain and K.L.Narang: “Advanced Accountancy”, Kalyani Publishers, New Delhi, 17th Revised Edition, 2011.
3. T.S. Grewal: “Introduction to Accountancy”, Sultan Chand & Co., New Delhi, 8th Revised Edition, 2013.
4. K.L.Nagarajan, N.Vinayakam and P.L.Mani: “Principles of Accountancy”, Euroasia Publishing House (Pvt) Ltd., New Delhi, Reprint 2010.
5. R.L.Gupta and M.Radhaswamy: “Advanced Accountancy”, Sultan Chand & Sons, New Delhi, Reprint 2008.

EXTRA CREDIT COURSES: MANAGEMENT INFORMATION SYSTEM

Subject Code: 17PCSECC04

No. of Credits: 2

Objectives:

- To familiarise the students with Business Information through Computers.
- To enable the students aware of utilization of business information for decision making.
- To bestow knowledge about Database Management System

UNIT I

Management information system: meaning – features – requisites of effective MIS – MIS Model – components – subsystems of an MIS – role and importance – corporate planning for MIS – growth of MIS in an organization – centralization vs decentralization of MIS - Support – Limitations of MIS.

UNIT II

System concepts – elements of system – characteristics of a system – types of system – categories of information system – system development life cycle – system enhancement.

UNIT III

Information systems in business and management: Transaction processing system: Information repeating and executive information system.

UNIT IV

Database management systems – conceptual presentation – client server architectures networks.

UNIT V

Functional management information system: Financial – accounting – marketing – production – Human resource – business process outsourcing.

REFERENCE BOOKS:

1. Gordon B.Davis and Margrethe H.Olson: “Management Information System”, Tata McGraw Hill Publication, New Delhi, 1st Edition, 2005.
2. Aman Jindal: “Management Information system”, Kalyani Publishers, New Delhi, 1st Edition, 2004.
3. Kenneth C. Laudon: “Management Information System”, Pearson Education, New Delhi, 1st Edition, 2004.
4. Stephen Haag: “Management Information System”, Tata McGraw Hill Publication, New Delhi, 1st Edition, 2008.

EXTRA CREDIT COURSES : HUMAN RESOURCE MANAGEMENT

Subject Code : 17PCSECC05

No.of Credits : 2

Objectives

- To understand the nature of human resources and its significance to the organization
- To familiarise students with the various techniques in HRM that contribute to the overall effectiveness of an Organization.
- To bring the attention of the students on the latest trends in managing human resources in an organization.

UNIT I

Human Resource Management : Definition – Objectives – Functions - evolution and growth of HRM– qualities of a good HR manager – changing roles of a HR Manager— problems and challenges of a HR manager.

UNIT II

Planning the Human resources : Definitions of human resource planning – objectives – steps in human resources planning – dealing with surplus and deficient man power - job analysis – job description – job specification.

UNIT III

Recruitment & Selection : Recruitment and selection – objectives of recruitment – sources – internal and external recruitment – application blank – testing – interviews.

UNIT IV

Training & Development : Training and development – principles of training – assessment of training needs – on the job training methods - off the job training methods – evaluation of effectiveness of training programmes.

UNIT V

Performance Appraisal : Performance appraisal– process – methods of performance appraisal – appraisal counseling – Motivation process – theories of motivation – managing grievances and discipline.

REFERENCES BOOKS:

1. Tripathi - Personnel Management, Sultan Chand & Sons, New Delhi, 2000
2. L M Prasad, Human Resource Management, Sultan Chand & Sons, New Delhi, 2005
3. Aswathappa, Human Resource Management, Tata Mc Graw Hill Publishing Company, New Delhi, 1999
4. Davis and Werther, Human Resource Management, Tata Mc Graw Hill Publishing Company, New Delhi, 2000

EXTRA CREDIT COURSES : PRINCIPLES OF MARKETTING

Subject Code : 17PCSECC06

No.of Credits : 2

Objectives:

- To make the students understand about the modern marketing and marketing concepts
- To enlighten the students' knowledge on consumer behaviour and rights of consumers
- To provide knowledge on advertisement and its uses

UNIT I

(15 Hrs)

Marketing – Definition of Market and Marketing – Classification of Marketing-Marketing and selling, Objectives -Importance of Marketing – Modern Marketing Concepts - E-Marketing – Tele Marketing – Green Marketing- Service Marketing-Digital Marketing-Mobile Marketing-Social Media Marketing.

UNIT II

(10 Hrs)

Marketing Function – Buying – Selling – Transportation – Storage – Financing – Risk Bearing – Standardization – Marketing Information System.

UNIT III

(12 Hrs)

Marketing Mix – 7 'P's Marketing Mix-Product Mix – Product Life cycle – Branding – Labelling – Price Mix-Importance-Pricing Objectives – Pricing Strategies – Personal selling and Sales Promotion- Channels of Distribution-Functions of Middlemen-Place Mix.

UNIT IV

(12 Hrs)

Consumer Behaviour -Meaning- Need for studying Consumer Behaviour - Factors influencing Consumer Behaviour - Market Segmentation – Customer Relationship Marketing- Consumerism-Rights of Consumerism - Consumer Protection Council- Bureau of Indian Standards – AGMARK

UNIT V

(11 Hrs)

Meaning and Definition of Advertising - Objectives - Advantages of Advertising - Classification of Advertisement Copy-Advertising Media-Advertising Agencies.

REFERENCE BOOKS:

1. R.S.N. Pillai and Bagavathi: “Modern Marketing Principles and Practices”, S.Chand & Co., Ltd., New Delhi, Edition 2011.
2. Philip Kotler and Gary Armstrong: “Principles of Marketing”, Pearson Education Pvt., Ltd., New Delhi, Edition 2012.
3. S.A. Shelekar: “Marketing Management” Himalaya Publishing House, New Delhi, 13th Edition Reprint 2010.
4. Dr.C.B. Gupta and Dr.N, Rajan Nair: “Marketing Management”, S.Chand & Sons, New Delhi, 7th Edition Reprint 2000.