



SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)

Accredited "A" Grade by NAAC | 12B Status by UGC | Approved by AICTE
www.sathyabama.ac.in

DEPARTMENT OF INFORMATION AND TECHNOLOGY

ACADEMIC YEAR 2019-2020_CBSCS



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SCHOOL OF COMPUTING
DEPARTMENT OF INFORMATION AND TECHNOLOGY

04.12.2019

CIRCULAR

Department of IT, hereby inform you that, we are inviting students from inter disciplinary programmes to Register for the CBCS courses, which is offered by us for the academic year JAN 2020. The Course code and the Subject names are listed below. The last date of registration is 11/12/2019.

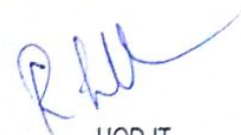
CBCS-CHOICE BASED CREDIT SYSTEM

<u>YEAR/SEMESTER</u> <u>(offered in the</u> <u>Year/Sem by Soc)</u>	<u>COURSE CODE</u>	<u>COURSE NAME</u>	<u>ELIGIBLE STUDENTS</u>
<u>III/VI</u> <u>II/IV</u>	SIT1305	MACHINE LEARNING	<u>ALL BRANCHES</u>
<u>III/IV</u>	SCS1206	DESIGN AND ANALYSIS OF ALGORITHM	<u>CSE, IT</u>

Kindly Fill up the Excel sheet with the required details Given.

S.No Name Regno. Student Name Branch Batch

Registered students name are reported to the respective department HOD and the Dean in due course for the Credit updation. The Syllabus for the Subjects is attached herewith for your reference. Kindly See your mail for further details


HOD-IT
(Dr.R.Subhashini)

SCS1201	ADVANCED DATASTRUCTURES	L	T	P	Credits	Total Marks
		3	0	0	3	100

UNIT 1 BASIC TREE CONCEPTS

9 Hrs.

Trees- Ordinary and Binary trees terminology, Properties of Binary trees, Implementation using Array and Linked list - Binary tree ADT representations, recursive and non recursive traversals - Binary Search tree - Insertion and Deletion.

UNIT 2 ADVANCED TREE CONCEPTS

9 Hrs.

Threaded Binary Trees, AVL Tree, B-tree Insertion and deletion, Splay trees - Heap trees - Heapify Procedure, Tries .

UNIT 3 GRAPH CONCEPTS

9 Hrs.

Terminology, Representation using Array and Linked List - Types of graphs - Graph traversals - BFS and DFS - Applications.

UNIT 4 ADVANCED GRAPH CONCEPTS

9 Hrs.

Minimum Spanning Tree - Kruskal's, Prim's and Sollin's Algorithm - Shortest path using Dijkstra's, Bellman Ford and Floyd Warshall Algorithm

UNIT 5 TABLES AND SETS

9 Hrs.

Rectangular tables - Jagged tables - Inverted tables - Symbol tables - Static tree tables - Dynamic tree tables - Hash tables. Sets: Representation - Operations on sets - Applications.

Max. 45 Hours

COURSE OUTCOMES

On completion of the course, student will be able to

CO1 : Implement the basics on linear data structures.

CO2 : Execute operations on tree data structures.

CO3 : Traverse the graph using BFS and DFS.

CO4 : Apply Spanning tree and shortest path algorithms in real time applications.

CO5 : Comprehend set operations and table data structures.

CO6 : Solve the problem of a non linear data structure using appropriate algorithm.

TEXT / REFERENCE BOOKS

1. Ellis Horowitz and Sartaj Sahni "Fundamentals of Data Structures" Galgotia Book Source, Pvt. Ltd., 2004.
2. M. A. Weiss, "Data Structures and Algorithm Analysis in C", Second Edition, Pearson Education, 2005.
3. Naps, Thomas L., and Bhagat Singh. "Introduction to Data Structure with Pascal". West Publishing Co., 1986.
4. Jean Paul Tremblay and Paul G. Sorenson, "An Introduction to Data Structures with Applications", Tata McGraw-Hill, Second edition, 2001.
5. Aaron M Tanenbaum, Moshe J Augenstein and YedidyahLangsam, "Data Structures using C and C++", Pearson Education, 2004.
6. A. V. Aho, J. E. Hopcroft, and J. D. Ullman, "Data Structures and Algorithms", Pearson Education, First Edition Reprint 2003.
7. R. F. Gilberg, B. A. Forouzan, "Data Structures", Second Edition, Thomson India Edition, 2005.

END SEMESTER EXAM QUESTION PAPER PATTERN

Max. Marks: 100

Exam Duration: 3 Hrs.

PART A: 2 Questions from each unit, each carrying 2 marks

20 Marks

PART B: 2 Questions from each unit with internal choice, each carrying 16 marks

80 Marks

SCS1301	OPERATING SYSTEM	L	T	P	Credits	Total Marks
		3	0	0	3	100

UNIT 1 INTRODUCTION

8 Hrs.

Introduction - Operating system structures - System components - OS services - System calls - System structure - Resources Processes - Threads - Objects - Device management - Different approaches - Buffering device drivers.

UNIT 2 PROCESS MANAGEMENT

9 Hrs.

Processes - Process concepts - Process scheduling - Operations on processes - Cooperating processes - CPU scheduling - Basic concepts - Scheduling criteria - Scheduling algorithms - Preemptive strategies - Non-preemptive strategies

UNIT 3 SYNCHRONIZATION AND DEADLOCKS

9Hrs.

The critical section problem - Semaphores - Classic problems of synchronization - Critical regions - Monitors-Dead locks - Deadlock characterization - Prevention - Avoidance - Detection - Recovery.

UNIT 4 MEMORY MANAGEMENT

9 Hrs.

Storage Management Strategies - Contiguous Vs. Non-Contiguous Storage Allocation - Fixed & Variable Partition Multiprogramming - Paging - Segmentation - Paging/Segmentation Systems - Page Replacement Strategies - Demand & Anticipatory Paging - File Concept - Access Methods - Directory Structure - File Sharing - Protection - File - System Structure - Implementation.

UNIT 5 I/O SYSTEMS, LINUX & SHELL PROGRAMMING

10 Hrs.

Mass Storage Structure - Disk Structure- Disk Scheduling - Disk Management - Swap Space Management - RAID Structure - Shell Operation Commands - Linux File Structure - File Management Operation - Internet Service - Telnet - FTP - Filters & Regular Expressions - Shell Programming - Variable, Arithmetic Operations, Control Structures, Handling Date, Time & System Information.

Max. 45 Hours.

COURSE OUTCOMES

On completion of the course, student will be able to

- CO1 : Comprehend knowledge about operating system components and services.
- CO2 : Apply knowledge of process scheduling algorithms for a given context.
- CO3 : Analyze process synchronization and deadlock conditions.
- CO4 : Construct the process of Mapping logical address to physical address.
- CO5 : Design appropriate strategies for Paging, Segmentation.
- CO6 : Develop real time applications Based on Linux shell programming.

TEXT / REFERENCE BOOKS

1. Abraham Silberschatz, Peter Galvin and Gagne, "Operating System Concepts", 6th Edition, Addison Wesley, 2002.
2. Harvey M.Deitel, "Operating System", 2nd Edition, Addison Wesley, 2000.
3. Gary Nutt, "Operating System, A modern perspective", 2nd Edition, Addison Wesley, 2000.
4. Richard Peterson, "Linux : The Complete Reference", 6th Edition, Tata McGraw Hills, 2007.

END SEMESTER EXAM QUESTION PAPER PATTERN

Max. Marks: 100

Exam Duration: 3 Hrs.

PART A: 2 Questions from each unit, each carrying 2 marks

20 Marks

PART B: 2 Questions from each unit with internal choice, each carrying 16 marks

80 Marks



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SCHOOL OF COMPUTING

DEPARTMENT OF INFORMATION TECHNOLOGY

STUDENT CIRCULAR 2017 BATCH

10-08-2020

This is to inform you that it is mandatory to select one elective subject for the VII semester of Academic year 2020-2021 based on your area of interest. You can select one of the following subjects

1. SIT1606-Big data
2. SCS1608-Software Quality Assurance Testing

Confirm the elective Confirm the elective subject through your counselors to the HOD on or before 11-08-2020

HOD-IT
(Dr.R.Subhashini)

SIT1305	MACHINE LEARNING	L	T	P	Credits	Total Marks
		3	1	0	4	100

UNIT 1 INTRODUCTION TO MACHINE LEARNING

12 Hrs.

Machine learning - examples of machine learning applications - Learning associations - Classification - Regression - Unsupervised learning - Supervised Learning - Learning class from examples - PAC learning - Noise, model selection and generalization - Dimension of supervised machine learning algorithm.

UNIT 2 DECISION THEORY

12 Hrs.

Bayesian Decision Theory - Introduction - Classification - Discriminant function - Bayesian networks - Association rule - Parametric Methods - Introduction - Estimation - Classification - Regression - Multivariate Methods - Data Parameter estimation - Classification - Complexity - Features - Dimensionality Reduction - Analysis - Multidimensional scaling - Linear discriminant analysis.

UNIT 3 CLUSTERING & REGRESSION

12 Hrs.

Clustering - Mixture densities - k-means clustering - Supervised Learning after clustering - Hierarchical clustering - Nonparametric Methods - Density estimation - Generalization of multivariate data - Classification - Regression - Smoothing models - Decision Trees - Univariate trees - Multivariate trees - Learning rules from data - Linear Discrimination.

UNIT 4 MULTILAYER PERCEPTRONS

12Hrs.

Structure of brain - Neural networks as a parallel processing - Perceptron - Multilayer perceptron - Backpropagation - Training procedures - Tuning the network size - Learning time.

UNIT 5 LOCAL MODELS

12 Hrs.

Competitive learning - Adaptive resonance theory - Self organizing map - Basis functions - Learning vector quantization - Assessing and Comparing Classification Algorithms - Combining Multiple Learners - Reinforcement Learning.

COURSE OUTCOMES

On completion of the course, student will be able to

- CO1 :Comprehend machine learning solutions to classification, regression and clustering problems
- CO2 :Understand the strengths and weaknesses of many popular machine learning approaches.
- CO3 :Interpret the results of the algorithms.
- CO4 :Select suitable model parameters for different machine learning techniques.
- CO5 : Design algorithms for real world problems using machine learning algorithm.
- CO6 : Gain experience of doing independent study and research.

Max. 60 Hours

TEXT / REFERENCE BOOKS

1. EthemAlpaydin, "Introduction to Machine Learning", MIT Press,2004
2. Tom Mitchell, "Machine Learning", McGraw Hill, 1997.
3. <http://mitpress.mit.edu/catalog/item/default.asp?ttype=2&tid=1 0341 &mode=toc>.

END SEMESTER EXAM QUESTION PAPER PATTERN

Max. Marks : 100

Exam Duration : 3 Hrs.

PART A :10 questions of 2 marks each - No choice

20 Marks

PART B :2 questions from each unit of internal choice, each carrying 16 marks 80

Marks

SCS1206	DESIGN AND ANALYSIS OF ALGORITHM	L	T	P	Credits	Total Marks
		3	0	0	3	100

UNIT 1 INTRODUCTION

9 Hrs.

Fundamentals of Algorithmic Problem Solving - Time Complexity - Space complexity with examples - Growth of Functions - Asymptotic Notations: Big Oh, Little Oh, Omega, Theta - Properties - Complexity Analysis Examples - Performance measurement - Instance Size, Test Data, Experiment setup.

UNIT 2 MATHEMATICAL FOUNDATIONS

9 Hrs.

Solving Recurrence Equations - Substitution Method - Recursion Tree Method - Master Method - Best Case - Worst Case - Average Case Analysis - Sorting in Linear Time - Lower bounds for Sorting - Counting Sort - Radix Sort - Bucket Sort

UNIT 3 DESIGN OF ALGORITHMS - BRUTE FORCE AND DIVIDE-AND-CONQUER

9 Hrs.

Brute Force - Travelling Salesman Problem - Knapsack Problem - Assignment Problem - Closest Pair and Convex Hull Problems - Divide and Conquer Approach - Binary Search - Quick Sort - Merge Sort - Strassen's Matrix Multiplication.

UNIT 4 DESIGN OF ALGORITHMS - DYNAMIC PROGRAMMING AND GREEDY APPROACH

9 Hrs.

Dynamic Programming - Floyd Warshall Algorithm - Optimal Binary Search Algorithms - Greedy Approach - Huffman Code - Kruskal's Algorithm - Prim's Algorithm - Dijkstra's Algorithm

UNIT 5 DESIGN OF ALGORITHMS - BACKTRACKING AND BRANCH AND BOUND

9 Hrs.

Backtracking - 8 Queens - Hamiltonian Circuit Problem - Branch and Bound - Assignment Problem - Knapsack Problem - Travelling Salesman Problem - NP Complete Problems - Clique Problem - Vertex Cover Problem

Max. 45 Hours

COURSE OUTCOMES

On completion of the course, student will be able to

- CO1 : Analyze the efficiency of an algorithm based on time and space complexity.
- CO2 : Apply mathematical principles for recursive analysis.
- CO3 : Construct algorithms based on brute force and divide and conquer techniques and its real time applications.
- CO4 : Design Solutions using dynamic and greedy approaches for real world problems.
- CO5 : Design a solution by using Branch and Bound and backtracking techniques.
- CO6 : Develop a solution for any given problem by choosing appropriate algorithm.

TEXT / REFERENCE BOOKS

1. Sartaj Sahni, "Data Structures, Algorithms, and Applications in C++", McGraw Hill, 2nd Edition, 2005.
2. Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest and Clifford Stein, "Introduction to Algorithms", Third Edition, PHI Learning Private Limited, 2012.
3. Anany Levitin, "Introduction to the Design and Analysis of Algorithms", Third Edition, Pearson Education, 2012.
4. Alfred V. Aho, John E. Hopcroft and Jeffrey D. Ullman, "Data Structures and Algorithms", Pearson Education, Reprint 2006.
5. Donald E. Knuth, "The Art of Computer Programming", Volumes 1 & 3 Pearson Education, 2009.
6. Steven S. Skiena, "The Algorithm Design Manual", Second Edition, Springer, 2008.

END SEMESTER EXAM QUESTION PAPER PATTERN

Max. Marks: 100

Exam Duration: 3 Hrs.

PART A: 2 Questions from each unit, each carrying 2 marks

20 Marks

PART B: 2 Questions from each unit with internal choice, each carrying 16 marks

80 Marks

SCHOOL OF COMPUTING
DEPARTMENT OF INFORMATION TECHNOLOGY
STUDENT CIRCULAR 2018 BATCH

04.05.2021

This is to inform you that it is mandatory to select Two elective subjects for the VII semester of Academic year 2020-2021 based on your area of interest. You can select one of the following subjects

1. SITA3011 – Block Chain Technology
2. SITA3008 – Internet of Things
3. SCSA3009 – Soft Computing

Confirm the elective Confirm the elective subject through your counselors to the HOD on or before 11-12-2021



HOD-IT
(Dr.R.Subhashini)

SIT1606	BIG DATA	L	T	P	Credits	Total Marks
		3	0	0	3	100

UNIT 1 INTRODUCTION

9 Hrs.

Introduction to Big Data - Challenges of Conventional Systems - Nature of Data - Small data - Medium data - Big Data – Small data vs Big data - Sources of Big Data - Big Data Characteristics - Big Data Analytics - Importance of Big Data, Big Data in the Enterprise - Big Data Enterprise Model - Building a Big Data Platform - Big data in Social and Behavioral sciences.

UNIT 2 HDFS, HADOOP AND HADOOP INFRASTRUCTURE

9 Hrs.

Hadoop and Databases - Typical Datacenter Architecture - Adding Hadoop to the Mix - Key Benefit -- Flexibility: Complex Data Processing - HDFS - Hadoop Infrastructure - Architecture - Different in Data Model and Computing Model - HDFS Files and Blocks, Components of HDFS - Hadoop framework - HDFS - Map Reduce Framework - Data Loading techniques - Hadoop Cluster Architecture - Hadoop Configuration files - Hadoop Cluster modes - Single Node - Multi Node - Fully distributed node.

UNIT 3 HADOOP MAP REDUCE FRAMEWORK

9 Hrs.

Relationship between MapReduce and HDFS - Relationship between MapReduce and HDFS - Clients, Data Nodes, and HDFS Storage - MapReduce workloads. Hadoop framework - Hadoop data types - Hadoop map reduce Paradigm - Map and Reduce Tasks - Map reduce Execution framework - Partitioners and Combiners - Input formats (Input Splits and Records, Text Input, Binary Input, Multiple Inputs)- Output Formats (TextOutput, BinaryOutPut, Multiple Output)- Hadoop Mapreduce programming - Advanced Map reduce concepts - Counters, Custom Writables - Unit testing framework - Error Handling - Tuning - Advanced Map reduce.

UNIT 4 HADOOP IMPLEMENTATION AND HADOOP ECO SYSTEM TOOLS

9 Hrs.

Hadoop Implementation - Job Execution - Hadoop Data Types - Job Configurations - Input and Output Formats - ECO system tools - Pig's Data Model, Pig Latin, Developing & Testing Pig Latin Scripts - Writing Evaluation, Filter, Load & Store Functions - Hive - Hive Architecture - Comparison with Traditional Database - HiveQL: Data Types, Operators and Functions - Hive Tables - Querying Data - Advance Hive, NoSQL Databases - HBase - Loading Data in Hbase - Querying Data in Hbase

UNIT 5 HADOOP PROJECT ENVIRONMENT

9 Hrs.

HBase: Introduction to HBase, Client API's and their features, Available Client, HBase Architecture, MapReduce -Integration. HBase: Advanced Usage, Schema Design, Advance Indexing, Coprocessors, Hadoop 2.0 -MRv2 - YARN - NameNode High Availability, HDFS Federation, MRv2, YARN, Running MRv1 in YARN, Upgrade your existing MRv1 code to MRv2, Programming in YARN framework- cover Apache Oozie Workflow Scheduler for Hadoop

Max. 45 Hours

COURSE OUTCOMES

On completion of the course, student will be able to–

1. Comprehend Enterprise Data to make Business Decisions
2. Analyse methods of loading voluminous data into Big Data framework using Flume and Sqoop.
3. Demonstrate the functions of Map Reduce Framework on any huge amount of Data
4. Apply Ecosystem tools for querying structured and unstructured Data.
5. Manage Data using HBase Framework.
6. Develop an application using Big Data tools.

TEXT / REFERENCES BOOKS

1. WA Gmob, "Big Data and Hadoop", Kindle Edition, 2013
2. Eric Miller, "A Overview of Map Reduce and its impact on Distributed Data", Kindle Edition, 2012.
3. Strata, " Big Data Now", O'Reilly Media Inc., Kindle Edition, 2012.

END SEMESTER EXAM QUESTION PAPER PATTERN	
Max. Marks : 100	Exam Duration: 3 Hrs.
PART A: 10 questions of 2 marks each - No choice	20 Marks
PART B : 2 Questions from each unit with internal choice, each carrying 12 marks	80 Marks

Name List-Big Data

1.	37120002	ABHINASH KUMAR
2.	37120005	AKASSH. P
3.	37120007	AKSHAYA. V
4.	37120008	ANAND KUMAR RANJAN
5.	37120009	ANIRUDH SRINIVAS. G.N
6.	37120010	APARNA. G
7.	37120013	BATHULA SOWMYA REDDY
8.	37120016	BURRI.JANAKI RAM REDDY
9.	37120018	DANIEL. N
10.	37120021	DEWASHISH KUMAR
11.	37120024	DIVYA BARATHI. T
12.	37120025	DIVYA. S
13.	37120026	EMMANUEL CHARLES. S
14.	37120027	GAYATHRI. K.S
15.	37120029	HARSH GUPTA
16.	37120031	IMMANUEL STANLEY. S
17.	37120032	IYER PRIYA ESWAR PADALEESWARAN
18.	37120033	JAGANNATHAN. S
19.	37120034	JAYA RASIKA. J
20.	37120035	JENILA. J
21.	37120036	JITHIN ABHISHEK FERNANDO. J
22.	37120039	KAVIYA. V
23.	37120040	KEERTHIVASAN. E
24.	37120043	MADHUMITHA CHANDRASEKAR
25.	37120044	MOHAMED AYMAN LATHEEF. M

26.	37120046	MOHAMMAD HABIB MEMON
27.	37120047	MOHAMMED SALMAN
28.	37120048	MOHANA PRIYA. R
29.	37120050	MUTHUMULA SREELATHA
30.	37120052	PADMASHRI. R
31.	37120053	PERNI SAI ASHIK
32.	37120054	POLISHETTY UPENDHER RAO
33.	37120062	SALMAN
34.	37120064	SARAVANAN. S
35.	37120065	SAYED SAJID ALI
36.	37120070	SIVAKUMAR. G
37.	37120077	SYED MUBBASHIR NAJMUL
38.	37120080	VAJRAPU ULLAS
39.	37120083	VEMANA AKHILNEERAJ
40.	37120086	YEECHURI SANTHOSH
41.	37120701	MD FARHAN

SCS1608	SOFTWARE QUALITY ASSURANCE AND TESTING	L	T	P	Credits	Total Marks
		3	0	0	3	100

Unit-I	Software Quality Assurance Framework and Standards SQA Framework: Quality, Software Quality Assurance, Components of Software Quality Assurance -Software Quality Assurance Plan: Steps to develop and implement a Software Quality Assurance Plan -Quality Standards: ISO 9000 and Companion ISO Standards, CMM, CMMI, PCMM, Malcom Balridge, 3Sigma, 6 Sigma.	9 Hrs
Unit-II	Software Quality Assurance Metrics and Measurement Software Quality Metrics: Product Quality metrics, In Process Quality Metrics, Metrics for Software Maintenance, Examples of Metric Programs Software Quality metrics methodology: Establish quality requirements, Identify Software quality metrics, Implement the software quality metrics, analyze software metrics results, validate the software quality metrics - Software quality indicators - Fundamentals in Measurement theory.	9 Hrs
Unit-III	Software Testing Strategy and Environment: Establishing testing policy, structured approach to testing, test factors, Economics of System Development Life Cycle (SDLC) Testing Software Testing Methodology: Defects, verification and validation, functional and structural testing, workbench concept, eight considerations in developing testing methodologies, testing tactics checklist	9 Hrs
Unit-IV	Software Testing Techniques: Black- Box, Boundary value, Bottom -up, Branch coverage, Cause -Effect graphing, CRUD, Database, Exception, Gray - Box, Histograms, Inspections, JADs, Pareto Analysis, Prototyping, Random Testing, Risk - based Testing, Regression Testing, Structured Walkthroughs, Thread Testing, Performance Testing, White - Box Testing	9 Hrs
Unit-V	Software Testing Tools Taxonomy of Testing tools, Methodology to evaluate automated testing tools, Load Runner, Win runner and Rational Testing Tools, Silk test, Java Testing Tools, JMetra, JUNIT and Cactus.	9 Hrs

Course Outcomes:

1. Comprehend the concepts of Software Quality Standards.
2. Model a Software Quality Assurance Framework & standards for analyzing quality metrics.
3. Develop product and process quality metrics using different principles.
4. Construct test cases using variety test strategies for any given applications.
5. Perceive knowledge on different Software testing tools.
6. Design an appropriate testing methodology & tool for any software requirements.

Text / Reference Books

1. Effective Methods for Software Testing, 2nd Edition, William E. Perry , Second Edition, Wiley India, 2006.
2. Software Quality, Mordechai Ben-Menachem/Garry S. Marlist, Thomson Learning Publication, 1997.

3. Software Engineering: A Practitioner's Approach, Roger S Pressman, Sixth Edition, McGraw Hill, 2005.

Name List-SQAT

S. No.	Reg. Number	Student Name
1)	37120001	AAGASH. T
2)	37120004	AKASH. R.N
3)	37120011	ASWIN J RICHARDS
4)	37120014	BENSON JOEL. B
5)	37120015	BHARATHI. R
6)	37120017	CHRISTINA STEFFI. F
7)	37120019	DEEBIKA. S
8)	37120020	DEEPIKA. M
9)	37120022	DHINESH KUMAR. Y
10)	37120023	DINESHMANJU. R
11)	37120028	HARISH. M
12)	37120030	HIMANGSHU RANJAN CHANGMAI
13)	37120037	JONNALAGADDA GOUTHAM KUMAR
14)	37120038	KARTHICK. S
15)	37120041	KISHORE. M.M
16)	37120042	LOGESWARAN. R
17)	37120045	MOHAMED MUDASSIR. S
18)	37120049	MURUGADOSS. R
19)	37120051	NANDHITHA. B
20)	37120055	PRASHANTHI NIHARIKA KASIREDDY
21)	37120057	RAMYA. U
22)	37120058	RAVIKUMAR. P
23)	37120060	ROHIT KUMAR TIWARI

24)	37120063	SARANYA SHREE. S
25)	37120066	SELCIYA NAYAGAM. M
26)	37120067	SHALINI. T
27)	37120069	SHANMUGAPRIYAN. N
28)	37120071	SNEHA. J
29)	37120072	SOWMIYA. K
30)	37120073	SOWNDHARYA. K
31)	37120074	SUBHIKSHA. C
32)	37120075	SUPRIYA. S
33)	37120076	SURUTHI. M
34)	37120078	THAMIZHARASI. M
35)	37120079	VAISHNAVI. D
36)	37120081	VARSHA. M
37)	37120082	VEDHANAYAKI. R
38)	37120087	DINESH KUMAR. A
39)	37120901	SUWETHA. S
40)	37120951	UDDARAJU SANDEEP

SCHOOL OF COMPUTING

DEPARTMENT OF INFORMATION TECHNOLOGY

STUDENT CIRCULAR 2018 BATCH

04-01-2021

This is to inform you that it is mandatory to select one elective subject for the VI semester of Academic year 2020-2021 based on your area of interest. You can select one of the following subjects

1. SCS1621-R Programming
2. SCS1619-Python Programming

Confirm the elective subject through your counselors to the HOD on or before 06-01-2021


HOD-IT
Dr. R. Subhashini)

SCS1619	PYTHON PROGRAMMING	L	T	P	Credits	Total Marks
		3	0	0	3	100

UNIT 1

9 Hrs.

Introduction to the IDLE interpreter (shell) -Expressions – Data Types - Built-in function -Conditional statements - Iterative statements- Input/output -Compound Data Types - Nested compound statements – Introduction to Object Oriented Concepts.

UNIT 2

9 Hrs.

File Operations –Iterators - Exception handling - Regular Expressions

UNIT 3

9 Hrs.

GUI Programming in Python - Introduction to GUI library - Layout management - Events and bindings - Fonts – Colours - Canvas - Widgets (frame, label, button, check box, entry, list box, message, radio button, text, spin box).

UNIT 4

9 Hrs.

Database (using NoSQL): Connector Module –Cursor – Statements - Exceptions in database.
Network connectivity: Socket module - Client – Server – Email – URL Access

UNIT 5

9 Hrs.

Web Programming using Python.
Image Processing – Facebook Analysis – Twitter Analysis.

Max. 45 Hrs.

COURSE OUTCOMES

On completion of the course, student will be able to:

- CO1 : To learn and demonstrate the decision controls, looping constructs, lists and dictionaries in the design of Python Program.
- CO2 : To design and develop GUI based applications.
- CO3 : To deploy Web based applications by integrating with NoSQL Database.
- CO4 : To analyze the contents social media on Text mining, Sentiment Analysis.
- CO5 : To implement Machine Learning Algorithms (Cluster Algorithms, Decision Trees) using libraries.
- CO6 : To demonstrate visualization using open source data sets.

TEXT / REFERENCE BOOKS

1. John Scott, "Social Network Analysis", Third Edition, SAGE Publications Ltd 2013.
2. Maksim Tsvetovat, Alexander Kouznetsov, "Social Network Analysis for Startups", First Edition, O'Reilly Media, 2011.
3. Peter Mika, "Social Networks and the Semantic Web", First Edition, Springer 2007.
4. David Knoke, Song Yang, "Social Network Analysis", First Edition, SAGE Publication Ltd 2007.
5. Borko Furht, "Handbook of Social Network Technologies and Applications", 1st Edition, Springer, 2010.
6. Guandong Xu, Yanchun Zhang and Lin Li, "Web Mining and Social Networking - Techniques and applications", First Edition Springer, 2011.
7. John G. Breslin, Alexander Passant and Stefan Decker, "The Social Semantic Web", Springer, 2009 Van.C.Warington, "Protective Relays-their Theory and Practice", Vol I & II, Champ Man and Hall Ltd, London, 2014.

END SEMESTER EXAM QUESTION PAPER PATTERN

Max. Marks : 100

Exam Duration: 3 Hrs.

PART A: 2 Questions from each unit, each carrying 2 marks

20 Marks

PARTB: 2 Questions from each unit with internal choice, each carrying 16 marks

80 Marks

Students Name List

<u>S.No</u>	Enter your Register Number	Enter your Name
1	38120002	ABHISHEK KUMAR
2	38120003	ABHISHEK SINGH
3	38120004	ABINAYA. A
4	38120005	ABIRAMI. M
5	38120006	ABIRAMI. R
6	38120007	AHILA. R R
7	38120008	AISHWARYA. R
8	38120009	ANNA GREETA TITUS T
9	38120010	ARCHANA. B
10	38120011	ARCHANA. C
11	38120012	ARTHEESWARI. P
12	38120016	BAKYA. B
13	38120017	BALABHARATHI. P
14	38120018	BALAJI. P
15	38120019	BALAMURUGAN. R
16	38120020	BALSUM DIWAN
17	38120021	BARANIDARAN. G T
18	38120024	GAYATHRI. M

19	38120025	GNANA SOUNTHARIYA. S
20	38120027	GOWTHAM. S
21	38120030	HEMANTH REDDY. M
22	38120032	JAYAROSHINI. M
23	38120033	JEEVITHA. D
24	38120034	JOHNWILIFREDDAVID
25	38120035	JOTHIKA. K
26	38120036	JOTHILAKSHMI. V
28	38120038	KAMEPALLI NITHISH
29	38120039	KARTHIKEYAN. N
30	38120040	KARTHIYAYINI. S
31	38120041	KAVIYA. S
32	38120042	KEERTHIGA. N
33	38120044	LAKSHMI PRIYA. M
34	38120045	LEELAVATHI. V
35	38120046	LOGANAYAGI. S
36	38120047	MADHAN. L
37	38120049	MEERADEVI. L
38	38120051	MOKITHA. B
39	38120052	MUSKAN FIRDOUSI
40	38120053	NANDHINI. V
41	38120054	NITHYA. B
42	38120055	NITHYA. M
43	38120056	PAVITHRAPRIYA. K

44	38120057	PIYUSH SINHA
45	38120058	POOJA BALAKRISHNAN
46	38120059	PRADYOTAN RAJU. V
47	38120060	PRAGADEESWARI. M
48	38120063	PREETHI. S
49	38120064	PRIYADHARSHINI. P
50	38120067	ROHINI. M
51	38120070	SABITHRA. D
52	38120071	SAKTHIVARSHINI. K
53	38120072	SANDHIYA. V
54	38120073	SANGEETHA. K K
55	38120074	SANJUDHA. M
56	38120076	SANTOSH KUMAR
57	38120077	SARAH PHILOMIN. V
58	38120079	SMRITHII. R
59	38120080	SOLAPURI MANMOHAN
60	38120081	SOUNDHARYA. S
61	38120082	SWETHA. V
62	38120083	T RAGHUL SUDHARSAN
63	38120084	TEKKI DEEPAK
64	38120085	THILAK DARSHAN. V
65	38120087	VAIBHAV VISHAL
66	38120089	VASAN. S K
67	38120090	VIGNESH. G

68	38120091	VINAYAK SUBODH RANJAN
69	38120092	VINITHA. S
70	38120094	VISHNU. P
71	38120095	YAHYA IBRAHIM IMTIAZ
72	38120097	YUVASRI. J
73	38120098	SIVAKUMAR. S
74	38120901	PRAMOTH. R

SCS1621	R PROGRAMMING	L	T	P	Credits	Total Marks
		3	0	0	3	100

UNIT 1

9 Hrs.

Introduction to R - History and fundamentals of R, Installation and use of R / R Studio / R Shiny, Installing R packages, R – Nuts and Bolts -Getting Data In and Out - Control Structures and Functions- Loop Functions-Data Manipulation- String Operations- Matrix Operations.

UNIT 2

9 Hrs.

R Data interfaces - CSV Files, XML files, Web Data- Data Preprocessing: Missing Values, Principle Component Analysis - Data Visualization – Charts & Graphs-Pie Chart, Bar Chart, Box plot, Histogram, Line graph, Scatter Plot.

UNIT 3

9 Hrs.

Statistical Modeling in R - Descriptive statistics-R Packages: Regression (MASS package) - Distribution (STATS package) - ANOVA - Time Series Analysis.

UNIT 4

9 Hrs.

Machine Learning in R - Classification: Decision Trees, Random Forest, SVM – Clustering - Association Rule Mining - Outlier Detection.

UNIT 5

9 Hrs.

Overview of R Shiny - R Hadoop - Case Study - Hypothesis Generation, Importing Data set and Basic Data Exploration, Feature Engineering, Model Building..

Max. 45 Hrs.

COURSE OUTCOMES

On completion of the course, student will be able to:

- CO1 : Install R Packages and develop applications.
- CO2 : Demonstrate Data Preprocessing Algorithms and Visualization methods on data-sets in R.
- CO3 : Apply the Statistical Models in R.
- CO4 : Demonstrate Machine Learning Algorithms in R.
- CO5 : Create applications in R Frameworks.
- CO6 : Develop Engineering Models for Hypothesis Generation and Data Extraction.

TEXT / REFERENCE BOOKS

- Hands-On Programming with R: Write Your Own Functions and Simulations By Garrett Golemund, O'Reilly Media, Inc., 2014.
- R for Data Science, Hadley Wickham, Garrett Golemund," O'Reilly Media, Inc.2016.
- Introduction to Statistics and Data Analysis - With Exercises, Solutions and Applications in R By Christian Heumann, Michael Schomaker and Shalabh, Springer, 2016
- The R Software-Fundamentals of Programming and Statistical Analysis -Pierre Lafaye de Micheaux, Rémy Drouilhet, Benoit Liqueet, Springer 2013
- A Beginner's Guide to R (Use R) By Alain F. Zuur, Elena N. Ieno, Erik H.W.G. Meesters, Springer 2009

END SEMESTER EXAM QUESTION PAPER PATTERN

Max. Marks : 100

Exam Duration: 3 Hrs.

PART A: 2 Questions from each unit, each carrying 2 marks

20 Marks

PARTB: 2 Questions from each unit with internal choice, each carrying 16 marks

80 Marks

List of Students

<u>S.No</u>	Enter your Register Number	Enter your Name
1	38120086	THOMSON YESHWANTH. J M
2	38120093	VINOTH. V