



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 COMPUTER SCIENCE AND ENGINEERING

S.NO	Name of the value added courses (with 30 or more contact hours) offered	Course Code (if any)	Year of offering	No. of times offered during the same year	Duration of course	Number of students enrolled in the year	Number of Students completing the course in the year
1	NETWORK ENGINEERING	VAL 1005	24.11.2020	1	30	350	343
2	DESIGN THINKING USING R	VAL1006	6.1.2021	1	30	350	348
3	DATA VISUALIZATION USING MICROSOFT EXCEL	VAL1009	09.01.2021	1	30	350	350
4	Linux RHCSA	SVAC1010	24.11.2020	1	30	213	213
5	ADVANCED JAVA PROGRAMMING	SVAC1011	16.4.2021	1	30	350	350
6	Cloud Computing	SVAC1012	16.4.2021	1	30	350	348
7	Data Structures using c and C++	SVAC1013	16.4.2021	1	30	350	341



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

Course Name	NETWORK ENGINEERING
Course Code	VAL1005
Duration	35 Hours



SATHYABAMA UNIVERSITY

(Established under section 3 of UGC Act, 1956) Accredited by NAAC (A Christian Minority Institution)

"ENTRY IS NOT IMPORTANT, EXIT IS IMPORTANT"
LEARN TODAY - LEAD TOMORROW



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
ORGANIZES
VALUE-ADDED PROGRAM
ON

"NETWORK ENGINEERING"

FROM 24.11.2020 TO JUNE 24.6.2021
PROGRAM COORDINATOR

Dr. JESUDOSSS



• COURSE OBJECTIVES

- Enable students to design, secure, operate and troubleshoot computer networks
- Provides Hands-on Learning and skills required to become a successful network engineer

• COURSE OUTCOMES

Upon successful completion of this course students should be able to:

- Understand and remember the fundamentals of Networking, protocols and reference models
- Build a simple local area network (LAN) with appropriate IP addressing schemes.
- Plan and implement basic router configurations.
- Plan and implement basic switch configurations.
- Evaluate various troubleshooting problems related to network connectivity between the networks
- Implement necessary security required for routers and switches.



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

VAL1005 NETWORK ENGINEERING

DASHBOARD / My courses / VAL1005

COURSE OBJECTIVES

- Enable students to design, secure, operate and troubleshoot computer networks
- Provides Hands-on Learning and skills required to become a successful network engineer

COURSE OUTCOMES

Upon successful completion of this course students should be able to:

- Understand and remember the fundamentals of Networking, protocols and reference models
- Build a simple local area network (LAN) with appropriate IP addressing schemes.
- Plan and implement basic router configurations.
- Plan and implement basic switch configurations.
- Evaluate various troubleshooting problems related to network connectivity between the networks
- Implement necessary security required for routers and switches.

Announcements

SYLLABUS

Value Added Course - Networking Engineering - Class Attendance

VAL1005

Participants

Badges

Competencies

Grades

COURSE OBJECTIVES

COURSE OUTCOMES

Week 1 - Basics of Networking & Protocols & Models - 19.03.2021 Friday

Week 2 - Basic Switch and End Device Configuration - 9.4.2021 Friday

Week 3 - Physical Layer & Data Link Layer - 16.4.2021 Friday

Week 4 - Ethernet Switching & Network Layer - 21.4.2021 Wednesday

Week 5 - Address Resolution & Basic Router Configuration - 23.4.2021 Friday

Week 6 - IPv4

Week 1 - Basics of Networking & Protocols & Models - 19.03.2021 Friday

Week 1 - Basics of Networking - Protocols & Models

LAB 1: EXPOSURE TO CISCO PACKET TRACER

LAB DEMONSTRATION

- IDENTIFY END DEVICES, INTERMEDIARY DEVICES, NETWORK MEDIA - CABLES
- HOW TO USE VARIOUS DEVICES SUCH AS PC, ROUTER AND SWITCH
- HOW TO PLACE, LABEL AND REMOVE VARIOUS DEVICES ON THE TOPOLOGY
- HOW TO CONFIGURE PC AND ROUTERS
- HOW TO ESTABLISH CONNECTIVITY & CHECK CONNECTIVITY
- TROUBLESHOOTING NETWORK ISSUES SUCH AS REQUEST TIME OUT THAT COMES ON BOTH PCS

Assignment 1

NOTE: Write answers for these questions in A4 Sheet (handwritten and not typed) and scan it and keep it with you. Finally, I will tell you how and when to post it. There is no time restriction for writing answer. When date is informed to post, it should be ready to be posted.

Week 2 - Basic Switch and End Device Configuration - 9.4.2021 Friday

LAB DEMONSTRATION

- Exploring 5 different modes of Routers and its purpose
- Securing Direct Connection to Router, Enable Password and Remote Login to router
- Encrypting all passwords stored in router
- Working with startup-config file
- How to alert unauthorized persons through banner command

Week 2 - Basic Switch and End Device Configuration

- [Week 1 - Basics of Networking & Protocols & Models - 19.03.2021 Friday](#)

-  Week 1 - Basics of Networking - Protocols & Models File
 -  LAB 1: EXPOSURE TO CISCO PACKET TRACER File

- Troubleshooting Network Issues Such As Request Time Out That Comes On Both Pcs**



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

Course Name	DESIGN THINKING USING R
Course Code	VAL1005
Duration	35 Hours



SATHYABAMA UNIVERSITY

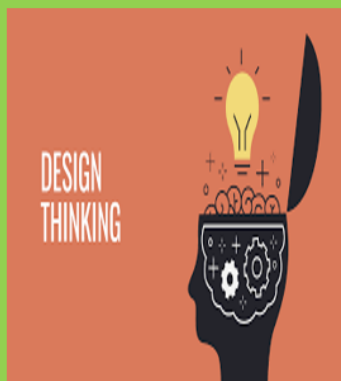
(Established under section 3 of UGC Act, 1956) Accredited by NAAC (A Christian Minority Institution)

"ENTRY IS NOT IMPORTANT, EXIT IS IMPORTANT"

LEARN TODAY - LEAD TOMORROW



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
ORGANIZES
VALUE-ADDED PROGRAM
ON



"DESIGN THINKING USING R"

FROM 06.01.2021 TO 10.05.2021

PROGRAM COORDINATOR

MS.ROOBINI

COURSE OBJECTIVES:

Students can have a clear knowledge of statistical computing, analysis, and visualizations key aspects in Machine Learning. R is one of the most advanced statistical programming language used world-wide by several statisticians to make their lives much easier and much more productive and by learning it students can do various statistical analysis

COURSE OUTCOMES:

Upon successful completion of this course students should be able to:

Learn and understand the online resources for R and import new function packages into the R workspace.

Understand to Import, review, manipulate and summarize datasets in R.

Design and develop statistical tests using R.

Explore datasets to create testable hypotheses and identify appropriate statistical tests.

Deploy various applications using R.



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

COURSECONTENT:

WEEK 1: (3Hours)

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

WEEK 2: (3Hours)

R Data Structures-Data Types, Structures and conditional statements, Data filtering and selecting1Data Transformation-Objects in R-Arrays, Scalar-Vectors- Factors-Control Structures and

Functions- Loop Functions

WEEK 3: (3Hours)

Data Manipulation- String Operations- Matrix Operations -Handling date in R- Conversion of data types- Operators in R-Decision making of R statements.

WEEK 4: (3Hours)

R Data Interfaces: CSV Files, XSL files, XML files, Web Data-Data Preprocessing: Missing Values, Outliers -Principle Component Analysis.

WEEK 5: (3Hours)

Data Visualization – Charts & Graphs--Pie Chart, Bar Chart, Box plot, Histogram, Line graph, Scatter Plot - Heat maps

WEEK 6: (3Hours)

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

WEEK 7: (3Hours)

Machine Learning in R-Classification: Decision Trees, Random Forest, and SVM. Clustering: K1Means, Fuzzy - Association Rule Mining - Outlier Detection

WEEK 8: (3Hours)

Setting up the project with ML workflow - Building, Training and evaluation of Machine Learning Model-Hands on Case Study



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



SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)

Accredited with Grade "A" by NAAC | 12B Status by UGC | Approved by AICTE



SCHOOL OF COMPUTING

CERTIFICATE OF COMPLETION

This is to certify that **Ms. M DHARSHINI NITHILA (38110127)** Department of Computer Science and Engineering has successfully completed the Value Added Course (30 hours) on **DESIGN THINKING USING R** and has secured **89 %** in theory and practical examination conducted during **JAN 2021 - MAY 2021**. We wish you all the best towards a bright future.

Dr. T. Sasikala
Dean,
School of Computing





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

Course Name	DATA VISUALIZATION USING MICROSOFT EXCEL
Course Code	VAL1009
Duration	35 Hours

COURSE OBJECTIVES:

- To learn how to use Microsoft Excel tool from basics & Advanced level
- To be a master in Pivot Tables, Formulas, Macros, Data Analysis & More
- To learn the most advanced formulas, functions and types of analysis

COURSE OUTCOMES:

Upon successful completion of this course students will be able to:

- Demonstrate working with worksheets, workbooks and entering data in Excel.
- Demonstrate formatting cells and data.
- Demonstrate using formulas and calculations in Excel.
- Demonstrate creating and using What-If Analysis tool.
- Demonstrate creating charts and diagrams.
- Demonstrate creating and using Pivot Tables and Charts.
- Describe techniques for sorting and filtering data

COURSE CONTENT:

WEEK 1: (3 Hours)

Basics of Microsoft Excel –Date Formats.

WEEK 2: (3 Hours)

Creating and formatting charts – Working with Range Names.

WEEK 3: (3 Hours)

Data Analysis – Working with Formulas.

WEEK 4: (3 Hours)

Sort by Text – Sort by Numbers – Sort by Dates or Times – Sort by Cell Color – Sort by Font Color – Sort by Cell Icon – Sort by a Custom List – Sort by Rows – Sort by more than one Column or Row.

WEEK 5: (3 Hours)

Filter by Selected Values – Filter by Text – Filter by Date – Data Analysis with Excel – Filter by Numbers – Filter by Cell Color – Filter by Font Color – Filter by Cell Icon – Clear Filter – Advanced Filtering – Filter Using Slicers.

WEEK 6: (3 Hours)

Subtotals with Ranges – Subtotals – Nested Subtotals – Quick Analysis – Quick Analysis with TOTALS – Sum – Average – Count – %Total – Running Total – Sum of Columns.



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

WEEK 7: (3 Hours)

Conditional Formatting (Highlight Cells Rules – Top / Bottom Rules – Data Bars – Color Scales – Icon Sets – New Rule – Clear Rules – Manage Rules.

WEEK 8: (3 Hours)

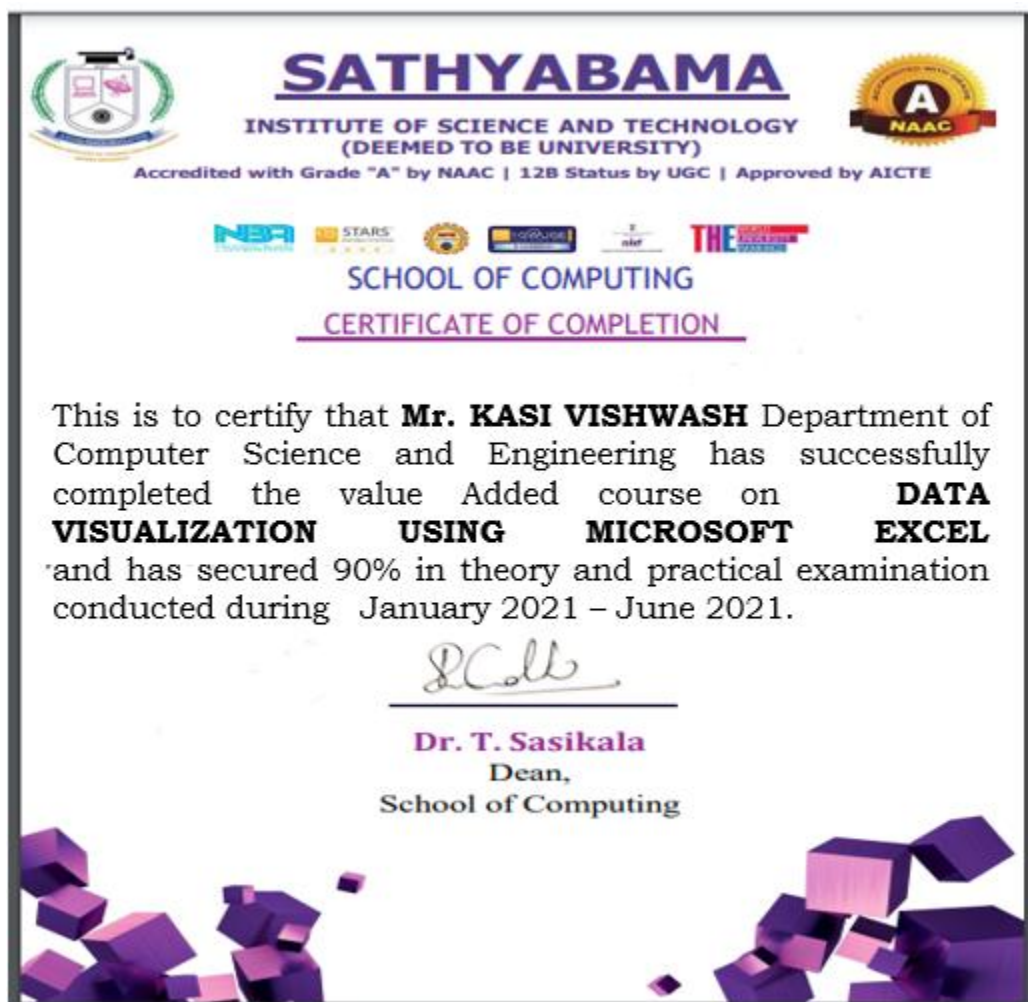
Using the VLOOKUP Function (with range lookup TRUE, with range lookup FALSE) – Using the HLOOKUP Function (with range lookup TRUE, with range lookup FALSE).

WEEK 9: (3 Hours)

Using the INDEX Function – Using MATCH Function – What-If Analysis.

WEEK 10: (3 Hours)

PivotTables – PivotTable Tools – Using Pictures in Column Charts – Band Chart – Thermometer Chart – Gantt Chart – Waterfall Chart – Sparklines – Pivot Charts (from PivotTable, without a PivotTable) – Working with Multiple Sheets – Creating Formula across Multiple Worksheets –





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

Course Name	RHCSA
Course Code	SVAC1010
Duration	35 Hours





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



Red Hat, Inc. hereby certifies that

V.BALAJI

has successfully completed all the program requirements and is certified as a

**RED HAT CERTIFIED SYSTEM
ADMINISTRATOR**

Red Hat Enterprise Linux 7

RANDOLPH R. RUSSELL
DIRECTOR, GLOBAL CERTIFICATION PROGRAMS

FEBRUARY 07, 2020 - CERTIFICATION ID: 190-313-585

Copyright (c) 2020 Red Hat, Inc. All rights reserved. Red Hat is a registered trademark of Red Hat, Inc. Verify this certificate number at <http://www.redhat.com/training/certification/verify>

**RED HAT
CERTIFIED**

SYSTEM
ADMINISTRATOR





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

Course Name	ADVANCED JAVA PROGRAMMING
Course Code	SVAC1011
Duration	35 Hours



SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY

(DEEMED TO BE UNIVERSITY)

Accredited with Grade "A" by NAAC



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
ORGANIZES
VALUE-ADDED PROGRAM
ON



"ADVANCED JAVA PROGRAMMING"

FROM 16.04.2021 TO 10.06.2021

PROGRAM COORDINATOR

Dr.JANCY

COURSE OBJECTIVES

- To know about Enterprise architecture models
- To introduce the basics of session tracking
- To understand JSP and to write Custom Tags
- To know about the development of Enterprise Java Beans .

COURSE OUTCOMES

On completion of the course the student will be able to

1. Implement JDBC connectivity
2. Implement Servlets and advanced Servlets
3. Implement JSP and Java Mail
4. Implement EJB

INTRODUCTION AND DATABASE PROGRAMMING

J2EE Platform – Enterprise architecture styles – J2EE run times – J2EE API – J2EE architecture – Containers –Introduction to J2EE technologies – Naming and directory services. Database programming with JDBC – JDBC/ODBC Bridge – Establishing a connection – Creating and executing SQL statements –



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

Querying – Report statements – Scrollable and updatable result sets – Java.sql packages – JDBC data sources – Connection pooling.

SERVLET PROGRAMMING

Introduction to Servlet Programming - Servlet Implementations - Servlet configuration - Servlet exceptions - Servlet Life Cycle - Servlet Programming - Servlet Security- Servlet communication - Advanced Servlets : Approach to Session Tracking - Demonstrating Session - Lifecycle with Cookies - A simple shopping cart using Sessions - Servlet Context Interface - Servlet Collaboration

JSP AND JAVA MAIL

Java Server Pages : Intro to JSP - JSP Directives - Scripting elements - Standard Auctions - Implicit objects - Scope - JSP pages as XML documents - JSP Sample Program - Design Strategies - JSP tag Extensions-A simple TAG - Writing TAG Extensions. Java Mail API: Introduction to Java Mail - Mail Protocols- Java Mail Overview- Quick, Send me a Email: An example program

ENTERPRISE JAVA BEANS

Overview of EJB-EJB Middleware Architecture - EJB Architecture- EJB Containers and its services - Design of EJB Tier - Session java Beans- Stateless and Stateful Beans, Entity Beans and Persistence - Container Vs Bean Managed Persistence, Message Driven Bean - Relationships, EJB Container Services.

TEXT / REFERENCE BOOKS

1. Subrahmanyam Allamaraju and Cedric Buest ,”Professional Java Server Programming”, A press,J2EE 1.3, 2007.
2. Jim Keogh ,”Completer Reference, J2EE”,Tata McGraw Hill, 2007.
3. James Holmes-Structs,”The complete Reference”, 2nd Edition, Tata McGraw Hill, 2007.





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

Course Name	CLOUD COMPUTING
Course Code	SVAC1011
Duration	35 Hours



SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY

(DEEMED TO BE UNIVERSITY)

Accredited with Grade "A" by NAAC



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ORGANIZES

VALUE-ADDED PROGRAM

ON

"CLOUD COMPUTING"

FROM 16.04.2021 TO 10.06.2021

PROGRAM COORDINATOR

DR.ASHOK KUMAR



- Definition of cloud computing.
- Categorization of the various service types.
- Drivers of Cloud Solutions.
- Handling cloud security.
- Business Demands.
- Deployment of software solutions and web applications.
- Exploring Platform as a Service (PaaS)
- Evaluating the architecture.



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



SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)

Accredited with Grade "A" by NAAC | 12B Status by UGC | Approved by AICTE



SCHOOL OF COMPUTING

CERTIFICATE OF COMPLETION

This is to certify that **Mr. MANIDEEP . R** Department of Computer Science and Engineering has successfully completed the value Added course on **CLOUD COMPUTING** and has secured 90% in theory and practical examination conducted during January 2021 – June 2021.

Dr. T. Sasikala
Dean,
School of Computing





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

Course Name	Data Structures using c and C++
Course Code	SVAC1013
Duration	30 Hours



SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)
Accredited with Grade "A" by NAAC



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
ORGANIZES

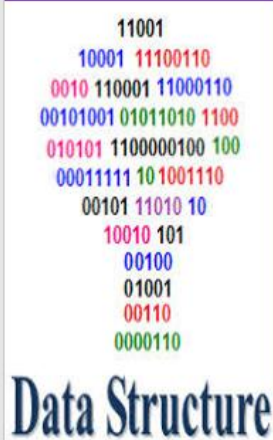
VALUE-ADDED PROGRAM
ON

"DATA STRUCTURES USING C AND C++"

FROM 16.04.2021 TO 10.06.2021

PROGRAM COORDINATOR

DR.JOSHILA GRACE



COURSE OBJECTIVES

- To acquire knowledge of organizing the data in nonlinear fashion.
- To get the idea of balancing the height of trees to optimize the structure and search time.
- To learn the process of establishing the network with various nodes with minimum cost & finding the shortest path.
- To understand the method of designing the table data structure and its applications.

COURSE OUTCOMES

On completion of the course, student will be able to

- Design and implement the various non-linear data structures and perform the intended operations.
- Understand the strength of balancing the height of the trees.
- Analyze the time complexity of various non linear data structures.
- Apply the algorithms to find the shortest path & to connect the nodes with minimum cost.
- Design the table and applying the table for many applications.
- Compare and identify the usage of different data structures



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

BASIC TREE CONCEPTS

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.

ADVANCED TREE CONCEPTS

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

GRAPH CONCEPTS

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

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. Jean Paul Tremblay and Paul G. Sorenson, "An Introduction to Data Structures with Applications", Tata McGraw-Hill, Second edition, 2001.



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



SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)

Accredited with Grade "A" by NAAC | 12B Status by UGC | Approved by AICTE



SCHOOL OF COMPUTING

CERTIFICATE OF COMPLETION

This is to certify that **Ms. MEGHANA** Department of Computer Science and Engineering has successfully completed the value Added course on **Data Structures using c and C++** and has secured 90% in theory and practical examination conducted during January 2021 – June 2021.

Dr. T. Sasikala
Dean,
School of Computing

