



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

School of Computing

Department of Information Technology

1.2.1 New Courses Introduced in 2022- 2023

CONTENTS

S. No.	Course Code	Course Name	Page No.
1	SITA2701	AI and Machine Learning Lab	2
2	SITA3003	Advanced Java Programming	3

SITA2701	AI AND MACHINE LEARNING LAB	L	T	P	Credits	Total Marks
		0	0	4	2	100

COURSE OBJECTIVES

- To implement various machine learning algorithms.
- To learn how to build Artificial Neural Network.
- To understand how to learn Data sets with the help of machine learning algorithms.
- To Apply EM algorithm to cluster a set of data stored in a .CSV file.
- To be familiar with PROLOG tool.

SUGGESTED LIST OF PROGRAMS

1. Implement and demonstrate the FIND-S algorithm for finding the most specific hypothesis based on a given set of training data samples. Read the training data from a .CSV file.
2. For a given set of training data examples stored in a .CSV file, implement and demonstrate the Candidate-Elimination algorithm to output a description of the set of all hypotheses consistent with the training examples.
3. Write a program to demonstrate the working of the decision tree based ID3 algorithm. Use an appropriate data set for building the decision tree and apply this knowledge to classify a new sample.
4. Build an Artificial Neural Network by implementing the Back propagation algorithm and test the same using appropriate data sets.
5. Write a program to implement the naïve Bayesian classifier for a sample training data set stored as a .CSV file. Compute the accuracy of the classifier, considering few test data sets.
6. Assuming a set of documents that need to be classified, use the naïve Bayesian Classifier model to perform this task. Built-in Java classes/API can be used to write the program. Calculate the accuracy, precision, and recall for your data set.
7. Write a program to construct a Bayesian network considering medical data. Use this model to demonstrate the diagnosis of heart patients using standard Heart Disease Data Set. You can use Java/Python ML library classes/API.
8. Apply EM algorithm to cluster a set of data stored in a .CSV file. Use the same data set for clustering using k-Means algorithm. Compare the results of these two algorithms and comment on the quality of clustering. You can add Java/Python ML library classes/API in the program.
9. Write a program to implement k-Nearest Neighbour algorithm to classify the iris data set. Print both correct and wrong predictions. Java/Python ML library classes can be used for this problem.
10. Study of PROLOG. Write the following programs using PROLOG.
11. Write a program to solve 8 queens problem.
12. Solve any problem using depth first search.
13. Solve any problem using best first search.
14. Solve 8-puzzle problem using best first search.
15. Solve travelling salesman problem.

COURSE OUTCOMES

On completion of the course, student will be able to

- CO1 - Apply various machine learning algorithms.
- CO2 - Design Java/Python programs for various Learning algorithms.
- CO3 - Apply appropriate data sets to the Machine Learning algorithms.
- CO4 - Identify and apply Machine Learning algorithms to solve real world problems.
- CO5 - Apply EM algorithm to cluster a set of data stored in a .CSV file.
- CO6 - Implement programs with PROLOG.

SITA3003	ADVANCED JAVA PROGRAMMING	L	T	P	Credits	Total Marks
		3	0	0	3	100

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.
- To have knowledge in advanced Java programming concepts.

UNIT 1 INTRODUCTION & DATABASE PROGRAMMING

9 Hrs.

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

UNIT 2 SERVLET PROGRAMMING

9 Hrs.

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.

UNIT 3 JSP AND JAVA MAIL

9 Hrs.

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 TAGExtensions. Java Mail API: Introduction to Java Mail - Mail Protocols- Java Mail Overview- Quick, Send me a Email: An example program

UNIT 4 ENTERPRISE JAVA BEANS

9 Hrs.

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.

UNIT 5 STRUTS

9 Hrs.

Struts: Development Models-Basic Components of Struts – Struts2 Architecture-Interceptors-Validation- Building simple struts Application.

Max. 45 Hrs.

COURSE OUTCOMES

On completion of the course, student will be able to

- CO1 - Implement JDBC connectivity.
- CO2 - Implement advanced Servlets.
- CO3 - Implement JSP and Java Mail.
- CO4 - Implement EJB.
- CO5 - Implement Struts.
- CO6 - To develop enterprise java applications thereby meeting the industrial requirements.

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-Struts, "The complete Reference", 2nd Edition, Tata McGraw Hill, 2007.
4. <http://www.java.sun.com/tutorial>.



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Minutes of Board of Studies Meeting

Date: 22.06.2023

Time: 11.00 am

Mode: Physical

Minutes of the BOS Meeting -2023 held on 22.06.2023.

Agenda:

- Review of 2019 curriculum.
- Updating the course contents of Existing Courses and Introduction of new courses

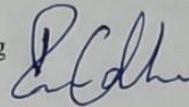
The Minutes of Meeting

The commencement of the meeting was inaugurated by Prof.Dr.T.Sasikala, Convener, Board of Studies. The board of members reviewed 2019 curriculum and decisions were made to incorporate the following changes in the curriculum.

- Since Object Oriented Programming can make software development more modular, reusable, and maintainable, Mr.Ajay Kumar Suggested to provide OOP using Python in a detailed way.
- In order to develop web application, Enterprise Application and mobile application easily, Mr. Ashish Chopra advised to introduce Advanced Java Programming course in the curriculum
- Dr.T.G.Sambanthan advised to include the topic of "Extraction and Mining Communities in Web Social Networks" because it is an important aspect of social network analysis that focuses on understanding the structure,

relationships, and behaviors within online social networks.

Convener: Dr.T.Sasikala, Dean School of Computing



External Members:

Academic Expert

- Dr.T.G.Sambanthan, Professor & Head, Department of Computer Science & Engineering NITTTR, Chennai. *Sambanthan*
- Dr. RiyazAhamed, Senior lecturer, School of Computer Science and Engineering, Taylor's University, Malaysia. *Riyaz Ahamed*

Industry Experts

- Dr.V.Sankaran, Program Manager, Engineering and R&D Services, HCL Technologies *Sankaran*
- Mr. Ajay Kumar, CTO, Cognibot Robotics, Chennai. *Ajay Kumar*

Alumni

- Mr.Johnson S, Project Test Manager, TCS , Chennai. *Johnson*
- Mr.Ashish Chopra, Senior BDE, Freshworks, Chennai. *Ashish Chopra*

Internal Members:

- Dr.R.Subashini , HoD, Department of IT *R.Subashini*
- Dr.Jeberson Retna Raj,Professor,IT *Jeberson Retna Raj*
- Dr.P.Jeyanthi, Associate Professor, Department of IT *P.Jeyanthi*
- Dr.S.Revathy, Associate Professor, Department of IT *Revathy*



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Minutes of Board of Studies Meeting

Date: 08.12.2022

Time: 11.00 am

Mode: Physical

Minutes of the BOS Meeting -2022 held on 08-12-2022.

Agenda:

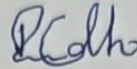
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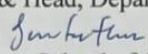
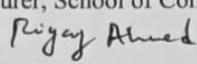
- Contents of Internet of Things course has been have been changed based on the feedback given by Dr.Sivasangari
- Since the Artificial Intelligence (AI) and Machine Learning (ML) technologies are emerging as promising solutions, Dr.V.Sankaran suggested introducing AI and Machine Learning Lab.
- Mr. Johnson suggested to include signals and daemon processes in a Unix internals syllabus since it equips students with practical knowledge and skills that are directly applicable to both software development and system administration roles.

Convener: Dr.T.Sasikala, Dean School of Computing

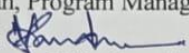
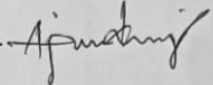


External Members:

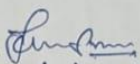
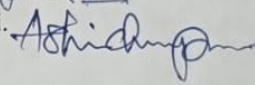
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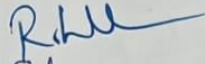
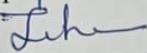
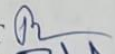
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