



# SRI KRISHNA INSTITUTE OF TECHNOLOGY

(Accredited by NAAC, Approved by A.I.C.T.E. New Delhi, Recognised by Govt. of Karnataka & Affiliated to V.T U., Belgaum)  
#29, Hesaraghatta Main Road, Chimney Hills, Chikkabanavara Post, Bangalore- 560090

## Department of Artificial Intelligence and Machine Learning

Academic Year: 2022-2023	Semester: 5 <sup>th</sup>
Course Name: Artificial Intelligence Laboratory	Course Code: 18AIL57
Total Contact hours: 2	Credits: 02
SEE Marks: 60 ; CIE: 40	Total Marks: 100
Course Plan Author: Prof. Manzoor Ahmed	Date: 10 <sup>th</sup> Oct 2022

### Course Prerequisites:

Basic Knowledge of programming languages c, python. Programming concepts like Data Structures, Algorithms.

### Course Objectives:

1. Implement and evaluate AI algorithms in Python programming language.

### Course Outcomes:

CO Number	Course Outcome At the end of the course, student should be able to . . .	Blooms' Level
CO1	Implement and demonstrate AI algorithms	L1,L2,L3
CO2	Evaluate different algorithms	L1,L2,L3

### CO – PO Mapping

Course Outcomes	Program Outcomes														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3	3	3	3				2			2	2	2	1
CO2	2	3	3	3	3				2			2	2	2	1

### Program Outcomes and Program Specific Outcomes

PO, PSO	<p>1.Engineering Knowledge;</p> <p>2.Problem Analysis;</p> <p>3.Design / Development of Solutions;</p> <p>4.Conduct Investigations of Complex Problems;</p> <p>5.Modern Tool Usage;</p> <p>6.The Engineer and Society;</p> <p>7.Environment and Sustainability;</p> <p>8.Ethics;</p>
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<p>9. Individual and Teamwork;</p> <p>10. Communication;</p> <p>11. Project Management and Finance;</p> <p>12. Life-long Learning;</p> <p>PSO1.: Graduates will have the ability to adapt, contribute and innovate ideas in the field of Artificial Intelligence and Machine Learning</p> <p>PSO2: To provide a concrete foundation and enrich their abilities to qualify for Employment, Higher studies and Research in various domains of Artificial Intelligence and Machine Learning such as Data Science, Computer Vision, Natural Language Processing with Ethical Values.</p> <p>PSO3: Graduates will acquire the practical proficiency with niche technologies and open-source platforms and to become Entrepreneur in the domain Artificial Intelligence and Machine Learning.</p>
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### LIST OF EXPERIMENTS:

SL. NO.	Experiments
<b>PART A (Practice Programs)</b>	
1	(a) Write a python program to print the multiplication table for the given number (b) Write a python program to check whether the given number is prime or not? (c) Write a python program to find factorial of the given number?
2	(a) Write a python program to implement List operations (Nested List, Length, Concatenation, Membership, Iteration, Indexing and Slicing) (b) Write a python program to implement List methods (Add, Append, Extend & Delete).
3	Write a python program to implement simple Chatbot with minimum 10 conversations
4	Write a python program to Illustrate Different Set Operations
5	(a) Write a python program to implement a function that counts the number of times a string(s1) occurs in another string(s2) (b) Write a program to illustrate Dictionary operations([],in,traversal)and methods: keys(),values(),items()
<b>PART B – AI Problems to be implemented in Python</b>	
1	Implement and Demonstrate Depth First Search Algorithm on Water Jug Problem
2	Implement and Demonstrate Best First Search Algorithm on any AI problem
3	Implement AO* Search algorithm.
4	Solve 8-Queens Problem with suitable assumptions
5	Implementation of TSP using heuristic approach
6	Implementation of the problem solving strategies: either using Forward Chaining or Backward Chaining
7	Implement resolution principle on FOPL related problems
8	Implement any Game and demonstrate the Game playing strategies



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### Schedule of Instruction

Expts.no	Experiments Name	Aim of the Experiment	Course Outcome	Delivery mode
1	(a) Write a python program to print the multiplication table for the given number (b) Write a python program to check whether the given number is prime or not? (c) Write a python program to find factorial of the given number?	Basic fundamentals of Python Language	-	GD
2	(a) Write a python program to implement List operations (Nested List, Length, Concatenation, Membership, Iteration, Indexing and Slicing) (b) Write a python program to implement List methods (Add, Append, Extend & Delete).	To understand the data structure list and operations to be performed on it	-	GD
3	Write a python program to implement simple Chat bot with minimum 10 conversations	Application of AI	-	Chalk & Talk
4	Write a python program to Illustrate Different Set Operations	To understand the data structure set and operations to be performed on it	-	Chalk & Talk
5	(a)Write a python program to implement a function that counts the number of times a string(s1) occurs in another string(s2) (b)Write a program to illustrate Dictionary operations([],in, traversal)and methods: keys(),values(),items()	To understand the data structures strings and dictionary & operations to be performed on it	-	Chalk & Talk
6	Implement and Demonstrate Depth First Search Algorithm on Water Jug Problem	To use DFS algorithm to solve real world problem called water jug problem	CO1	Chalk & Talk
7	Implement and Demonstrate Best First Search Algorithm on any AI problem	To use BFS algorithm to solve any real world problem.	CO1	GD, Chalk & Talk
8	Implement AO* Search algorithm.	To apply AO* algorithm to solve any real world problem.	CO1	GD, Chalk & Talk
9	Solve 8-Queens Problem with suitable assumptions	To solve 8-Queens problem by applying one of best algorithm	CO2	GD, Chalk & Talk



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10	Implementation of TSP using heuristic approach	To learn and apply heuristic approach for solving TSP	CO2	Chalk & Talk
11	Implementation of the problem solving strategies: either using Forward Chaining or Backward Chaining	To apply Forward Chaining or Backward Chaining for implementing problem solving strategies	CO2	Chalk & Talk
12	Implement resolution principle on FOPL related problems	Applying resolution principle on FOPL related problems	CO2	Chalk & Talk
13	Implement any Game and demonstrate the Game playing strategies	Developing a game and explaining game playing strategies	CO2	Chalk & Talk

Textbooks & Reference books	
1	Saroj Kaushik, Artificial Intelligence, Cengage learning, 2014 Chalk & Talk

Web links and Video Lectures (e-Resources):	
1	
2	
3	
4	

Sl.No.	Assessment type	CO	Duration In Hours	Marks	
1	Program Execution	CO1 & CO2		10	
2	Viva voce	CO1 & CO2		10	
3	Record	CO1 & CO2		15	
4	Algorithm	CO1 & CO2		10	
5	Test	CO1 & CO2	2 Hrs	40	

**\*\*The sum of total marks of CIE + SEE = 40 + 60 = 100 marks**

Faculty Incharge

DAC Chairman

HOD

**\*\* As per the applicable scheme**