

Program : <b>Diploma in Computer Engineering / Computer Hardware Engineering / Information Technology</b>	
Course Code : <b>5139C</b>	Course Title: <b>Fundamentals of Artificial Intelligence and Machine Learning Lab</b>
Semester : <b>5</b>	Credits: <b>3</b>
Course Category: <b>Program Elective</b>	
Periods per week: <b>3 (L:0 T:0 P:3)</b>	Periods per semester: <b>45</b>

### Course Objectives:

- To familiarize the fundamentals of Artificial Intelligence and Machine Learning
- To build real world application using python.

### Course Prerequisites:

Topic	Course code	Course name	Semester
Basic Mathematics		Mathematics	1, 2
Programming concepts.		Programming in C	3
Program development		Application Development Lab	3

<course code> *Fundamentals of Artificial Intelligence and Machine Learning should be registered along with this.*

### Course Outcomes :

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

CO <sub>n</sub>	Description	Duration (Hours)	Cognitive Level
CO1	Develop basic Programming Concepts using python	10	Applying
CO2	Apply advanced python programming Concepts	10	Applying
CO3	Use Machine learning algorithm using tools like weka	12	Applying
CO4	Apply AI with Python in Gaming	10	Applying
	Lab Exam	3	

## CO – PO Mapping

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3			3			
CO2	3			3			
CO3	3			3			
CO4	3	3	3	3	3	3	3

3-Strongly mapped, 2-Moderately mapped, 1-Weakly mapped

## Course Outline

Module Outcomes	Name of the Experiment	Duration (Hours)	Cognitive Level
<b>CO1</b>	<b>Develop programs using basic programming constructs in python</b>		
M1.01	Develop simple python programs using decision control structures	2	Applying
M1.02	Implement python Programs using loop control structures.	2	Applying
M1.03	Implement programs using String	2	Applying
M1.04	Implement programs using list	2	Applying
M1.05	Implement programs using Dictionary Manipulations	2	Applying
<b>CO2</b>	<b>Apply advanced python programming concepts</b>		
M2.01	Implement programs using python functions	2	Applying
M2.02	Implement programs using python Modules	2	Applying
M2.03	Implement programs using packages	2	Applying
M2.04	Implement Classes and objects in python	2	Applying
M2.05	Implement programs using regular expression	2	Applying
	Lab Exam – I	1.5	
<b>CO3</b>	<b>Use Machine learning algorithm</b>		
M3.01	Installing and familiarising any machine learning software like weka	2	Applying
M3.02	Demonstrate loading of data from local file system,url and DB using machine learning software like weka	2	Applying
M3.03	Implement the techniques for preprocessing of data using numpy package in Python	2	Applying

M3.04	Implement the classifiers using machine learning software like weka	2	Applying
M3.05	Implement the classifiers using python	4	Applying
<b>CO4</b>	<b>Apply AI with Python in Gaming</b>		
M4.01	Demonstrate a Bot to Play Last Coin Standing using python	2	Applying
M4.02	Demonstrate a Bot to Play Tic Tac Toe using python	2	Applying
M4.03	Open Ended Experiments**	6	Applying
	Lab Exam – II	1.5	

**\*\* - Suggested Open Ended Experiments**

(Not for End Semester Examination but compulsory to be included in Continuous Internal Evaluation. Students can do open ended experiments as a group of 2-3. There is no duplication in experiments between groups. )

1. Dice Rolling Simulator in Python
2. Number Guessing in python

**Text / Reference**

T/R	Book Title/Author
T1	Artificial Intelligence with Python: Your complete guide to building intelligent apps using Python 3.x and TensorFlow 2, 2nd Edition , by Alberto Artasanchez, Prateek Joshi
R1	Core python programming by Nageswara Rao
R2	Let us python by Yashvant kanetkar

**Online Resources**

Sl.No	Website Link
1	<a href="http://www.tutorialspoint.com/python">http://www.tutorialspoint.com/python</a>
2	<a href="https://www.tutorialspoint.com/weka">https://www.tutorialspoint.com/weka</a>
3	<a href="https://www.tutorialspoint.com/artificial_intelligence_with_python/artificial_intelligence_with_python_tutorial.pdf">https://www.tutorialspoint.com/artificial_intelligence_with_python/artificial_intelligence_with_python_tutorial.pdf</a>