

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING LABORATORY (Effective from the academic year 2018 -2019) SEMESTER – VII			
Course Code	18CSL76	CIE Marks	40
Number of Contact Hours/Week	0:0:2	SEE Marks	60
Total Number of Lab Contact Hours	36	Exam Hours	03
Credits – 2			
Course Learning Objectives: This course (18CSL76) will enable students to:			
<ul style="list-style-type: none">Implement and evaluate AI and ML algorithms in and Python programming language.			
Descriptions (if any):			
Installation procedure of the required software must be demonstrated, carried out in groups and documented in the journal.			
Programs List:			
1.	Implement A* Search algorithm.		
2.	Implement AO* Search algorithm.		
3.	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.		
4.	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.		
5.	Build an Artificial Neural Network by implementing the Backpropagation algorithm and test the same using appropriate data sets.		
6.	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.		
7.	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.		
8.	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.		
9.	Implement the non-parametric Locally Weighted Regression algorithm in order to fit data points. Select appropriate data set for your experiment and draw graphs		
Laboratory Outcomes: The student should be able to:			
<ul style="list-style-type: none">Implement and demonstrate AI and ML algorithms.Evaluate different algorithms.			
Conduct of Practical Examination:			
<ul style="list-style-type: none">Experiment distribution<ul style="list-style-type: none">For laboratories having only one part: Students are allowed to pick one experiment from the lot with equal opportunity.For laboratories having PART A and PART B: Students are allowed to pick one experiment from PART A and one experiment from PART B, with equal opportunity.Change of experiment is allowed only once and marks allotted for procedure to be made zero of the changed part only.Marks Distribution (<i>Courseed to change in accordance with university regulations</i>)<ul style="list-style-type: none">q) For laboratories having only one part – Procedure + Execution + Viva-Voce: 15+70+15 = 100 Marksr) For laboratories having PART A and PART B<ul style="list-style-type: none">i. Part A – Procedure + Execution + Viva = 6 + 28 + 6 = 40 Marksii. Part B – Procedure + Execution + Viva = 9 + 42 + 9 = 60 Marks			