


ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING (Effective from the academic year 2018 -2019) SEMESTER – VII			
Course Code	18CS71	CIE Marks	40
Number of Contact Hours/Week	4:0:0	SEE Marks	60
Total Number of Contact Hours	50	Exam Hours	03
CREDITS –4			
Course Learning Objectives: This course (18CS71) will enable students to:			
<ul style="list-style-type: none"> • Explain Artificial Intelligence and Machine Learning • Illustrate AI and ML algorithm and their use in appropriate applications 			
Module 1			Contact Hours
What is artificial intelligence?, Problems, problem spaces and search, Heuristic search techniques Textbook 1: Chapter 1, 2 and 3 RBT: L1, L2			10
Module 2			
Knowledge representation issues, Predicate logic, Representaiton knowledge using rules. Concpet Learning: Concept learning task, Concpet learning as search, Find-S algorithm, Candidate Elimination Algorithm, Inductive bias of Candidate Elimination Algorithm. Textbook 1: Chapter 4, 5 and 6 Textbook2: Chapter 2 (2.1-2.5, 2.7) RBT: L1, L2, L3			10
Module 3			
Decision Tree Learning: Introduction, Decision tree representation, Appropriate problems, ID3 algorith. Aritifecil Nueral Network: Introduction, NN representation, Appropriate problems, Perceptrons, Backpropagation algorithm. Textbook2: Chapter 3 (3.1-3.4), Chapter 4 (4.1-4.5) RBT: L1, L2, L3			10
Module 4			
Bayesian Learning: Introduction, Bayes theorem, Bayes theorem and concept learning, ML and LS error hypothesis, ML for predicting, MDL principle, Bates optimal classifier, Gibbs algorithm, Navie Bayes classifier, BBN, EM Algorithm Textbook2: Chapter 6 RBT: L1, L2, L3			10
Module 5			

<p>Instance-Base Learning: Introduction, k-Nearest Neighbour Learning, Locally weighted regression, Radial basis function, Case-Based reasoning.</p> <p>Reinforcement Learning: Introduction, The learning task, Q-Learning.</p> <p>Textbook 1: Chapter 8 (8.1-8.5), Chapter 13 (13.1 – 13.3) RBT: L1, L2, L3</p>	10
Course Outcomes: The student will be able to :	
<ul style="list-style-type: none"> Appraise the theory of Artificial intelligence and Machine Learning. Illustrate the working of AI and ML Algorithms. Demonstrate the applications of AI and ML. 	
Question Paper Pattern:	
<ul style="list-style-type: none"> The question paper will have ten questions. Each full Question consisting of 20 marks There will be 2 full questions (with a maximum of four sub questions) from each module. Each full question will have sub questions covering all the topics under a module. The students will have to answer 5 full questions, selecting one full question from each module. 	
Textbooks:	
<ol style="list-style-type: none"> Tom M Mitchell, “Machine Learning”, 1st Edition, McGraw Hill Education, 2017. Elaine Rich, Kevin K and S B Nair, “Artificial Intelligence”, 3rd Edition, McGraw Hill Education, 2017. 	
Reference Books:	
<ol style="list-style-type: none"> Saroj Kaushik, Artificial Intelligence, Cengage learning Stuart Russell, Peter Norving , Artificial Intelligence: A Modern Approach, Pearson Education 2nd Edition Aurélien Geron, "Hands-On Machine Learning with Scikit-Learn and Tensor Flow: Concepts, Tools, and Techniques to Build Intelligent Systems", 1st Edition, Shroff/O'Reilly Media, 2017. Trevor Hastie, Robert Tibshirani, Jerome Friedman, h The Elements of Statistical Learning, 2nd edition, springer series in statistics. Ethem Alpaydın, Introduction to machine learning, second edition, MIT press Srinivasa K G and Shreedhar, “ Artificial Intelligence and Machine Learning”, Cengage 	


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