Complex

Experiential Learning
(site visits)

Forum Theater

Jigsaw Discussion

Inquiry Learning

Role Playing

Active Review Sessions
(Games or Simulations)

Interactive Lecture

Hands-on Technology

Case Studies

Brainstorming

Groups Evaluations

Peer Review

Informal Groups

Triad Groups

Large Group
Discussion

Think-Pair-Share

Writing
(Minute Paper)

Self-assessment

Pause for reflection

Simple

Department of AI&DS

MACHINE LEARNING
22AD2203R

Topic:

SYLLABUS AND COURSE OUTCOME

Session - 01

Dr. NARENDRA BABU TATINI
Associate Professor
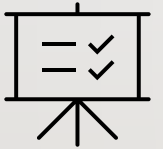**Department of IoT**

AIM OF THE SESSION

To know students about the syllabus of the course Machine Learning.

INSTRUCTIONAL OBJECTIVES

This session is designed to:

1. Know the syllabus and outcomes of the course and
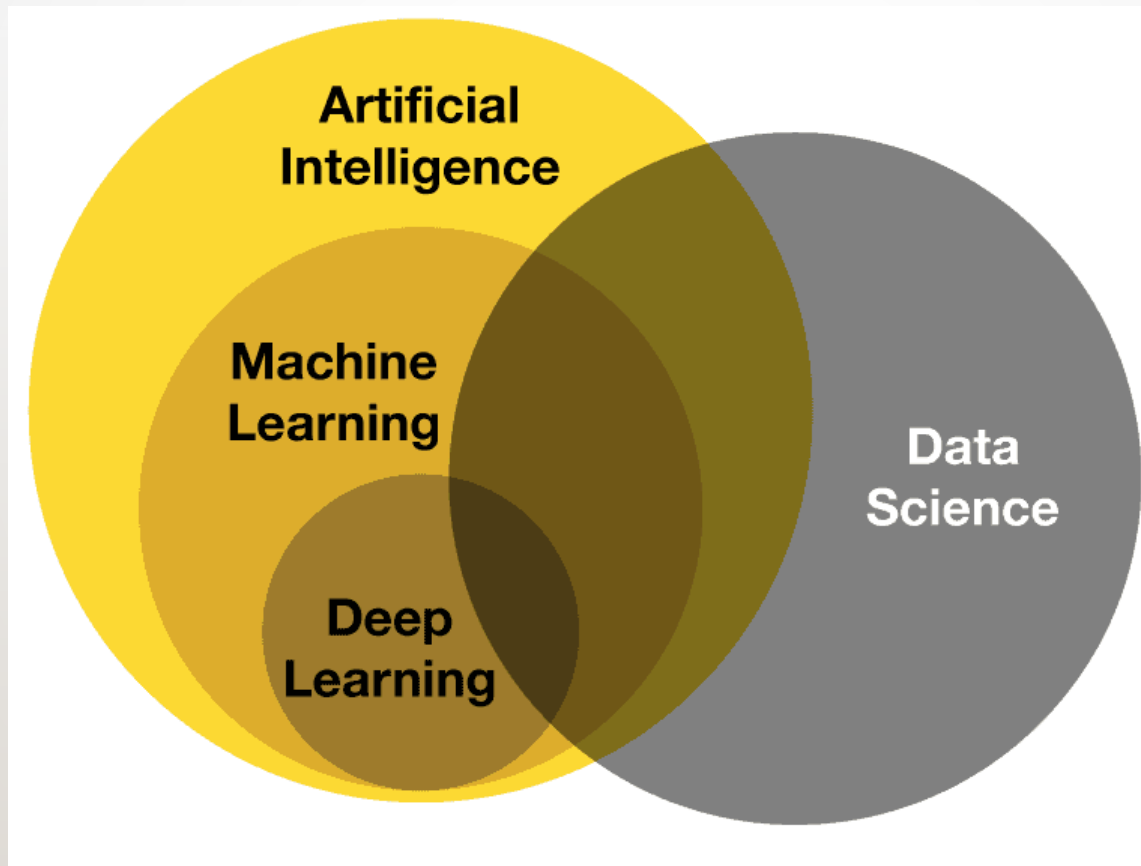2. Know the evaluation components of the course.

LEARNING OUTCOMES

At the end of this session, you should be able to:

1. Understand the different evaluation methods, and
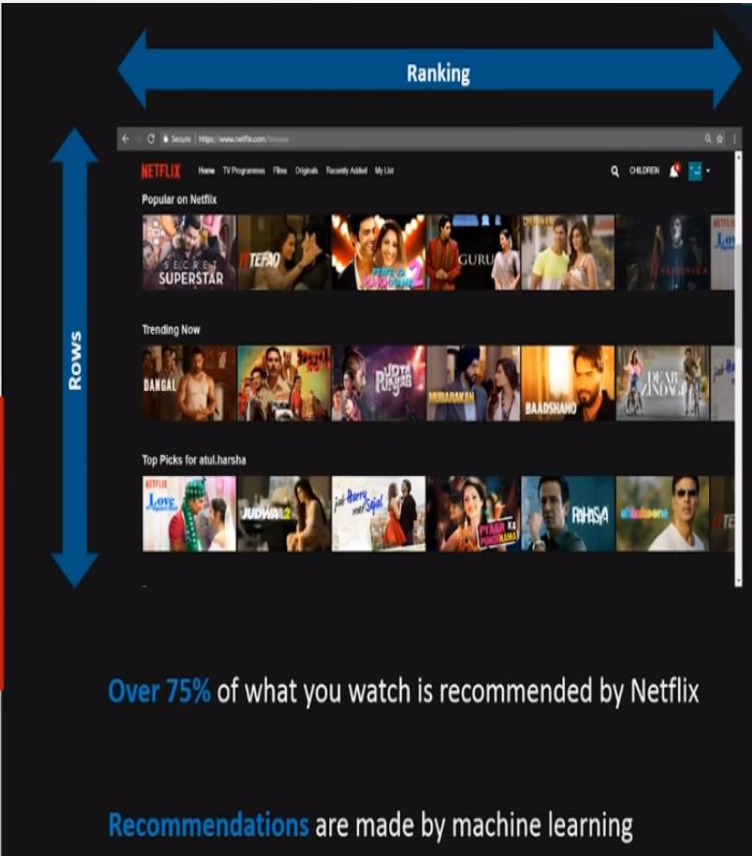2. Identify pedagogies used in this course.

INTRODUCTION

REAL LIFE EXAMPLES

APPLICATION OF MACHINE LEARNING
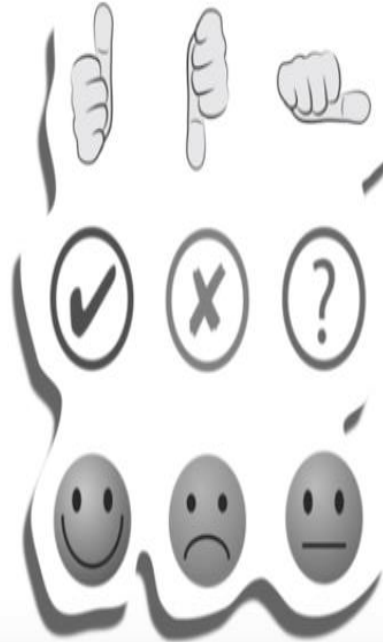
SYLLABUS AND COURSE OUTCOME

Course Title: MACHINE LEARNING

Course Code: 22AD2203R

Course Type: Professional Core

L-T-P Structure: 2-0-2-4

Course Credits: 4

Pre-requisite: Nil

SYLLABUS AND COURSE OUTCOME

Course Description: This course provides an overview of many concepts, techniques, and algorithms in machine learning, beginning with topics such as classification, decision trees, k-nearest neighbor, linear regression, and logistic regression and ending up with more recent topics such as support vector machines and Bayesian networks. The course will give the student the basic ideas and intuition behind modern machine learning methods as well as a bit more formal understanding of how, why, and when they work. The course will be accompanied by hands-on problem-solving with programming in Python.

SYLLABUS AND COURSE OUTCOME

CO-1: Introduction to Machine Learning, Types of Machine Learning: Supervised Learning, Unsupervised Learning, Reinforcement Learning, Performance Measures: Confusion Matrix, RoC, Accuracy, Classification Loss Functions, Tree Models: Classification, Regression, Bias vs Variance, Probability Models: Naive Bayes: Basic Building Blocks, Naive Bayes Classifier.

Course Outcome: Apply machine learning techniques to solve real-world problems.

SYLLABUS AND COURSE OUTCOME

CO-2: Linear Models: Support Vector Machine, Logistic Regression, Regression, Dimensionality Reduction: Linear Discriminant Analysis (LDA), Principal Components Analysis (PCA), Evolutionary Models: Genetic Operator, Genetic Algorithm.

Course Outcome: Analyzing the various dimensionality reduction techniques, and linear and evolutionary models.

SYLLABUS AND COURSE OUTCOME

CO-3: Clustering: k-means Clustering, Hierarchical Clustering, Hypotheses Testing: Basic Concepts, Sampling Distribution, Z-Test, Genetic Algorithms, Learning Task: Q Learning, Non-Deterministic Rewards, and Actions, Active Reinforcement Learning, Ensemble Models: Boosting, Bagging, Random Forests.

Course Outcome: Analyze clustering, linear, and ensemble models.

CO-4: Neural Networks: Perceptron, Linear Models, Multi-Layer NN, Forward & Back Propagation: Chain Rule, Cost Function, Loss Function, Modeling & Performance Improvement: Methods to improve accuracy, Tuning Hyperparamets, Validation and Testing, Bayesian Belief Networks: Bayesian Belief Networks, EM Algorithm.

Course Outcome: Analyze Bayesian models and genetic programming models.

MASSIVE OPEN ONLINE COURSE (MOOC)

1. IBM Machine Learning: https://shorturl.at/mtAW4.

2. Machine Learning: https://shorturl.at/aQX04.

Text Books:

1. Mitchell, Tom. Machine Learning. New York, NY: McGraw-Hill, 1997. ISBN: 9780070428072.

2. MacKay, David. Information Theory, Inference, and Learning Algorithms. Cambridge, UK: Cambridge University Press, 2003. ISBN: 9780521642989.

Reference Books:

1. EthemAlpaydin "Introduction to Machine Learning ", The MIT Press (2010).

2. Stephen Marsland, "Machine Learning an Algorithmic Perspective" CRC Press, (2009).

Sites and Web links:

1. Data Science and Machine Learning: https://www.edx.org/course/data-science-machinelearning.
2. Machine Learning: https://www.ocw.mit.edu/courses/6-867-machine-learning-fall-2006/.

END SEMESTER SUMMATIVE EVALUATION

Evaluation Type	Evaluation Component	Weightage/Marks		Assessment Dates	Duration (Hours)	CO1	CO2	CO3	CO4	CO5	CO6
End Semester Summative Evaluation Total= 40 %	Skill Sem-End Exam	Weightage	8		120						8
		Max Marks	50								50
	End Semester Exam	Weightage	24		180	6	6	6	6		
		Max Marks	100			25	25	25	25		
	Lab End Semester Exam	Weightage	8		120					8	
		Max Marks	50							50	

IN SEMESTER SUMMATIVE EVALUATION

In Semester Summative Evaluation Total= 38 %	Semester in Exam-I	Weightage	15		120	7.5	7.5				
		Max Marks	50			25	25				
	Semester in Exam-II	Weightage	15		120			7.5	7.5		
		Max Marks	50					25	25		
	Lab In Semester Exam	Weightage	4		100					4	
		Max Marks	50							50	
	Skill In-Sem Exam	Weightage	4		100						4
		Max Marks	50								50

IN SEMESTER FORMATIVE EVALUATION

In Semester Formative Evaluation Total= 22 %	MOOCs Review	Weightage	4		50	1	1	1	1	
		Max Marks	40			10	10	10	10	
	Skilling Continuous Evaluation	Weightage	4		100					4
		Max Marks	100							100
	ALM	Weightage	6		40	1.5	1.5	1.5	1.5	
		Max Marks	40			10	10	10	10	
	Continuous Evaluation - Lab Exercise	Weightage	4		100					4
		Max Marks	120							120
	Continuous Evaluation -Project	Weightage	4		100					4
		Max Marks	100							100

THANK YOU

Team – MACHINE LEARNING