

Trinity Institute of Innovations in Professional Studies
Plot No. 2B/1, Knowledge Park - III, Greater Noida
SUBJECT LESSION PLAN

Course & Semester: B. Tech. (8th sem)
Subject Name: Machine learning

Batch: 2019-23
Paper Code: ETCS-402

Unit	Lecture No.	Proposed date	Lecture content	Actual date	Remark
Unit- I	1	01/3/2023	1. Basic concepts: Definition of learning systems,	01/3/2023	
	2	02/3/2023	2. Goals and applications of machine learning.	02/3/2023	
	3	03/3/2023	3. Aspects of developing a learning system:	03/3/2023	
	4	06/3/2023	4. training data, concept representation,	06/3/2023	
	5	07/3/2023	5. Continue lecture 4	07/3/2023	
	6	13/3/2023	6. Function approximation.	13/3/2023	
	7	14/3/2023	7. Types of Learning: Supervised learning and unsupervised learning.	14/3/2023	
	8	15/3/2023	8. Overview of classification: setup,	15/3/2023	
	9	16/3/2023	9. Training, test, validation dataset, over fitting.	16/3/2023	
	10	17/3/2023	10. Continue lecture 9	17/3/2023	
	11	20/3/2023	11. Classification Families: linear discriminative,	20/3/2023	
	12	21/3/2023	12. non-linear discriminative,	21/3/2023	
	13	22/3/2023	13. decision trees,	22/3/2023	
	14	23/3/2023	14. Probabilistic (conditional and generative),	23/3/2023	
	15	24/3/2023	15. Continue lecture 14	24/3/2023	
	16	27/3/2023	16. Nearest neighbor.	27/3/2023	
Unit-II	1	28/3/2023	1. Logistic regression,	28/3/2023	
	2	29/3/2023	2. Perceptron,	29/3/2023	
	3	30/3/2023	3. Exponential family,	30/3/2023	
	4	31/3/2023	4. Generative learning algorithms,	31/3/2023	
	5	03/4/2023	5. Continue lecture 4	03/4/2023	

	6	04/4/2023	6. Gaussian discriminant analysis,	04/4/2023	
	7	05/4/2023	7. Continue lecture 6	05/4/2023	
	8	06/4/2023	8. Naive Bayes,	06/4/2023	
	9	07/4/2023	9. Support vector machines: Optimal hyper plane,	07/4/2023	
	10	10/4/2023	10. Kernels.	10/4/2023	
	11	11/4/2023	11. Model selection and feature selection.	11/4/2023	
	12	12/4/2023	12. Continue lecture 11	12/4/2023	
	13	13/4/2023	13. Combining classifiers: Bagging,	13/4/2023	
	14	14/4/2023	14. boosting (The Ada boost algorithm),	14/4/2023	
	15	17/4/2023	15. Evaluating and debugging learning algorithms,	17/4/2023	
	16	18/4/2023	16. Classification errors.	18/4/2023	
Unit-III	1	19/4/2023	1. Unsupervised learning: Clustering.	19/4/2023	
	2	20/4/2023	2. K-means.	20/4/2023	
	3	21/4/2023	3. Continue lecture 2	21/4/2023	
	4	24/4/2023	4. EM Algorithm	24/4/2023	
	5	25/4/202	5. Continue lecture 4	25/4/202	
	6	26/4/2023	6. Mixture of Gaussians.	26/4/2023	
	7	27/4/2023	7. Continue lecture 6	27/4/2023	
	8	28/4/2023	8. Factor analysis. PCA (Principal components analysis),	28/4/2023	
	9	01/5/2023	9. ICA (Independent components analysis),	01/5/2023	
	10	02/5/2023	10. Latent semantic indexing.	02/5/2023	
	11	03/5/2023	11. Continue lecture 10	03/5/2023	
	12	04/5/2023	12. Spectral clustering,	04/5/2023	
	13	05/5/2023	13. Continue lecture 12	05/5/2023	
	14	08/5/2023	14. Continue lecture 11	08/5/2023	

	15	09/5/2023	15. Markov models Hidden Markov models (HMMs).	09/5/2023	
	16	10/5/2023	16. Continue lecture 15	10/5/2023	
Unit-IV	1	11/5/2023	1. Reinforcement Learning and Control: MDPs.	11/5/2023	
	2	12/5/2023	2. Bellman equations,	12/5/2023	
	3	15/5/2023	3. Continue lecture 2	15/5/2023	
	4	16/5/2023	4. Value iteration and policy iteration,	16/5/2023	
	5	17/5/2023	5. Linear quadratic regulation (LQR).	17/5/2023	
	6	18/5/2023	6. Continue lecture 5	18/5/2023	
	7	19/5/2023	7. LQG.	19/5/2023	
	8	16/5/2023	8. Q-learning.	16/5/2023	
	9	22/5/2023	9. Value function approximation,	22/5/2023	
	10	23/5/2023	10. Continue lecture 9	23/5/2023	
	11	24/5/2023	11. Policy search.	24/5/2023	
	12	25/5/2023	12. Reinforce.	25/5/2023	
	13	26/5/2023	13. Continue lecture 12	26/5/2023	
	14	29/5/2023	14. POMDPs.	29/5/2023	
	15	30/5/2023	15. Continue lecture 15	30/5/2023	

Text Books:

1. Tom M Mitchell, Machine Learning, McGraw Hill Education
2. Bishop, C. (2006). Pattern Recognition and Machine Learning. Berlin: Springer-Verlag.
3. Duda, Richard, Peter Hart, and David Stork. Pattern Classification. 2nd ed. New York, NY: Wiley- Interscience, 2000. ISBN: 9780471056690.
4. Tom M. Mitchell, Machine Learning. ISBN – 9781259096952, McGraw-Hill Series, Edition – First

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