Value added course on
Mathematics for Machine Learning
May 15, 2023 onwards (30 hours)

Course Schedule

Venue: AB2 - Smart Classroom

#	Date	Time	Topic	Speaker
1	22-May	5 - 6 pm	Introduction to the Course - System of Linear Equation – Vector Space – Subspace	Dr. David Raj Micheal
2	22-May	6 - 7 pm	Linear Combination – Span - Linearly Dependent – Independent – Bases – Dimensions	Dr. Kalyan Banerjee
3	23-May	5 - 6 pm	Matrices – Basic Properties; Row–Echelon Form – Invertiblity;	Dr. Sethukumarasamy K
4	23-May	6 - 7 pm	Matrices as Linear Transformations;	Dr. Sethukumarasamy K
5	24-May	5 - 6 pm	Perceptron; Single Layer and Multilayer Neural Network	Dr. Felix A
6	24-May	6 - 7 pm	Dot Products and Inner Products – The Lengths and Angles of Vectors	Dr. Manivannan A
7	25-May	5 - 6 pm	Gram–Schmidt Orthogonalisation	Dr. Manivannan A
8	25-May	6 - 7 pm	Least Square Solutions	Dr. Felix A
9	26-May	5 - 6 pm	Basics Concepts of Calculus – Gradient – Jacobian – Chain Rule – Change of Variables	Dr. Pankaj Shukla
10	26-May	6 - 7 pm	Maxima and Minima of Two Variable Function	Dr. Pankaj Shukla
11	31-May	5 - 6 pm	Contraint Maxima and Minima – Lagrangian Multiplier Method	Dr. Kalyani Desikan
12	31-May	6 - 7 pm	Gradient Decent Algorithm, (Mini–Batch) Stochastic Gradient Algorithm, Adam	Dr. Kalyani Desikan
13	31-May	11:40 AM	Special Talk on Natural Language Processing	Dr. Manju G
14	01-Jun	5 - 6 pm	Probability – The Axioms of Probability – Conditional Probability – Baye's Theorem – Discrete and Continuous Random Variables	Dr. Parthiban V
15	01-Jun	6 - 7 pm	Moments – Moment Generating Functions	Dr. Parthiban V
16	02-Jun	5 - 6 pm	Binomial, Poisson, Geometric, Uniform, Exponential and Normal Distributions	Dr. Parthiban V
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17	02-Jun	6 - 7 pm	Clustering: Density Based Clustering, K–Means Clustering	Dr. Saraswathi D
18	05-Jun	5 - 6 pm	Correlation and Regression – Partial and Multiple Correlation	Dr. Dhanasekar S
19	05-Jun	6 - 7 pm	Linear and Multiple Regression, Logistic Regression	Dr. Dhanasekar S
20	06-Jun	5 - 7 pm	Practical Examples of Regressions – I	Dr. Velmathi G
21	07-Jun	5 - 6 pm	Graphs – Adjacency and Incidence Matrix – Tree – Properties	Dr. Jayagopal R
22	07-Jun	6 - 7 pm	Distance and Centres in Trees	Dr. Jayagopal R
23	08-Jun	5 - 6 pm	Binary Tree – Binary Search Tree	Dr. Umity Srinivasa Rao
24	08-Jun	6 - 7 pm	Tree Traversals – Decision Tree	Dr. Umity Srinivasa Rao
25	09-Jun	5 - 6 pm	Support Vector Machine (SVM)	Dr. Jeganathan L
26	09-Jun	6 - 7 pm	Support Vector Machine (SVM)	Dr. Jeganathan L
27	12-Jun	5 - 6 pm	Eigenvalues and Eigenvectors	Dr. Jeganathan L
28	12-Jun	6 - 7 pm	Principle Component Analysis (PCA)	Dr. Jeganathan L
29	13-Jun	5 - 6 pm	Residual Analysis and its relevance in Machine Learning	Dr. David Maxim Gururaj A
30	TBA		Special Talk – 2	TBA

TBA - To be announced.

Speakers:
(in alphabetical order)

Dr. David Maxim Gururaj A, SAS, VIT, Chennai

Dr. David Raj Micheal, SAS, VIT, Chennai

Dr. Dhanasekar S, SAS, VIT, Chennai

Dr. Felix A, SAS, VIT, Chennai

Dr. Jayagopal R, SAS, VIT, Chennai

Dr. Jeganathan L, SCOPE, VIT, Chennai

Dr. Kalyan Banerjee, SAS, VIT, Chennai

Dr. Kalyani Desikan, SAS, VIT, Chennai

Dr. Manivannan A, SAS, VIT, Chennai

Dr. Manju G, SCOPE, VIT, Chennai

Dr. Pankaj Shukla, SAS, VIT, Chennai

Dr. Parthiban V, SAS, VIT, Chennai

Dr. Saraswathi D, SCOPE, VIT, Chennai

Dr. Sethukumarasamy K, SAS, VIT, Chennai

Dr. Umity Srinivasa Rao, SCOPE, VIT, Chennai

Dr. Vanchinathan V, SAS, VIT, Chennai

Dr. Velmathi G, SENSE, VIT, Chennai

Organisers:

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Dr. David Raj Micheal, SAS, davidraj.micheal@vit.ac.in