AI Course Curriculum

Programing Basics:

1. constants and variables
2. primitive data types and their basic operations
3. primitive data types and their basic operations
4. standard input and out along with basic terminology such as declarations, initializations, etc.
5. conditions and loops
6. casting and data type
7. errors and exceptions
8. Metrics
9. linked lists and pointers
10. linked lists from scratch
11. linked lists ready made
12. double linked lists from scratch
13. Loops
14. problem solving
15. Functions
16. functions by reference
17. functions by value
18. Recursion
19. intro to algorithms
20. binary trees from scratch
21. stack from scratch
22. Vectors
23. object oriented programming

AI Basics:

1. Intro to A.I.
2. Intro to old A.I.
3. What is modern A.I.
4. Intro to supervised and unsupervised learning
5. what is machine learning
6. what is machine learning
7. why math in A.I.
8. what's expected of you in math and A.I.
9. what is deep learning
10. classifications and regression

Mathematics Basics:

- 1. Vectors
- 2. problem solving on vectors
- 3. Matrices
- 4. Problem Solving on Matrices
- 5. Problem Solving on Matrices
- 6. Eigen Values
- 7. Probability and statistics
- 8. What is statisitcs and why it's used in A.I.
- 9. Sampling Techniques
- 10. statistical measures and their usages
- 11. probability distributions
- 12. further statistical measures
- 13. correlation and covariance
- 14. problem solving

Machine Learning:

1. Data Sets
2. Datasets types, meaning, meta data, data denormalization
3. flat files, csv files, images
4. PCA
5. Data normalization
6. Data encoding
7. types of data encoding
8. Data cleaning
9. missing data
10. outlier detection
11. problem solving
12. intro to data visualization
13. dot plot
14. Histograms
15. distribution plots
16. Box-plots
17. probability plots
18. data distributions revised
19. definition of modern A.I. model

20. classification vs regression
21. binary vs multi class vs multi-output
22. supervised vs unsupervsied learning revised
23. reinforcement learning overview
24. problem solving
25. What is model fitting and training and model generations meaning
26. Train Test splitting and why
27. stratified train test splitting
28. K-FOLD
29. Stratified K-FOLD
30. Linear Regression
31. Linear Regression from scratch
32. Linear Regression Ready made
33. Logistic Regression from scratch
34. Logistic regression ready made
35. Decision tree
36. decision tree ready made
37. Naive Bayes Classifier
38. Naive Bayes Classifier from scratch
39. Naive Bayes Classifier ready made
40. SVM
41. SVM ready made
42. KNN
43. KNN ready made
44. Ensembles

Neural Network:

1. Artificial Neural Networks intro
2. Activation Functions
3. loss functions
4. Optimizers.

Deep learning:

1. Images and Image processing and handling
2. CNN
3. CNN layers
4. CNN filters
5. CNN ready made

6. pre-trained CNNs
7. Why Pre-trained CNNs
8. Resnet architecture explained
9. DenseNet Architecture Explained
10. DenseNet Architecture Explained
11. Transfer Learning Vs Fine Tuning
12. Zero Shot learning vs few shot learning
13. RNN
14. Vanishing Gradient
15. RNN vs LSTM
16. LSTM gates
17. LSTM ready made

CUDA Programming