

<b>Course Title:</b> Applied AI and Machine Learning	<b>Course Code:</b> CS-333	<b>Credit Hrs:</b> 2+1
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**Textbook:**

1. Tom Mitchell: Machine learning, McGraw Hill, Latest Available Edition

**Reference Books:**

2. Christopher M. Bishop, Pattern Recognition and Machine Learning, Springer, Latest Available Edition
3. Deep learning by Good Fellow, MIT press, Latest Available Edition
4. Google AI Kaggle Learn online course
5. CS229 lecture note ([https://cs229.stanford.edu/main\\_notes.pdf](https://cs229.stanford.edu/main_notes.pdf))

**Course Objective:**

Applied AI and Machine Learning applies algorithms to enable systems to learn from data and make decisions or predictions across diverse fields like healthcare, finance, robotics, and natural language processing.

**Course Outline:**

- Introduction to Machine Learning • SVM and Softmax loss
- Stochastic Gradient Descent • Computer Vision Basics
- Image analysis
- Feature extraction and processing • Shallow neural network
- Introduction to Deep learning
- Backpropagation in neural networks
- Dropout, Batch normalization and optimization • ML Explainability

<b>Description</b>	<b>Percentage Weightage (%)</b>
Assignments	05-10%
Quizzes	10-15%
Mid Semester Exams	30-40%
End Semester <b>ASSESSMENTS</b> Exam	40-50%