Getting Started on AI & Machine Learning

# Course Overview

This course is designed for developers looking to gain a structured understanding of Artificial Intelligence (AI), Machine Learning (ML), and Deep Learning (DL). The syllabus and schedule consist of two parallel tracks.

1. **AI/ML & Deep Learning Track** - Covers core AI, ML, and DL concepts with practical implementations.
2. **ML Fundamentals Track** - Covers essential mathematical foundations and python framework/library as prerequisites for the Machine Learning topics.

Such syllabus and schedule plans help ensure those prerequisite mathematical concepts are introduced before their corresponding AI/ML applications, allowing for a structured and smooth learning experience.

The course is structured into weekly modules, each including recommended reading materials, online tutorials, and hands-on exercises.

# Course Structure

## AI/ML & Deep Learning Track

1. **Introduction to AI & Machine Learning**
2. **Machine Learning with Neural Network**
3. **Deep Learning & Deep Neural Network**
4. **Computer Vision in Deep Learning**
5. **NLP in Deep Learning**
6. **Reinforcement Learning**
7. **Large Language Models**
8. **DO IT YOURSELF (Final Project)**

## ML Fundamentals Track

1. **Calculus for Machine Learning**
2. **Linear Algebra Basics**
3. **Probability & Statistics**
4. **Optimization Techniques**
5. **PyTorch**

# Course Schedule

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| Epic | AI/ML & Deep Learning | ML Fundamentals | Time Schedule |
| 1 | Introduction to AI & Machine Learning | Calculus & Linear Algebra Basics | W1-W4 |
| 2 | Machine Learning with Neural Network | Calculus & Linear Algebra Basics | W5-W8 |
| 3 | Deep Learning & Deep Neural Network | Probability & Statistics | W9-W12 |
| 4 | Computer Vision in Deep Learning | Optimization Techiniques | W13-W15 |
| 5 | NLP in Deep Learning | PyTorch | W16-W18 |
| 6 | Reinforcement Learning |  | W19-W22 |
| 7 | Large Language Models |  | W23-W25 |
| 8 | DO IT YOURSELF |  | TBD |
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