

# AI & Machine Learning Roadmap (7 Months)

## Course Syllabus & Roadmap (7 Months)

### Month 1: Fundamentals of AI/ML & Math

**Duration:** Weeks 1-4

Week	Theme
Week 1	Overview & Environment
Week 2	Math: Linear Algebra
Week 3	Math: Calculus
Week 4	Math: Probability & Statistics

### Month 2: Classical Machine Learning

**Duration:** Weeks 5-8

Week	Theme
Week 5	Supervised Learning: Regression
Week 6	Supervised Learning: Classification
Week 7	Trees & Ensembles
Week 8	Unsupervised Learning

### Month 3: Deep Learning Basics

**Duration:** Weeks 9-12

Week	Theme
Week 9	Neural Networks Foundations
Week 10	Deep Learning Frameworks
Week 11	Tuning Deep Nets
Week 12	Deep Learning Project

## Month 4: Natural Language Processing (NLP)

**Duration:** Weeks 13-16

Week	Theme
Week 13	Text Basics
Week 14	Word Embeddings
Week 15	Modern NLP (Transformers)
Week 16	NLP Project

## Month 5: Computer Vision

**Duration:** Weeks 17-20

Week	Theme
Week 17	CNN Fundamentals
Week 18	Advanced Architectures
Week 19	CV Tasks
Week 20	Month 5 Review

## Month 6: Generative AI & RAG

**Duration:** Weeks 21-24

Week	Theme
Week 21	LLM Fundamentals
Week 22	RAG (Retrieval Augmented Generation)
Week 23	Frameworks (LangChain)
Week 24	Month 6 Review

## Month 7: Final Project & Portfolio

**Duration:** Weeks 25-28

Week	Theme
Week 25	Project Ideation & Design
Week 26	Implementation

Week 27	Refinement & Theory
Week 28	Portfolio & Completion