

6-Month Weekly AI/ML Engineer Roadmap -2025

Month 1 – Python, Mathematics, SQL Basics, and DSA Fundamentals

Week 1: Python Basics: Variables, data types, loops, functions, environment setup.
SQL Basics: SELECT, WHERE, ORDER BY.
DSA: Arrays & Strings.

Week 2: Advanced Python: OOP, modules, file handling.
Math: Linear Algebra.
SQL: INSERT, UPDATE, DELETE.
DSA: Searching

Week 3: Math: Calculus, Probability & Statistics.
Python: NumPy & Pandas.
SQL: JOINS (INNER, LEFT, RIGHT).
DSA: Sorting Algorithms

Week 4: Python: Matplotlib, Seaborn, EDA
Intro to ML
SQL: GROUP BY, HAVING, aggregate functions.
DSA: Recursion Linked Lists.

Month 2 – Core ML, Intermediate SQL & DSA

Week 5: Regression algorithms.
SQL: Subqueries & CTEs.
DSA: Linked Lists. Stacks & Queues.

Week 6: Classification algorithms
SQL: Window Functions.
DSA: Binary Trees.

Week 7: Unsupervised Learning.
SQL: Stored Procedures, Functions.
DSA: Binary Search Trees.

Week 8: Model Evaluation, Feature Engineering, Hyperparameter Tuning.
SQL: Indexing,
DSA: Heaps.

Month 3 – Deep Learning & Advanced SQL/DSA

Week 9: Neural Networks, Backpropagation, TensorFlow/Keras.

SQL: Transactions & ACID.

DSA: Graph Basics.

Week 10: CNN Architectures & Projects.

SQL: Views & Materialized Views

DSA: BFS, DFS.

Week 11: RNN, LSTM, NLP Basics.

SQL: Triggers.

DSA: Dynamic Programming I.

Week 12: Transfer Learning, GANs, Autoencoders. Capstone Project 1.

SQL: Best Practices.

DSA: Dynamic Programming II.

Month 4 – Generative AI & Deployment Skills

Week 13: Generative AI Basics (LangChain, LangGraph, Crew AI).

Week 14: RAG Pipelines, Vector Databases.

Week 15: FastAPI/Flask APIs for ML Models. DSA: Bit

Manipulation.

Week 16: Docker Basics, Containerizing AI Apps. Cloud: AWS EC2 & S3.

Month 5 – Cloud, MLOps & Major Projects

Week 17: Cloud Deployment, CI/CD. DSA: Backtracking.

Week 18: MLOps Basics: MLflow/DVC. DSA: Advanced Graph

Problems. Week 19: Major Project 2: Generative AI Knowledge Assistant.

Week 20: Major Project 3: AI-based Healthcare Diagnostic System.

Month 6 – Job Preparation & Final Review

Week 21: System Design for AI. **DSA Revision:** All

topics. Week 22: AI Interview Prep.

Week 23: Portfolio Building: Resume, LinkedIn, GitHub profile
polish. Week 24: Final Review & Apply to Jobs.

Resources: [\(22\) Krish Naik - YouTube](#) , [\(22\) CampusX - YouTube](#) , [\(22\) codebasics - YouTube](#) , [\(22\) Hitesh Choudhary - YouTube](#) , [My Github](#)

Google's Machine Learning Crash Course

Kaggle Learn

DataCamp Tutorial

Towards Data Science

Andrew Ng's Course (Coursera)

3Blue1Brown Neural Network Series

TensorFlow Tutorials

MIT OpenCourseWare

GAN Lab Interactive

Tips for Success: 1. Code Daily: Even 30 minutes makes a difference!

2. Join Communities

3. Document Progress: Keep a learning journal

4. Build Projects: Theory + Practice = Mastery

5. Stay Curious: AI/ML is evolving rapidly!

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