kodprep
CODE LEARN EXCEL

Ready to stop STUDYING and start PERFORMING?

EXE ISO

kodprep

- Market-Aligned Mastery
- Elite Mentorship
- The "Real World" Edge
- Guaranteed Internship Experience

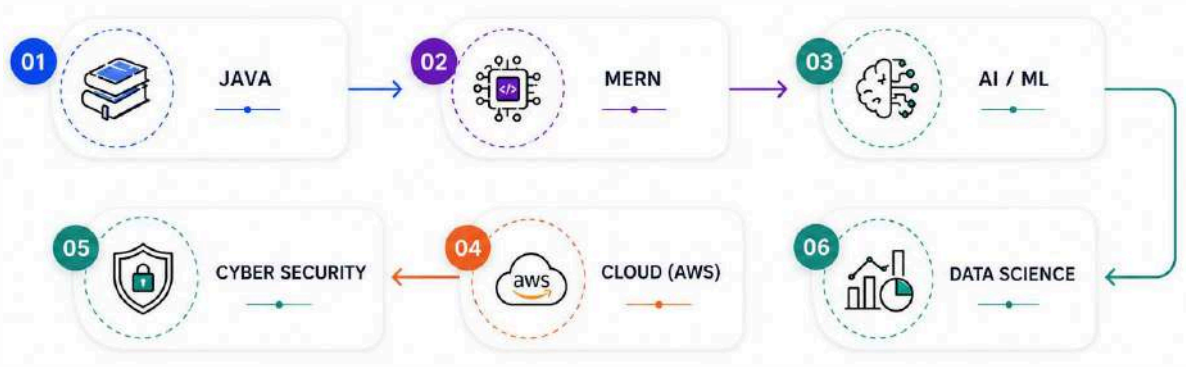
LEARN FROM ENGINEERS AT

Infosys Microsoft Deloitte.

DIRECT MENTORSHIP FROM VETERANS

www.kodprep.com

Course Roadmap



Apply the basic principle and knowledge of mathematics, science and engineering principles to solve technical problems.

Identify and analyze complex engineering problems reaching logical conclusions using the basic principles of mathematics,

Design solutions for well-defined technical problems and assist with the design of systems, components or processes to meet specified needs.

Perform investigations, use research based knowledge and conduct experiments, analyze and interpret the results to provide valid conclusions.

Create, select and apply the latest techniques, resources and modern engineering / IT tools to develop appropriate solutions with an understanding of the limitations.

Apply reasoning based on contextual knowledge to assess societal, legal and cultural issues with competency in professional engineering practices.

Demonstrate professional skills, knowledge and contextual reasoning to assess / environmental / societal issues for sustainable development.

Apply ethical principles and commit to professional ethics and responsibilities based on the norms of professional engineering practices.

Function effectively as an individual, and as a member or leader in diverse teams, and in multi-disciplinary professional settings.

Communicate effectively amongst the engineering community, being able to comprehend & write effective reports, make presentations & give/receive clear instructions.

Demonstrate knowledge and apply the principles of engineering & management in their own / team projects in multidisciplinary environments.

Recognize the need for, and have the preparation, ability to engage in independent and life-long learning in the context of technological change.

PROJECT LIFECYCLE DIAGRAM

Comprehensive 6-Semester Industry -Aligned Professional Engineering Curriculum

Semester 1 – Foundation & programming

C programming: algorithms, control flow, arrays, functions, recursion, pointers, file handling
Engineering Mathematics-I (sequences, integral & multivariable calculus)
Engineering Physics (quantitative reasoning, experiments)
Engineering Graphics & Design — CAD from day one

Practical / Lab Work:

~100 easy C problems on KodPrep auto judge (copilot-free)
PPS Lab viva: live judge problem-solving
CAD drawings portfolio — 5–8 models
Physics lab with digital data-analysis sheet

Assignments:

~100 easy C problems (topic-wise ladders)
Tutorial problem sets (Maths-I)
5–8 CAD model portfolio
AI-awareness reflection note (BMPD)

Mini Project:

2–3 standalone C programs: calculator, student-record system, file-I/O grade tracker

Major Project:

First modular C application — file handling, input validation, edge-case tested, documented

Certifications (Global + Institute issued):

KodPrep Builder Baseline Certificate
AI Awareness Primer Badge (BMPD)
Institute: PPS & Computational Foundations

Comprehensive 6-Semester Industry -Aligned Professional Engineering Curriculum

Semester 2 – Python spine & ai-augmented foundations

Python foundations: types, control flow, functions, lists/dicts/sets, OOP basics, files & APIs AI-Augmented Engineering Part 1: how LLMs work & their limits, prompt engineering, verification discipline, ethics & when NOT to use AI
Engineering Mathematics-II (linear algebra, ODEs — the ML backbone)
Chemistry-I (measurement reasoning & quantitative analysis)

Practical / Lab Work:

Python problem ladder (~100 easy) on auto-judge AI verification labs: read-explain-then-fix AI code Prompt & verification logbook (10+ documented sessions) Circuit simulation vs measured-result comparison (BEE)

Assignments:

100+ Python problems (basic search/sort)
Matrix-solver script (Maths-II tie-in) AI prompt & verification logbook First coding contest entry on KodPrep

Mini Project:

Small AI-assisted CLI build (q uiz app / expense tracker) — fully understood, zero black-box code

Major Project:

First data-cleaning tool in Python —ingests messy real data, validates,outputs a clean dataset (+ verification log)

Certifications (Global + Institute issued):

AI-Augmented Engineering Part 1 Certificate KodPrep Builder Gate Badge Institute: Programming & Computational Foundations

Comprehensive 6-Semester Industry -Aligned Professional Engineering Curriculum

Semester 3 – Algorithms, OOP & ML foundations

DSA: arrays, stacks/queues, linked lists, trees (BST/AVL/B/B+), hashing, sorting/searching, complexity, graphs
OOP in C++/Java: classes, inheritance, polymorphism, exceptions, file I/O
Mathematics-III — Probability & Statistics (the ML gateway)
Dev tooling: Git & branching, Linux CLI, reproducible dev environment

Practical / Lab Work:

Algorithm-design problem ladders easy→medium (60+ problems) OOP design challenges auto-checked on platform
Git workflow + Linux terminal labs on real repos Statistical notebook: real dataset → stats → first regression

Assignments:

60+ DSA problems (topic-wise + timed contests)
Complexity-analysis log (Big-O per topic) OOP class-modelling design exercises
First batch-level contest entry

Mini Project:

OOP mini-project: console library /banking system with class hierarchy, exceptions & file persistence

Major Project:

First M
L notebook — linear regression /Naive Bayes on a real dataset with an interpreted write-up

Certifications (Global + Institute issued):

KodPrep DSA Foundations Certificate Developer Tooling (Git/Linux) Badge
Institute: OOP & Engineering Tools

Comprehensive 6-Semester Industry -Aligned Professional Engineering Curriculum

Semester 4 – Advanced algorithms & systems

DAA: asymptotics/recurrences, greedy, divide & conquer, DP, backtracking, graph algorithms, P/NP
OS: processes, threads, scheduling, IPC, deadlocks, memory management, file systems
Discrete Mathematics: logic, counting, induction, graph theory
Computer Organization & Architecture: ISA, pipelining, cache hierarchy

Practical / Lab Work:

Paradigm-tagged problem ladders (greedy / DP / backtracking)
Mini-shell in C: fork(), exec(), pipes ,redirection, signals
Scheduling & producer–consumer sync implementations Assembly program + cache-behaviour experiment

Assignments:

Medium-tier DAA problems + first proctored timed contests
OS systems programming labs on auto-judge
Discrete Math proof & counting set Problem-Solver Gate assessment (tier ≥ C required)

Mini Project:

Working mini-shell with fork/exec/pipes/redirection — handles basic shell grammar & signals

Major Project:

Scheduler or producer–consumer implementation + DSA portfolio at Medium fluency with contest history

Certifications (Global + Institute issued):

KodPrep Problem-Solver Gate Badge (Tier ≥ C)
Systems Programming Level-1
KodPrep Contest Participation Record

Comprehensive 6-Semester Industry -Aligned Professional Engineering Curriculum

Semester 5 – AI engineer: python,ai & data systems

Python fast-track → NumPy/Pandas, data pipelines, first scikit-learn model
Artificial Intelligence: agents, search, A*, knowledge representation, probabilistic reasoning, RL intro (Q-learning/MDPs)
DBMS: ER modeling, relational algebra, SQL, normalization, transactions/ACID, indexing, security
Statistical Computing in R

Practical / Lab Work:

SQL problem sets graded against live Postgres schemas
AI algorithm-implementation labs (pathfinding / agent)
Data pipeline + EDA in Python; R EDA report + regression
Track Elective-I: first shippable slice

Assignments:

Python + data problem ladder; AI solved reasoning set
SQL optimisation tasks on normalised schemas
Résumé v2 + LinkedIn; internship prep Pre-Internship Gate assessment

Mini Project:

Postgres-backed mini-app (working DB-backed feature) + a working pathfinding/agent program

Major Project:

Track Project Part 1 — first shippable slice / deployed model of the chosen track project

Certifications (Global + Institute issued):

KodPrep Pre-Internship Gate Badge
SQL Track Certificate (Level 1)
Institute: AI & Data Systems Foundations

Comprehensive 6-Semester Industry -Aligned Professional Engineering Curriculum

Semester 6 – ML, GENAI & shipped track project

Machine Learning: supervised/unsupervised, regression, classification, clustering, ensembles (XGBoost), evaluation & selection, regularization, feature engineering, interpretability (SHAP/LIME) & bias Applied GenAI & MLOps Part 2: LLM APIs, RAG & embeddings, vector DBs, agentic workflows (LangChain/LangGraph), fine-tuning (LoRA/QLORA), MLOps (Docker/ MLflow/CI-CD) Computer Networks: OSI/ TCP-IP, sockets, transport & application layers

Practical / Lab Work:

ML notebook labs with auto-checked pipelines + Kaggle-style contests LLM API + RAG/ embeddings feature wired into track project AI-assisted code review with eval rubrics(hallucination checks) Socket client/server + traffic-analysis write-up

Assignments:

ML-fundamentals interview drills AI output evaluation report (quality metrics) Advanced track-project features (Elective-II & III) GenAI feature shipped into track project

Mini Project:

A trained, evaluated M L model (with metrics) integrated into the track project + a shipped GenAI feature

Major Project:

Project-1 — shipped, demo-ready track project: ML-powered, cloud-deployed, CI-reviewed, live demo

Certifications (Global + Institute issued):

AI-Augmented Engineering Part 2 (Applied GenAI & MLOps) Certificate
Track Project Completion Badge
KodPrep Engineer Gate Badge

Comprehensive 6-Semester Industry -Aligned Professional Engineering Curriculum

SEMESTER 7 – : Job ready : Capstone & Specialization

Capstone system design (production-grade GenAI / agent / LLM-app)
Computer Vision: image processing, feature detection, CNNs, transfer learning, object detection (YOLO/R-CNN), OpenCV
Deep Learning / NLP & Information Retrieval: transformers, embeddings, BERT
Placement Readiness: company-aligned CODE, mock OAs, full mock-interview cycles

Practical / Lab Work:

Capstone build/integrate/ deploy with CI/CD & monitoring
Deployed CV model (classifier/ detector) with OpenCV
Proctored mock OAs (timed, company-specific, recorded)
Full mock interview cycles: DSA + System Design + HR

Assignments:

Hard DSA + company-specific sets (Tier A/B coverage)
Two specialization artifacts (DL model + NLP/IR module) hardening the capstone
Job-Ready Gate assessment (Tier A/B required to pass)

Mini Project:

A deployed CV feature + a DL/NLP module — the specialization artifacts that harden the capstone

Major Project:

Project-II Capstone — production-grade deployed product (real users, CI/CD, monitoring, system-design doc): the interview centerpiece

Certifications (Global + Institute issued):

KodPrep Job-Ready Gate Badge (TierA/B)
Mock Interview Clearance Certificate
Institute: Capstone Completion + Track Specialisation

Comprehensive 6-Semester Industry -Aligned Professional Engineering Curriculum

Semester 8 — Industry Internship & Placement

Live DSA refreshers targeted per company (gap-closing sets)
System-design rounds: chat app, URL shortener, e-commerce scale
HR & offer coaching: negotiation, joining prep, professional conduct
Agent / LLM-app patterns applied in a production internship context

Practical / Lab Work:

Live coding interview simulations (timed, recorded, mentor-reviewed)
Company-tailored system-design mock rounds HR mock sessions + offer negotiation coaching
Weekly mentor check-ins: progress log, offer-pipeline review

Assignments:

Gap-closing targeted problem sets per company pipeline
Portfolio polish: GitHub , LinkedIn headline, résumé v3
Internship weekly deliverable logs (platform-submitted)
Final readiness score + placement outcomes tracker

Mini Project:

Weekly progress log + mentor evaluation reports across the full internship tenure

Major Project:

Real industry internship — production work, signed mentor evaluation, offer conversion / placement outcome

Certifications (Global + Institute issued):

KodPrep Placement Certificate
Final Portfolio & Readiness Report (8- semester) Offer Conversion / Placement Outcome
Badge · Institute: B.Tech CSE (AI&ML) Degree

Java Full Stack | MERN | AI/ML | Data Science | Cloud (AWS) | Cyber Security

Agenda / Timetable (5 days a week)

Lecture & Exercise		Capstone Project	
Time	4 months	Time	1 months
3 hours	Lecture (30%) + Practice (70%)	3 hours	Project
1 hours	Lunch Break	1 hours	Break
3 hours	Lecture (30%) + Training (70%)	3 hours	Project

Assessment

Criteria	Proportion
Quiz and test - Quiz will be placed at the end of each chapter (20%) - Test will be placed on the last day of the course (20%)	40 %
Capstone Project - Project measured based on the quality of final product, presentation and teamwork	60 %
Participation - Participation measured by the instructor throughout the course	+a
Total	100%

Certification

Qualification	Cut-off Rate
1. Attendance higher than	90 %
2. Total grade for assessment higher than	50 %
Certified when both qualifications are met	-

FULL APPROVED CURRICULUM CONTENT

6-SEMESTER PROFESSIONAL ENGINEERING CURRICULUM

Java | MERN | AI/ML | Data Science | Cloud (AWS) | Cyber Security)

Program Outcomes —
Semester-wise (Sem 1–8)

PO1 – Foundational programming & engineering reasoning

Write correct C programs using control flow,functions, recursion, pointers, and file handling; apply calculus and basic physics reasoning to engineering problems; produce CAD drawings from specification.

ATTAINED THROUGH: C Programming, Engineering Mathematics-I (sequences, integral & multivariable calculus), Engineering Physics, Engineering Graphics & Design (CAD).

PROOF-OF-WORK: ~100 easy C problems on auto-judge (copilot-free), PPS lab live-judge problem-solving, 5–8 CAD model portfolio, physics lab with digital data-analysis sheet.

MEASURED BY: First modular C application (file handling, input validation, edge-case tested, documented) — the Semester 1 major project.

PO2 – Python fluency & responsible AI use

Build small Python programs using OOP basics, files, and APIs; use LLMs with a verification discipline,knowing their limits and when not to rely on them; apply linear algebra and ODEs as the mathematical backbone for later ML work.
ATTAINED THROUGH: Python Foundations, AI-Augmented Engineering Part 1 (how LLMs work and their limits, prompt engineering, verification discipline, ethics), Engineering Mathematics-II (linear algebra, ODEs), Chemistry-I.

PROOF-OF-WORK: 100+ Python problems, AI prompt-and-verification logbook (10+ documented sessions), matrix-solver script tying in Math-II, first coding contest entry

MEASURED BY: First data-cleaning tool in Python — ingests messy real data, validates it, outputs a clean dataset with a verification log

PO3 – Sem 3: Data structures, OOP design & statistical reasoning

Select and implement the right data structure for a problem (trees, hashing, graphs), design object- oriented systems in C++/Java, and reason about probability and statistics as groundwork for ML.

ATTAINED THROUGH
: Data Structures & Algorithms (arrays, stacks/queues, linked lists,trees, hashing, sorting/searching, graphs), OOP in C++/Java, Mathematics-III (Probability&Statistics), Dev Tooling (Git, LinuxCLI).

PROOF-OF-WORK: 60+ DSA problems with complexity-analy
sis log, OOP class -modelling exercises, statistical notebook taking a real dataset through to a first regression.

MEASURED BY: First ML notebook — linear regression or Naive Bayes on a real dataset with an interpreted write-up.

PO4 – Sem 4: Algorithm design & systems-level thinking

Design algorithms using greedy, divide-and-conquer,
DP, and backtracking paradigms; reason about OS-level concerns (processes, scheduling, memory, deadlocks); apply discrete math and computer architecture fundamentals.

ATTAINED THROUGH : Design & Analysis of Algorithms, Operating Systems, Discrete Mathematics, Computer Organization & Architecture.

PROOF-OF-WORK:
Paradigm-tagged problem sets (greedy/DP/backtracking), a working mini-shell in C (fork/exec/pipes/redirection/signals), an assembly
program with a cache - behavior experiment.

MEASURED BY:
A scheduler or producer- consumer implementation, plus a DSA portfolio at "Medium" fluency with contest history

PO5 – Sem 5: Applied AI foundations, data pipelines & database design
Build data pipelines with NumPy/Pandas and a first scikit-learn model; implement classical AI techniques (search, A*, probabilistic reasoning, intro RL); design and query relational databases correctly.

ATTAINED THROUGH : Python Fast-Track (NumPy/Pandas), Artificial Intelligence (agents,search, knowledge representation, probabilistic reasoning, RL intro), DBMS (ER modeling, relational algebra, SQL, normalization, ACID, indexing, security), Statistical Computing in R.

PROOF-OF-WORK: SQL problem sets against live Postgres schemas, AI algorithm-implementation labs (pathfinding/agent), an EDA report with regression in Python and R.

MEASURED BY: Track Project Part 1 — a first shippable slice or deployed model, plus a Postgres -backed mini-app.

PO6 – Sem 6: Machine learning, GenAI/MLOps & applied networking

Train, evaluate, and select ML models with an understanding of bias and interpretability; build GenAI features using RAG, embeddings, and agentic workflows; apply MLOps practices; understand networking fundamentals up to the application layer.

ATTAINED THROUGH : Machine Learning (supervised/unsupervised, ensembles, evaluation,SHAP/LIME interpretability), Applied GenAI & MLOps Part 2 (LLM APIs, RAG, vector DBs, LangChain/LangGraph, LoRA/QLoRA fine-tuning, Docker/MLflow/CI-CD), Computer Networks (OSI/TCP-IP, sockets).

PROOF-OF-WORK: ML notebook labs with auto- checked pipelines, a GenAI feature (RAG/embeddings) wired into the track project, AI-assisted code review with hallucination checks, a socket client/server with traffic-analysis write-up.

PO7 – Sem 7: Production system design, computer vision & deep learning specialization

Design and deploy a production-grade GenAI/agent/LLM application; build and deploy computer vision models (CNNs, YOLO/R-CNN,OpenCV); apply transformer-based NLP; clear company-aligned technical interview rounds.
ATTAINED THROUGH : Capstone System Design, Computer Vision, Deep Learning/NLP & Information Retrieval (transformers, embeddings, BERT), Placement Readiness.

PROOF-OF-WORK: A deployed CV model (classifier/detector) with OpenCV, proctored mock OAs, full DSA + system design + HR mock interview cycles, a DL/NLP specialization module hardening the capstone.

MEASURED BY: Project-II Capstone — a production-grade deployed product with real users, CI/CD, monitoring, and a system-design doc; Job-Ready gate at Tier A/B.

PO8 – Sem 8: Industry deployment, offer readiness & professional conduct

Apply agent/LLM-app patterns in a real production/internship setting; clear company-specific system-design and HR rounds; conduct oneself professionally through offer negotiation and onboarding.

PROOF-OF-WORK: Recorded live coding interview simulations, company-tailored system-design mock rounds, weekly mentor check-ins with progress logs, portfolio polish (GitHub,LinkedIn, resume v3).

MEASURED BY: Real industry internship with signed mentor evaluation and offer conversion/placement outcome; final 8-semester Readiness Report.

ATTAINED THROUGH: Industry Internship, live company-targeted DSA refreshers, System-Design rounds (chat app, URL shortener, e-commerce scale), HR & Offer Coaching.

KEY CERTIFICATIONS IN OUR CURRICULUM

MongoDB

Oracle Certified Professional Java SE 11 Developer

TensorFlow

EC-Council (CEH)

AWS Certified Solutions Architect Associate

AWS Certified Solutions Architect Associate

AWS Certified Cloud Practitioner

EC-Council (CEH)

Google Analytics Certified Professional

Google Cloud Certified Associate Cloud Engineer

OUR COLLABORATIONS

Educational Partners

Lovely Professional University

Lamrin Tech Skills University

Guru Nanak Dev University

Rayat Bahra University

Jaypee Institute of Engineering & Technology

Noida International University

Chitkara University

IEC College of Engineering & Technology

Corporate Partners

L&T Education

Infosys

Brevo

HCL TECH

Cognizant

Capgemini

LEARN FROM THE TOP

1% DATA ANALYSTS / DATA SCIENTIST MENTORS

OUR TOP TRAINERS

Mr. Gulshan Sharma
Full Stack Development
15 Years Experience

Ms. Aarshi Gupta
AI/ML & DSA
7+ Years Experience

Mr. Pratik Agarwal
AI & Machine Learning
10 Years Experience

Ms. Vanshika Dubey
AI Development & Python
6+ Years Experience

Mr. Gauri Nandan
MERN Stack
10 Years Experience

Mr. Gaurav Narayan Prajapati
Technical Training
5+ Years Experience

Ms. Achala
DSA Training
8+ Years Experience

Mr. Gokul
EST & DevOps
5+ Years Experience

Mr. Manoj Ravichandran
Cloud Computing & AWS
6+ Years Experience

Mr. Dhyey Vyas
Python Full Stack
4+ Years Experience

Mr. Alok Kumar
DSA & MERN
7+ Years Experience

Mr. Deepak Sharma
Data Analytics & Python
8+ Years Experience

kodprep

CODE LEARN EXCEL

kodprep

Kodprep Technologies & education Pvt Ltd.

REACH US AT

www.kodprep.com

+91 76968 59733

Gulshan Botnia Sector 144
Noida,201306.

Our Presence/Major states:
Punjab,Haryana,Himachal Pradesh
Delhi NCR