

#### A 2-days National Level Hackathon on

Al-Powered GATE Preparation

Al in education

#### Team NOVX Project MeritCore

Date of submission - 5<sup>th</sup> Sept,25

College Address - Ayodhya bypass



www.samadhan.sistec.ac.in/





#### AREA OVERVIEW

- Competitive exams like GATE require vast syllabus coverage, deep understanding, and months of preparation.
- Students face challenges like: scattered resources, limited guidance, and lack of bilingual platforms.
- Many rely on costly coaching institutes, creating inequality for students in rural and semi-urban areas.
- There is a clear need for an affordable, accessible, and Al-driven platform that makes GATE prep more structured, collaborative, and personalized.







Challenges

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Scattered & unverified study materials

Limited bilingual (Hindi + English) platforms

High cost of coaching institutes

Lack of collaboration tools for peer learning

Minimal personalized progress tracking

Opportunities

Al can curate open-source resources into structured learning paths

24/7 bilingual support (text + voice) for inclusivity

Group study rooms & chats enable collaboration

Smart analytics & dashboards track progress

Democratize exam prep → affordable & accessible for all







MeritCore: Al-powered study buddy for GATE aspirants
Curates open-source videos & resources (topic-wise)
Provides bilingual Al chatbot (Hindi + English, text + voice)
Offers study rooms & peer collaboration tools
Tracks learning with real-time progress dashboard

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#### Key Features and Functionalities



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- Bilingual Al Chatbot Hindi + English (text & voice)
- 🔐 Open-Source Video Integration curated, topic-wise links
  - Multimedia Support PDFs, notes, past papers
  - Collaboration Tools study rooms & group chats
  - Progress Dashboard personalized learning insights
- Smart Recommendations next topics, resources, quizzes





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### Target Users and Expected Use Cases



Target Users

GATE Aspirants – self-learners & college students

Educators – for sharing resources & guiding students

Institutions – to monitor and support student progress

**Expected Use Cases** 

Student asks AI chatbot for instant explanations (Hindi/English)

Student receives topic-wise curated video links for focused prep

Groups collaborate in virtual study rooms & chats

Progress dashboard shows strengths, weaknesses, and syllabus coverage





# Data Requirements and Privacy Considerations



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Data Requirements

Open-source resources (videos, PDFs, notes, past papers)

User interaction data (queries, quiz scores, progress logs)

© Learning preferences (topics attempted, weak areas)

Privacy Considerations

Encrypted storage of user progress data

No sharing of personal/student data with third parties

Compliance with education data privacy standards

Reliance on open-source content only (no copyright issues)





### Al Technologies and Methods



- Natural Language Processing (NLP) Al chatbot for Q&A in Hindi &
   English
  - Whisper AI / Speech-to-Text voice-based query handling
- © Recommendation Algorithms personalized study paths & resource suggestions
- Machine Learning Models adaptive progress tracking & performance insights
- Data Analytics identify weak areas, generate insights for improvement



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Phase 1 – Resource Curation  $\bigcirc$ Collect & organize open-source GATE resources (videos, PDFs, past papers). Phase 2 – Al Chatbot Development  $\bigcirc$ Build bilingual (Hindi + English) chatbot using NLP + Whisper Al.  $\bigcirc$ Phase 3 – Collaboration Tools  $\bigcirc$ Integrate study rooms, group chat, and content sharing features.  $\bigcirc$ Phase 4 – Progress Tracking  $\bigcirc$ Create dashboard with analytics, quizzes, and personalized  $\bigcirc$ recommendations.

Phase 5 – Testing & Deployment

Test with students, refine features, and deploy as

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## Evaluation Metrics (Planned)



- Syllabus Coverage % of GATE topics linked with curated open-source resources
  - → Al Response Time Target < 3 seconds per query</p>
  - Answer Accuracy Target > 90% relevant answers
  - User Feedback Target > 85% student satisfaction (through surveys)
    - Collaboration Usage # of study rooms created & active peer discussions





#### Thank You



"MeritCore – Empowering GATE Aspirants with AI + Open Knowledge."

Team

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