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Synopsis

On

**AI-Driven Smart Education Platform for Personalized Learning and Automated Course Management**

Submitted in partial fulfilment for

**Mini-Project Project III**

Submitted by

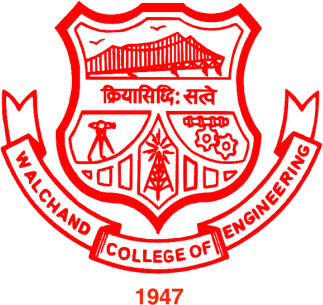
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**Synopsis of Mini Project - III**

**Title**

**AI-Driven Smart Education Platform for Personalized Learning and Automated Course Management**

### ****1. Description:****

The proposed system is an **automated education platform** designed to streamline course management by extracting syllabus data and generating a structured learning pathway. The system will create a **Google Classroom-like interface** that organizes study materials, fetches the best online resources from **YouTube, research papers, and open educational sources**, and presents them in a structured, sequential manner for optimized learning.

Additionally, the platform will incorporate **AI-driven enhancements**, such as quiz generation, attendance tracking, and personalized recommendations, to improve the overall learning experience. However, the primary focus remains on structured syllabus management and content delivery.

### ****2. Key Features:****

* **Automated Course Creation from Syllabus**: Users can upload their syllabus document, and the system will generate a structured course plan.
* **Smart Content Aggregation**: Fetches relevant resources (videos, articles, PDFs) from trusted platforms like YouTube, Coursera, and academic sources.
* **Sequential Learning Pathways**: Presents content in a structured, logical sequence aligned with syllabus requirements.
* **Integrated Study Dashboard**: Provides an intuitive interface for managing courses, assignments, and learning materials.
* **AI-Driven Quiz & Assessment System**: Auto-generates quizzes from syllabus content using NLP models.
* **Engagement & Performance Analytics**: Tracks student progress, providing insights and learning recommendations.
* **Basic Gamification Features**: Includes progress tracking, streaks, and interactive learning elements to enhance motivation.

### ****3. Dataset Used:****

* **University Syllabus Documents** (Uploaded by Users)
* **Open Educational Resources** (Kaggle datasets, MOOC courses)
* **YouTube API & Web Scraped Content** (Curated study materials from relevant sources)
* **Custom Student Interaction Logs** (User engagement data for analytics)

### ****4. AI/ML/DL Components Used/Proposed:****

* **NLP for Syllabus Parsing & Quiz Generation**: Extracts key concepts from syllabus documents and generates assessments.
* **Recommendation System for Learning Pathways**: Uses AI to curate the best resources and structure them effectively.
* **Computer Vision for Attendance Tracking** (Optional Extension): Implements face recognition-based presence marking.
* **Predictive Analytics for Performance Tracking**: Uses machine learning models (XGBoost, Decision Trees) for progress prediction.
* **Sentiment Analysis for Engagement Monitoring** (Future Scope): Analyzes student interactions and feedback for engagement insights.

### ****5. Expected Outcomes:****

* A **functional web-based platform** that allows students and educators to **automatically generate course structures** from syllabus documents.
* An **AI-enhanced learning system** that suggests high-quality educational materials from trusted sources.
* A **seamless, structured study environment**, reducing the need for manual course planning.
* Insights into student engagement, allowing educators to **enhance learning strategies**.

### ****6. Team Details:****

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