# TeachMate AI Agent - Project Requirements

TeachMate AI Agent is designed to assist faculty members with curriculum planning, lesson preparation, and content organization. It functions as a smart assistant to help professors structure their subjects more effectively and deliver improved learning experiences.

## 1. Functional Requirements

• Curriculum Planning: Assist in designing course structures, timelines, and syllabi.

• Lesson Preparation: Generate lesson plans, suggest teaching strategies, and recommend resources.

• Content Organization: Help organize materials (PDFs, PPTs, links, videos) by topics and sessions.

• Intelligent Suggestions: Recommend improvements based on teaching history and student feedback.

• Integration: Connect with Learning Management Systems (LMS) and calendar tools.

• Query Handling: Answer faculty questions related to subject matter or teaching methods.

## 2. Non-Functional Requirements

• Usability: Simple and intuitive user interface.

• Performance: Fast response times for queries and recommendations.

• Scalability: Capable of supporting multiple faculty members concurrently.

• Security: Ensure user data privacy and role-based access.

## 3. Technical Requirements

• Frontend: React.js or Angular for the web interface.

• Backend: Python (Flask/FastAPI) or Node.js.

• AI/ML: NLP models (e.g., GPT, BERT), scheduling algorithms, and recommender systems.

• Database: PostgreSQL, MongoDB or Firebase.

• Hosting: Cloud-based (AWS, Azure, or GCP).

## 4. Data Requirements

• Course materials including syllabi, lecture notes, and slides.

• Historical lesson plans and student performance data.

• Feedback and interaction logs from faculty and students.

## 5. Future Scope

• Integration with AI grading tools.

• Personalized learning path suggestions for students.

• Voice-activated interaction and mobile app support.