# VISVESVARAYA TECHNOLOGICAL UNIVERSITY

## "JNANASANGAMA", BELAGAVI-590018, KARNATAKA



**Mini Project ReportOn**

## "AI Secured Question Paper Generator with CO PO Mapping System System"

**Submitted in partial fulfillment of the requirement for completion of Mini Project of V Semester**

### BACHELOR OF ENGINEERING
In
### Artificial Intelligence and Machine Learning

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## DEPARTMENT OF
## ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING
## T JOHN INSTITUTE OF TECHNOLOGY

(Affiliated to Visvesvaraya Technological University, Belagavi |Recognized by Govt of Karnataka |Approved by AICTE, New Delhi)

### Gottigere, Bengaluru-560083

### 2025-202

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## DEPARTMENT OF
## ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

## CERTIFICATE

Certified that the Mini Project work entitled *"AI Secured Question Paper Generator with CO-PO Mapping System"* carried out by **Disha Prakasha(1TJ23AI010), Shamaim Huda (1TJ23AI023), Rithika K (1TJ23AI020) and Tejas G (1TJ23AI029)** bonafide students of T JOHN INSTITUTE OF TECHNOLOGY, Bengaluru, in partial fulfillment for the award of Bachelor of Engineeringof Artificial Intelligence and Machine Learning of **VISVESVARAYA TECHNOLOGICAL UNIVERSITY**, Belagavi during the year **2025-2026.** It is certified that all corrections/suggestions indicated for the Internal Assessment have been incorporated in the Report deposited in the departmental library. The Mini Project report has been approved as it satisfies the academic requirements in respect of Mini Project (BAI586) for the said Degree.

| Project Guide & HOD | Project Guide |
|---|---|
| _____ | _____ |
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# ABSTRACT

The traditional method of preparing question papers manually is a time-consuming and often repetitive task for educators. Teachers need to ensure that questions are distributed evenly across the syllabus, maintain a balanced level of difficulty, and avoid duplication. However, manual preparation frequently leads to challenges such as repetitive questions, uneven coverage of topics, and additional effort to maintain assessment quality. To address these limitations, this project presents an AI Secured Question Paper Generator and CO-PO Attainment System, which leverages advanced Artificial Intelligence techniques to automate and enhance the process of question paper creation.

The proposed system utilizes Natural Language Processing (NLP) to clean, categorize, and tag questions, making it easier to organize a large question bank efficiently. In addition, Machine Learning (ML) algorithms are applied to classify questions according to their difficulty level and suitability for various types of assessments. By doing so, the system ensures a well-structured question paper that covers the entire syllabus comprehensively while maintaining an appropriate balance between easy, moderate, and difficult questions. This automation not only eliminates repetitive questions but also reduces the manual effort involved in assembling exam papers, thereby saving significant time for educators.

Futhermore, the system integrates Course Outcome and Program Outcome mapping, linking each question to its relevant educational objectives. This feature supports Results-Oriented Education, allowing institutions to track students achievements of learning outcomes effectively. Teachers can assess the attainment of Cos and Pos directly through the evaluation process, increasing transparency and enabling data-driven decision-making in curriculum planning and academic improvement. The AI-driven approach ensures fairness in assessments, provides a clear structure for evaluation, and generates ready to print question papers that meet academic standards.

Overall, the AI Secured Question Paper Generator and CO-PO Attainment System enhances the quality, efficiency, and fairness of exams By automating question selection, difficulty classification, and CO-PO mapping, it reduces teachers' workload, ensures balanced assessments, and supports monitoring of student learning outcomes, creating a transparent and structured academic environment

# List of Figures/Snapshots

# CHAPTER 1

# INTRODUCTION

## 1.1 Background

Education is the foundation of knowledge, and assessments are a critical component of the learning process. Preparing question papers manually has been a longstanding method in academic institutions, but it comes with many challenges. Teachers must carefully design papers that cover the entire syllabus, maintain a balance in difficulty, and align with course outcomes (COs) and program outcomes (POs). Manual preparation is time-consuming and often results in repeated questions, uneven topic coverage, and inconsistencies in assessment standards. These limitations make it difficult to evaluate student learning effectively and ensure fairness across examinations.

## 1.2 Project Overview

The AI Secured Question Paper Generator and CO-PO Attainment System is designed to address these challenges by leveraging Artificial Intelligence techniques, including Natural Language Processing (NLP) and Machine Learning (ML). The system processes a large question bank to clean, tag, and categorize questions, making it easier to select appropriate questions for exams. ML algorithms classify questions by difficulty level and suitability for different types of assessments. Each question is mapped to its relevant CO and PO, ensuring alignment with learning objectives. This integration allows teachers to generate well-structured, ready-to-print question papers efficiently, while also supporting outcome-based education.

## 1.3 Project Objectives

The main objectives of this project are to automate question paper generation, ensure balanced difficulty, eliminate duplication of questions, and cover the entire syllabus. Additionally, the system aims to map questions to COs and POs, allowing for effective tracking of student performance. By automating these tasks, the system reduces teachers' workload, improves fairness in assessment, and provides transparency in the evaluation process.

### 1.3 Project Objectives

The system requires specific software and hardware for optimal performance. Software requirements include Python as the primary programming language, NLP libraries such as NLTK and SpaCy, ML frameworks like Scikit-learn or TensorFlow, and a database system such as SQLite or MySQL to store the question bank. Hardware requirements include a computer with at least 8 GB RAM, 500 GB storage, and a multi-core processor. Users, typically teachers or academic staff, need basic computer skills to operate the system.

### 1.5 Scope and Limitations

The scope of the project includes generating question papers for multiple subjects and formats, mapping questions to COs and POs, and producing secure, ready-to-print output. It also supports the expansion of question types such as multiple-choice, short answer, and long answer questions. Limitations include dependency on the quality of the input question bank, occasional manual review to maintain academic standards, and the need for domain-specific tuning for highly specialized subjects.

### 1.6 Significance of the Project

This project significantly reduces the administrative burden on educators while improving the quality and fairness of examinations. By integrating AI into question paper preparation, the system promotes a structured, outcome-based approach to assessment and facilitates continuous monitoring of student learning outcomes. It modernizes the assessment process and provides a reliable and efficient tool for academic institutions.

# CHAPTER 5

## CONCLUSION AND FUTURE ENHANCEMENTS

The Agentic AI-Based Question Paper Generator modernizes and secures the process of creating academic assessments through autonomous AI agents. With built-in login and signup authentication, only authorized users can access the system, ensuring safety and confidentiality. After signing in, users can upload syllabus documents, textbook material, and formatting templates. The AI analyzes this content and automatically generates structured, syllabus-aligned question papers. By learning from a demo paper, the system accurately replicates formatting elements such as tables, institutional logos, and section layouts, resulting in a clean and professional final document. This significantly reduces manual work, prevents repeated or inconsistent questions, and maintains a well-organized syllabus structure. The final output—provided in Markdown format along with an answer key containing key points— makes editing simple and ensures instructors receive a ready-to-use assessment. Overall, the system highlights how agentic AI can deliver accuracy, efficiency, consistency, and improved security in examination workflows.

Future improvements may include adaptive analytics for adjusting question difficulty, multimodal question generation with diagrams and visuals, multilingual support, and blockchain-based security for tamper-proof storage. Integration with LMS platforms and OBE dashboards can enhance performance tracking and CO–PO mapping. Refining the underlying language model with domain-specific datasets will further improve reliability and subject accuracy. These advancements will make the system more versatile, secure, and aligned with evolving educational needs. Additionally, expanding cloud-based deployment will allow institutions of all sizes to adopt the system without heavy infrastructure requirements. Continuous monitoring and feedback loops can further refine the AI's performance, ensuring long-term accuracy and relevance.

# REFERENCES