**Islamic University of Science and Technology**

**Awantipora, Kashmir**



***A project synopsis on***

**Learning Management System**

Submitted in partial fulfillment of the requirements for award of the degree of

**Masters in Computer Applications**

Under the supervision of

**Dr. Zubair Jeelani**

*in*

Department of Computer Science, School of Engineering & Technology,

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# 1. Summary of Proposed Work:

# The proposed project is a comprehensive Learning Management System (LMS) designed and developed using the MERN stack (MongoDB, Express.js, React.js, Node.js) with Redux Toolkit and Shadcn UI components. The platform offers a seamless and interactive user experience for both learners and administrators. It supports user authentication, course creation and management, video lecture handling, and responsive UI with support for dark/light modes. The LMS is built to provide a modern, scalable, and secure solution for online education platforms.

# 2. Objectives:

# To develop a user-friendly and responsive LMS interface using Shadcn UI and React.

# To implement secure user authentication and authorization.

# To create robust backend APIs with Express and Node.js.

# To manage course data, lectures, and user profiles with MongoDB.

# To implement Redux Toolkit and RTK Query for efficient state and API management.

# To support multimedia uploads using Multer and Cloudinary.

# To enable role-based access with protected routes.

# To support real-time course progress tracking and dashboard views.

# To build admin functionalities like course publishing/unpublishing and editing.

# 3. Importance / Justification of Work:

# With the increasing shift toward digital learning, educational institutions and training providers require reliable and feature-rich LMS platforms. Existing solutions are often expensive, overly complex, or lack customization. This project addresses these gaps by providing:

# An open-source, scalable, and customizable LMS.

# A modern and clean user interface for enhanced user experience.

# Efficient management of multimedia content and user data.

# Flexibility to extend and integrate new features as needed.

# 4. Software Requirements:

# Frontend: React.js, Shadcn UI, Redux Toolkit (RTK Query)

# Backend: Node.js, Express.js

# Database: MongoDB

# File Uploads: Multer, Cloudinary

# Development Tools: VS Code, Postman, Git, GitHub

# Package Managers: node package manager

# 5. Conclusion:

# The proposed LMS provides a full-featured, responsive, and scalable solution for online education. By leveraging modern technologies such as the MERN stack, Redux Toolkit, this platform ensures a seamless experience for both learners and administrators. Its modular structure and clean UI design also make it easily adaptable for various educational contexts. Upon completion, this project can serve as a robust foundation for future enhancements, including chat integration, quizzes, certification, and more.