IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 2, May 2025
Impact Factor: 7.67

# Design and Evaluation of a Modern Web-Based Learning Management System for Scalable Education Delivery

**Prof. Ashwini Wakodikar[1], Manasi Khade[2], Neha Donadkar[3]**
[1]Assistant Professor, Computer Application
[1, 2, 3]MCA, Computer Application
K. D. K College of Engineering, Nagpur, Maharashtra, India
ashwini.wakodikar@kdkce.edu.in[1], mansikhade.mca23@kdkce.edu.in[2], nehadonadkar.mca23@kdkce.edu.in[3]

**Abstract**: *The increasing demand for flexible, accessible, and cost-effective education has underscored the need for robust e-learning solutions. This research paper presents the design and evaluation of a modern web-based Learning Management System (LMS) titled "Design and Evaluation of a Modern Web-Based Learning Management System for Scalable Education Delivery." The platform is developed using the MERN stack—MongoDB, Express.js, React.js, and Node.js—alongside Stripe API integration to enable secure and seamless payment processing.*

*The LMS offers an interactive, scalable, and user-friendly learning environment tailored to the needs of both students and administrators. Students can browse available courses, preview content, and enroll in paid offerings through a personalized Student Panel. Simultaneously, administrators can manage course content and monitor user activity through an intuitive Admin Panel. The inclusion of secure payment functionality reinforces trust and ensures transaction reliability.*

*This project emphasizes modern software engineering practices, responsive web design, and scalable architecture to support long-term growth and maintenance. By enhancing the accessibility and effectiveness of digital education, the platform aims to improve student learning outcomes in an increasingly digital-first educational landscape..*

**Keywords**: Learning Management System (LMS), E-learning, MERN Stack, MongoDB, Express.js, React.js, Node.js, Stripe API, Web Development, Course Management, Student Panel, Admin Panel



DOI: 10.48175/IJARSCT-26250