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# Towards a Smart University through the Development of an AI-Integrated Examination Management ecoSystem (SEMS)

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## Abstract

Smart university transition makes way for incorporating sophisticated technologies into optimizing educational administration. In presenting the conceptualization and deployment of the Smart Examination Management System (SEMS), an AI-empowered, web-centric platform to automate and enrich the end-to-end examination management lifecycle of higher learning campuses, the research draws upon iterative and incremental software engineering philosophies. SEMS bundles together question construction, reviewing, and approval life cycles into a single, unified digital realm. The system leverages role-based security, template standardization, and entrenched data treatment protocols to enhance the quality, consistency, and security of examination materials. A comparison

of SEMS against currently prevalent platforms such as Moodle, Canvas LMS, and Questionmark illustrates the former's superiority in collaboration features, workflow insight, and intelligent guidance. The incorporation of AI features ensures automated comments, clarity of contents, and originality verification, thus enriching academic rigor. The platform promotes green practice through eliminating dependency on papers and administrative duplication. Through structural modeling (UML, ER, and sequence diagrams), proto- type creation, and usability testing, SEMS illustrates its capability to revolutionize institutional assessment regimes and lend itself to the larger mission of intelligent academic administration. © 2025 IEEE.

## Author keywords

Academic Integrity; Artificial Intelligence; Examination Management; Higher Education; Intelligent Systems; Machine Learning; Smart Systems; University Administration

## Indexed keywords

### Engineering controlled terms

E-learning; Engineering education; Industrial management; Learning systems; Life cycle; Software engineering

### Engineering uncontrolled terms

Academic integrity; End to end; Examination management; High educations; Machine-learning; Management systems; Smart System; Smart universities; University administration; Web-centric

### Engineering main heading

Intelligent systems

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