

Rebalancing Continuous Assessment and Authentic Evaluation in Electrical Engineering Education within an AI Dominant Landscape

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Abstract

Universities worldwide have increasingly shifted toward continuous assessment models, often assigning over 50% of total course weight to out-of-class coursework, projects, and assignments. While pedagogically intended to promote sustained engagement and holistic learning, this model faces an existential crisis due to the ubiquity of Generative Artificial Intelligence (GenAI). When out-of-class tasks can be flawlessly executed by AI tools, student grades artificially inflate, leaving short, in-person examinations as the sole mechanism for genuine student differentiation. However, when an examination carries a low weight relative to corrupted coursework, it loses its mathematical capacity to accurately distinguish high-achieving students from those relying on unauthorized AI assistance. This paper examines this assessment paradox and proposes a structural framework to future-proof high-weight coursework. We present methodologies—including progressive hardware-in-the-loop (HIL) testing, interactive vivas and Graphical Diagnostic Assessment, that preserve the benefits of continuous assessment while ensuring rigorous, authenticated student evaluation.

Keywords

Generative AI, higher education, electronic circuit teaching, interactive vivas, homework variant question, progressive Hardware-in-the-Loop (HIL) plagiarism., graphical Diagnostic Assessment.