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EECS: Reimagining the Future of Technology Education through Electrical Engineering and Computer Science Integration

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Abstract : This paper explores the evolution of Electrical Engineering (EE) and Computer Science (CS) education in higher learning, examining the feasibility of unifying them into Electrical Engineering and Computer Science (EECS) for the technology industry. It delves into the historical reasons for their separation and underscores the need for integration. Emerging technologies such as AI, Virtual Reality, IoT, Cloud Computing, and Cybersecurity demand an integrated EE and CS program to enhance students' understanding. The study evaluates curriculum integration models, drawing from prior research and case studies, demonstrating how integration can provide students with a comprehensive knowledge base for industry demands. Successful integration necessitates addressing administrative and pedagogical challenges. For academic institutions considering merging EE and CS programs, the paper offers guidance, advocating for a flexible curriculum encompassing foundational courses and specialized tracks in computer engineering, software engineering, bioinformatics, information systems, data science, AI, robotics, IoT, virtual reality, cybersecurity, and cloud computing. Elective courses are emphasized to keep pace with technological advancements. Implementing this integrated approach can prepare students for success in the technology industry, addressing the challenges of a technologically advanced society reliant on both EE and CS principles. Integrating EE and CS curricula is crucial for preparing students for the future.

Keywords : electrical engineering, computer science, EECS, curriculum integration of EE and CS
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