Connected Narrative Arcs in Electrical Engineering

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Faculty in engineering departments have long lamented the miniscule amount of retention students seem to have between courses. Students compartmentalize courses and seldom apply new skills to other courses, therefore producing graduates who have segmented and disconnected views of Electrical Engineering. Designing a course framework that focuses on connectedness through narrative arcs will help improve retention and ultimately lead to higher achieving students and graduates.

A narrative arc is a student’s ability to form a cohesive net of concepts, reasonings, and relationships that can be explained without using formulae as a crutch. While being able to apply and understand mathematical formulae is an invaluable tool for students, too often courses rely solely on the evaluation of the mathematical formulae related to concepts instead of emphasizing the conceptual definitions and relationships. This imbalance results in students being weak in the areas of explaining why and how things happen using words and unable to formulate and solve problems without hard numbers.

This framework aims to help students practice deep conceptual learning and the higher stages of Bloom’s Taxonomy in order to improve their retention, application, and creative problem solving. The framework contains three parts to help facilitate the development of connected narrative arcs: definition, initial connections, and reflection.

The framework, challenges inherent in implementing it, and an example utilizing the delta function will be discussed.