TAKING A PROGRAM-LEVEL APPROACH TO CURRICULUM DESIGN

Mohammad Rafat[a], Elizabeth Angstmann[b]

Presenting Author: Mohammad Rafat (mohammad.rafat@sydney.edu.au)
[a] School of Physics, University of Sydney, NSW 2006, Australia
[b] School of Physics, University of New South Wales, 2052, Australia

KEYWORDS: Curriculum design, electromagnetism, program-level

SUBTHEME: Other

Many universities across Australia are looking more actively into how courses fit together to form a coherent degree. While much of this conversation has been driven by assessment—particularly in response to the capabilities of large language models (LLMs) (Bearman & Luckin, 2020; Liu & Bridgeman, 2023)—it is equally important to consider curriculum design from a holistic, program-level perspective (Charlton & Newsham-West, 2024).

In a well-structured curriculum, lecturers act as stewards of courses that are purposefully aligned with agreed program outcomes. Discipline-specific courses, especially in science, are often content-rich and follow a spiral curriculum model (O'neill, 2015), where concepts are revisited and built upon over time. Making the dependencies between courses explicit helps both staff and students understand how earlier learning supports later development and ensures appropriate scaffolding and redundancy.

This presentation explores how electromagnetism is taught across the first year to honours level physics curriculum at two Australian universities. By mapping learning outcomes and sequencing of topics from the lecture level upward, we identify how curriculum structure influences classroom practice. This case study illustrates how curriculum mapping can clarify the prior knowledge students bring to a course, enabling more targeted teaching strategies and better constructive alignment (Wang et al., 2012). We will highlight some interesting similarities and differences we found between our institutes.

We will discuss how this approach can be scaled across an entire degree program to create a more integrated, scaffolded, and engaging learning experience for students.

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Proceedings of the Australian Conference on Science and Mathematics Education, The University of Melbourne, 30 September - 2 October 2025, page 63, ISSN Number 2653-0481.