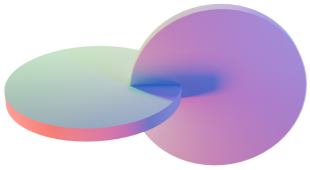

GIREP-EPEC
Transforming physics learning via Research & Practice
LEIDEN, 2025

Contribution ID: **244** Type: **Oral presentation**

Enhancing Understanding of Electromagnetic Fields and Their Application Challenges through Open and Collaborative Active Learning

Friday 4 July 2025 10:00 (20 minutes)

Active learning methods promote curiosity, enjoyment, and engagement by creating an immersive educational experience. Providing a practical application of physics concepts can boost student interest and academic performance, particularly in today's rapidly evolving landscape. This paper presents a workshop designed for second-year Cybernetics Engineering undergraduates, aimed at developing design skills, enhancing problem-solving abilities, and fostering a deeper understanding of electromagnetic fields and their applications. Starting with the fundamental principles of electromagnetism, students were encouraged to design and conduct collaborative research projects, strengthening their comprehension of core disciplinary concepts while also refining their teamwork and interpersonal skills.

Education level

Age over 18 (excluding teacher education)

Physics topic

Full curriculum

Research focus

Active learning

Research method

Educational design research (Qualitative research)

Organizing preference criteria

Education level

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Session Classification: Parallel oral presentations

Track Classification: Other research in Physics Education (OTHER)