

SP - (16155) - FROM SCRATCH TO HATCH: DESIGNING AN EVIDENCE-BASED ENTIRE SEMESTER FOR OPTICAL ENGINEERING STUDENTS

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Short Abstract

Evidence-based approaches in teaching and learning provide strategies to empower student learning and long-term retention of knowledge. Such strategies can be implemented at the course level by a single teacher, which then happens at a smaller scale. However, a more powerful approach consists in a coherent integration of neuroeducational principles in the entire structure of a term, involving several courses over several months. This represents an educational change at a higher scale, however facing several risks in its in-practice implementation, such as faculty reluctance and resource insufficiency. We report here on the design of a whole academic term for optical engineering students in dual education at the Bachelor level. It was devised in order to maximize retention effects through a coherent and coordinated use of constructive alignment in course design, active learning activities, metacognition course, and spaced learning. The design process is encompassed within a SoTL (Scholarship of Teaching and Learning) methodology cycle. It involved a total of 12 faculty members, led by a core group of six, trained by educational advisors in neurodidactics, and tasked with the global design, planning and management of the project. At the pre-roll out stage, this work delivered collectively elaborated timetables, syllabus, balanced student workloads, and plans for team teaching and shared educational tasks.