Course Description

MEDD6390 Innovation and development of instructional design in mathematics

Course description
This course focuses on research and development of educational design in mathematics. By analysing cases of pedagogical practice and innovation, students will understand and reflect on principles and theoretical frameworks guiding the process of developing mathematics pedagogy. There will be study of task design, involving different tools and representations, situated in various contexts of mathematics learning, from the perspectives of teachers, designers and researchers. Special attention will be given to the role of digital technology in shaping the goals and means of developing mathematics instructions and building learning environments.
Course learning outcomes
1. explore the principles and theories underlying educational design in mathematics 2. critically review cases of development and innovation in mathematics pedagogy 3. understand the impact of digital technology on mathematics instructional design and curriculum goals
Course assessment methods
Group work Individual essay
Course content and topics
• Task design • Tools and artefacts • Modelling • Concept development • Mathematical thinking • Pedagogic constructs • Learner diversity • STEM education • Teacher, Research, Designer
Required / recommended readings and online materials (to be entered in the SIS / Moodle)
1. Leung, A., & Baccaglini-Frank, A. (Eds.). (2017). Digital Technologies in Designing Mathematics Education Tasks: Potential and Pitfalls (Vol. 8). Springer International Publishing Switzerland. 2. Mason, J., & Johnston-Wilder, S. (2006). Designing and Using Mathematical Task. St. Albans, UK: Tarquin. 3. Watson, A. & Ohtani, M. (Eds.) (2015). Task Design in Mathematics Education. New York: Springer.
Other additional course information[20] (e.g. course schedule, course quota, etc.)
Nil