School of Computing, Engineering, and the Built Environment
Edinburgh Napier University

MRes Student Project

Application instructions:
Detailed instructions are available at :
https://www.napier.ac.uk/research-and-innovation/doctoral-college/how-to-apply

Prospective candidates are encouraged to contact the Director of Studies (see details below) to discuss the project and their suitability for it.

Project details

Supervisory Team:

- DIRECTOR OF STUDY: Dr Debbie Meharg (Email: d.meharg@napier.ac.uk)
- 2ND SUPERVISOR: Dr David Brazier

Subject Group: Applied Informatics

Funding status: Self funded

Project Title: Why Aren't We Teaching It? An Exploration of Equality, Diversity, and Inclusion in STEM University programmes

Project description:

This is an open call for MRes proposals related to STEM diversity and skills taught in university undergraduate and postgraduate programmes.
Diversity is crucial in STEM fields because it significantly drives technological advancements and innovations, boosts economic growth, fosters critical thinking and problem-solving skills, enhances digital and technological literacy, and provides solutions to many of the world's most pressing challenges, such as climate change, health crises, and food security. A diverse workforce unites individuals with a range of perspectives, experiences, and backgrounds, fostering innovative solutions and unique problem-solving approaches. This diversity helps reduce bias by identifying and addressing biases in research, data analytics, and technological development. Inclusivity leads to more universally applicable and accepted solutions. This inclusive approach ensures that technological advancements and data-driven solutions are

equitable and reflective of a broad spectrum of experiences and viewpoints (Centre for Data Ethics and Innovation, 2020).
With this in mind, it is crucial that graduates in computing and engineering learn the importance of equality, diversity, and inclusion and understand how they, themselves, can help drive change. This study will employ a mixed methods approach, incorporating both qualitative and quantitative research techniques to thoroughly investigate the presence and integration of these essential skills within STEM curricula. The research will involve content analysis to examine course learning outcomes, systematically coding the content to identify where and how skills related to diversity, equity and inclusion are taught. Through this process, the study will uncover any existing gaps in the curricula and provide data-driven recommendations for improvements. By addressing these gaps, the study aims to advance equality, diversity and inclusion in STEM.
In addition to content analysis, the methods approach may include surveys and interviews with faculty, students and industry professionals to gain deeper insights into the effectiveness of current teaching practices and the importance of these skills. This proposal can be finalised with the individual and they will be given an opportunity to outline how they would employ these mixed methods to achieve these objectives and contribute to the broad goal of fostering an inclusive and equitable STEM environment.

Candidate characteristics

Education:

A second class honour degree or equivalent qualification in a suitable area e.g. Computing Science.

English language requirement

IELTS score must be at least 6.5 (with not less than 6.0 in each of the four components). Other, equivalent qualifications will be accepted. Full details of the University's policy are available online.

Essential attributes:

- Experience of mixed method research
- Competent in basic statistics and qualitative research techniques
- Good written and oral communication skills
- Strong motivation, with evidence of independent research skills relevant to the project
- Good time management
- Some experience of content analysis would be beneficial

Application checklist:

- Statement no longer than 1 page describing your motivations and fit with the project
- Recent and complete curriculum vitae. The curriculum must include a declaration regarding the English language qualifications of the candidate.
- Supporting documents will have to be submitted by successful candidates.
- 2 academic references, using the Postgraduate Educational Reference Form (download)