

Addition to the Report of the Review Panel to the Teaching Council following a review of the proposed Computer Science Component of the Initial Teacher Education programme at School of Education, National University of Ireland, Galway

BA Education (Computer Science and Mathematical Studies) NUI Galway

June 2021

Background

NUIG submitted the **BA Education (Computer Science and Mathematical Studies)** in 2018. The programme was partially accredited for Education and Mathematics in June 2019. As the subject specific registration criteria for Computer Science had not been published at that time it could not be considered. Following the publication of the Computer Science criteria in November 2020, the Review Panel was reconvened by the Council to consider the submission for Computer Science.

Process

The review of the Computer Science component of **BA Education (Computer Science and Mathematical Studies)** took place between April and June 2021, in accordance with the Council's review strategy. The process was formally initiated when the Teaching Council's director, with Professor Sheelagh Drudy, as Chairperson, reconvened the Review Panel (hereinafter referred to as 'the panel'. The panel was supported in its deliberations by an external subject advisor and by the Director and staff of the Teaching Council.

NUI Galway initially submitted documentation relating to the application to the Teaching Council in January 2019. The panel met initially on 27 April 2021 to consider the NUI Galway submission on Computer Science. Following this meeting, issues for further clarification were identified by the panel and were communicated to the HEI and further information was submitted on 28 May 2021. A final meeting of the panel was held on 10 June to complete this report.

Commendations:

Having regard to the Proforma and additional documentation submitted and advice received from the Curricular Subject Advisor supporting the review process, the Panel has noted a number of particular strengths of the programme as follows:

- The Panel commends the initiative shown by NUIG in establishing this course, which meets an identified education system need in the growth area of Computer Science.
- The Panel commends the interdisciplinary combination of Education, Mathematics and Computer Science. The programme aligns positively and creates a rich learning environment for student teachers.

- NUIG has cooperated fully with the review process and the Panel commends the way in which NUIG responded to the clarifications sought.

Recommendations

Having regard to the Proforma and additional documentation submitted and advice received from the Curricular Subject advisor supporting the review process, the Panel has noted areas of the programme which should be developed:

- The module descriptors demonstrate a lack of evidence of the societal impact of computing technologies being directly dealt with. There is an expectation that this should underpin all areas. The societal impact of computing incorporates almost all facets of modern life including social justice, ethics, and law to name a few. It is strongly suggested that the programme team addresses these issues beyond having a diverse curriculum, staff, and allowing students to design projects in their areas of interest (which may, or may not, include societal issues). A more comprehensive treatment of societal impact should be made visible and referenced in all modules that provide an opportunity to address 'Societal Impact', with relevant readings indicated.
- The Panel recommend that all module descriptors should include details of assessment, reading and teaching resources.

Review Outcome:

The Panel proposes accreditation of this subject as part of the **BA Education (Computer Science and Mathematical Studies)** which was granted accreditation in June 2019.

Appendix 1 - Review Panel Membership

Independent Review Panel Chair

Professor Sheelagh Drudy

Professor Drudy is Professor Emeritus of Education at University College Dublin. She is a former teacher, educational researcher and teacher educator. She was a member of the first Teaching Council appointed by the Minister in 2005. She has been an external examiner at a number of Higher Education Institutions and has been involved in quality assurance reviews in various HEIs. She was a member of the Educational Sciences Working Group, TUNING Project 'Tuning Educational Structures in Europe'. She has chaired and participated in panels which have reviewed a series of initial teacher education programmes for the Teaching Council. She was a member of the National Council for Special Education and chaired its Research Committee 2013 - 2018.

Mr Patrick Mc Vicar

Patrick Mc Vicar is a former post-primary school principal and a former member of the Teaching Council, where he served on the Education and Registration committees. Currently a member of the Association of Community & Comprehensive Schools (ACCS) executive, he has served on a number of NCCA and NCSE committees and working groups.

Ms Joan Russell

Joan Russell is Director of Schools, Education & Training Board Ireland (ETBI). She was a member of the Teaching Council 2010 -2014 and was a member of the National Council for Special Education (NCSE) 2010 - 2015. She has also served on a number of NCCA committees for curriculum development and review. Joan is the National Coordinator for the *Instructional Leadership Programme*, a professional development programme, which focuses on the enhancement of the pedagogical practice of teachers.

Appendix 2 - Teaching Council Registration: Curricular Subject Requirements (Post-primary) Effective for registration on or after 1 January 2017

Computer Science

In order to meet the registration requirements, set down in the Teaching Council [Registration] Regulations in respect of the curricular subject of Computer Science an applicant must meet all of the following criteria:

1. (a) Applicants must hold a degree-level qualification, with Computer Science studied up to and including third-year level or higher (or modular equivalent).
- (b) The qualifying degree must be equivalent to at least Level 8 on the National Framework of Qualifications (NFQ) and with a minimum pass result in all examinations pertinent to the subject of Computer Science.
- (c) The qualifying degree must carry at least 180 ECTS (European Credit Transfer System) credits (or equivalent) with the specific study of Computer Science comprising at least 60 ECTS credits (or equivalent).
2. The study of Computer Science during the qualification must show that the holder has acquired sufficient knowledge, skills and understanding to teach the Computer Science syllabus/specification to the highest level in post- primary education (see www.curriculumonline.ie).

To meet this requirement, the degree must include the study of modules in all of the following areas:

Essential areas¹

- 1) Software Engineering and Project Management (may include software design and development systems analysis, design process, testing)
- 2) Programming (including algorithms and data structures)
- 3) Computer Systems (including hardware or architecture)

Optional areas: The study must also include a minimum of 2 of the following areas:

- 4) Web development
 - 5) Animation/ games/ multimedia development
 - 6) App development
 - 7) Robotics
 - 8) Embedded systems
 - 9) Modelling/ simulation
 - 10) Data analysis
 - 11) Databases
 - 12) Machine learning/AI
- (a) Practical assignment work must be completed throughout the degree course (e.g. programming assignments).

1. There is an expectation that societal impact of computing technologies underpins all areas.