

PEESA III

Interim Report

Post-VUT Meeting: 21-24 January 2020

Durban University of Technology

1. Design of Engineering Degree Programme

At the inception of the PEESA3 project, the Faculty of Engineering and the Built Environment at DUT, embarked on the development of six Master's degree programmes in the Faculty. The curriculum development team consisted of the DUT PEESA 3 project team with support from the various discipline departments.

The proposed coursework Master's qualifications were designed to fulfil the specifications of the following qualification frameworks/standards: South African HEQSF requirements for a coursework Master's degree at NQF level 9, and the Engineering Council of South Africa (ECSA) qualification standard for the Master of Engineering Degree. In addition, international comparability was ensured by complying with the EUR-ACE® Framework Standards and Guidelines for the Master's degree programmes in engineering, and the ASIIN General Criteria for the Accreditation of Degree Programmes for the Master's degree programmes.

This suite of coursework Master's programmes will complement the suite of full research Master's programmes currently on offer at DUT. The coursework Master's programmes are designed to meet the growing needs of the fourth Industrial Revolution, where decision-making is relying evermore on data science and the analysis of big data, which is being produced at a rate that is far greater than that of the computing power to process them. This means that there is a growing need for professionals who are able to master the models, the algorithms and the technologies to turn data into meaningful information for decision making. Given these premises, these qualifications have been designed with the aim of educating the "next generation of engineers" endowed with deep computational, methodological and modelling skills that will allow them to design, implement and support the future data-intensive algorithms, tools and platforms, together with the mainstream tools for data and text mining, machine learning, artificial intelligence, and complex system modelling. The programmes finally developed and submitted for approval to the institutional and national bodies include:

Master of Engineering in Chemical Engineering

Master of Engineering in Mechanical Engineering

Master of Engineering in Industrial Engineering

Master of Engineering in Civil Engineering

Master of Engineering in Electronic Engineering – Intelligent Systems

Master of Engineering in Electronic Engineering – Renewable Energy

Master of Built Environment – Construction

All of the above programmes have received full approval by the Industry Advisory Boards, University Senate, and DHET for offer at DUT. In addition, all the above programmes have been submitted to ASSIN for assessment. The roll out of these qualifications are outlined in Table 1.

2. Integrating Flexible Learning path, effective use of ICT

Since these programmes are developed through the PEESA3 project, it is anticipated that there will be mutual recognition of modules with the various partners of the project as well as the possibility of these qualifications being offered as joint degrees or double degrees. These collaborative programmes may also involve the exchange of students and staff between the European and South African partners.

The various programmes will be offered both as full-time and part-time programmes. Since most of the candidates enrolling for these qualifications may be professionals working in industry, it is expected these qualifications will be offered on a part-time basis. The various modules may be offered in a block-week system during an academic semester whereby one or two modules are covered in their entirety over two or more weeks of full daily attendance. Whilst this qualification will be offered as a campus based qualification, it is expected that the modules developed with joint partners will be offered as online modules supported by multimedia / telematics.

3. Transversal Skills

The development of transversal skills has occurred on two fronts:

The qualifications are designed such that it facilitates the development and demonstration of the various qualification and DUT graduate attributes. These graduate attributes guide the curriculum content as well as pedagogical and assessment decisions. The teaching and assessment strategy is intended to develop a range of skills, both academic and professional.

The interaction and collaboration with SA and European partners have made a significant contribution to the development of various skills, values and outlook of the various DUT project team members

4. Gender Balance

The survey questionnaires for students and staff developed at the University of Szczecin have been implemented at DUT. DUT has ethical clearance for research into Women in Engineering. The DUT Women in Engineering Research Team is currently conducting a series of Focus Group interviews with female and male staff and female and male students. The data from the interviews will inform the DUT case study and recommendations to the Faculty of Engineering and the Built Environment.

5. University-Business-Society Cooperation

The various disciplines involved in the PEESA3 project has fully functional Industry Advisory Boards which are a statutory requirement at DUT. All the listed qualifications developed in this project have been discussed and approved by the various discipline Industry Advisory Boards.

6. PEESA III Project Board Members

As requested, the updated Project Board members are:

Prof Theo Andrew

Acting DVC: Teaching & Learning (withdrawn from PEESA III Project)

7. All PEESA III Members

All partners that received any financial support thus far within the PEESA III project:

Prof Theo Andrew	Acting DVC: Teaching & Learning
Dr Lavern Samuels	Director: International Education & Partnerships
Mrs Zakheeya Armoed	Department of Construction Management & Quantity Surveying
Mrs Hester Jackson	Department of Industrial Engineering
Dr Suresh Ramsuroop	Department of Chemical Engineering
Dr Seren Reddy	Department of Electronic and Computer Engineering
Mr Bruce Robert Graham	Department of Mechanical Engineering
Mr Goolam Hoosen	Department of Civil Engineering & Geomatics
Ms Lesley Anne Cooke	Specialist: International Education & Partnerships