Widening Access and Participation in Geomatics Education: Insights from Curriculum Transformation at Tshwane University of Technology, South Africa

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SUMMARY

The transition from legacy National Education and Training (NATED) qualifications to the Higher Education Qualifications Sub-Framework (HEQSF) has reshaped professional education in South Africa. This paper presents a case study of curriculum reform in the Department of Geomatics at the Tshwane University of Technology (TUT) between 2018 and 2025, a period spanning the phase-out of non-aligned NATED programmes and the introduction of a new HEQSF-aligned Programme and Qualification Mix (PQM).

The study draws on multiple sources of evidence, including enrolment and graduation data, self-evaluation reports, accreditation feedback from the South African Geomatics Council (SAGC), and surveys of students, graduates, and employers. Using a mixed-methods design, the analysis integrates quantitative and qualitative evidence to assess how the redesigned PQM affected access, student success, progression, and employability.

The findings show that participation broadened substantially, with gains in female enrolments and in students from disadvantaged schools, supported by financial aid awareness and academic support systems. Pass and retention rates, although disrupted during the COVID-19 pandemic, recovered strongly as new programmes stabilised. Articulation across National Qualifications Framework levels became a lived reality, enabling vertical progression and strengthening alignment with higher SAGC registration categories. Graduate outcomes were diverse, with employment across traditional and emerging sectors, significant entrepreneurial activity, and mobility across Africa and further afield.

The case demonstrates how curriculum reform can serve both regulatory compliance and transformation, but it also reveals continuing challenges. Despite transformation, racial

demographics are uneven, articulation routes are strongest within the institution rather than across the sector, and international mobility raises questions about potential skills loss locally. While the case is specific to TUT, the insights hold wider relevance for universities of technology and higher education institutions seeking to balance policy alignment with equity, employability, and professional development.