College of Education
Research focus areas for 2026

RESEARCH OPPORTUNITIES, AVAILABLE SUPERVISION CAPACITY AND SELECTION CRITERIA, ADMISSION AND REGISTRATION INFORMATION PER SCHOOL AND DEPARTMENT IN CEDU

Mathematics Education

Research focus areas of the Department (2026)

- Teaching for Mathematical Proficiency
- Contextualised and Culturally Responsive Mathematics Education
- Mathematics Curriculum and Assessment
- Technology Integration in Mathematics Education
- Foundation Phase and Early Mathematics Learning
- Mathematics Teacher Education and Professional Development
- Problem-Solving, Reasoning, and Mathematical Thinking
- Equity, Inclusion, and Social Justice in Mathematics Education
- Transitions and Articulation in Mathematics Education
- Mathematics Education Policy and Leadership
- Mathematics curriculum development and evaluation
- Mathematical modelling and problem solving
- Assessment in Mathematics
- Basic statistical and financial mathematics education
- Spatial development
- Technology and media education
- Mathematics teacher professional development
- Mathematical pedagogical and subject matter knowledge
- Collaborative teaching and learning
- Mathematics classroom practices
- Gender in teaching and learning mathematics
- Ethnomathematics and indigenous knowledge
- Language issues in the teaching and learning of mathematics in multilingual classrooms
- Mathematical knowledge for teaching
- Error analysis and application in classroom
- Curriculum development and comparative studies
- Geometrical thinking
- Problem-centred teaching and learning
- Lesson study
- Cognitive learning
- Ethnomathematics
- Mathematical literacy

Research projects that postgraduate students can participate in

Name of project	Brief description of the project	Project leader	No of available positions for MEd students for 2026	No of available positions for PhD students for 2026
MTLIP – CN1400 (Improvement of pedagogical content knowledge (PCK) and proficiency in mathematics teaching and learning: An intervention project for mathematics teachers	• MTLIP is the main DME Engaged Scholarship Project/flagship • MTLIP Project Leader: Mr Moila • All DME academic staff members participate in the MTLIP • All DME academic staff members have signed the Project Compliance Certificates, as project members • MTLIP works with 20 x primary schools in Polokwane targeting areas of teaching and learning of Mathematics	Mr Moila	2	2
Twinning Mathematics		Prof Makgakga	1	2
CN 4800: Together Making Schools Better Libangeni Circuit in Mpumalanga Province.	• Project Registration on the ES app • Planning meeting 18 February 2025: discuss the preliminary year plan, budget, and project registration on the ES App • Meeting with the Gauteng regional office on 20 March	Mr Mphuthi	1	3

	2025 to discuss collaboration and way forward regarding digitalisation and e-learning integration for teachers. • Meeting with the Libangeni Circuit Coordinator on 6 June 2025 at Dikgwale Secondary School • Meeting with Gauteng Region Digital Literacy Training Team on 10 June 2025			
NRF Thuthuka Research Project.		Prof HW Mbhiza	2	2

Focused M & D programmes

Name of programme	Qualification code	Curriculum
Master of Education in Mathematics Education	98446	Research proposal module plus a full research dissertation
PhD in Education (Stream: Mathematics Education – MED)	90019	Research proposal module plus full research thesis

Details of individual supervisors and their research interests or fields of expertise

Name of supervisor	Research interest/field of expertise	No of positions for master's students still available for 2026	No of positions for doctoral students still available for 2026
Prof MF Machaba	• Learners' misconceptions	2	2

	• Teaching and learning of Mathematical Literacy alongside Maths • Usage of everyday context in the teaching and learning of Maths		
Prof Dhlamini	• Mathematics problem solving • Cognition and learning • Classroom practices and behaviour (Teaching & Learning) • Quantitative research & Mixed methods research designs & approaches	2	2
Prof Mbhiza	• Mathematics problem solving • Cognition and learning • Classroom practices and behaviour (Teaching & Learning) • Quantitative research & Mixed methods research designs & approaches •	3	2
Prof Phoshoko	• Mathematics problem solving • Cognition and learning • Classroom practices and behaviour (Teaching & Learning) • Quantitative research & Mixed methods research designs & approaches •	2	3
Prof Makgakga	• Mathematics teaching and learning of algebra and functions. • Errors and misconceptions in mathematics. • Mathematics teacher professional development. • Mathematical pedagogical and content knowledge for teaching. • Language issues in teaching and learning mathematics in rural schools •	2	3
Prof Graham	• statistical methodologies to complex,	3	3

	• large-scale data analysis. With a strong foundation in both theoretical and applied statistics, • quantitative data sets, particularly in the context of international large-scale assessments (ILSAs) such as TIMSS (Trends in International Mathematics and Science Study) and PIRLS (Progress in International Reading Literacy Study).		
Dr Makwakwa	• Difficulties in learning of statistics/ data handling and probability at school level and higher education • Problem solving methods and strategies in statistics/data handling learning at school level and higher education • Teaching and learning of statistics/ data handling and probability at school level	2	2
Dr PD Motseki	• Differential calculus • Teaching and learning of geometry	2	0
Dr Masilo-Ndlovu	• Lesson study • Mathematics in context (teaching and learning) • Professional development of mathematics teachers	2	2
Dr Kodisang	• Lesson study • Mathematics in context (teaching and learning) • Professional development of mathematics teachers •	1	2
Dr Niranjan	• Teaching Mathematics using Manipulatives •	1	3
Dr Ngoveni	• Formative assessment	3	1
Dr Rankweteke	• Misconceptions in Mathematics	3	1
Mr Mphuthi	• Learners' utilization of equivalent algebraic expressions effectively • Learning and teaching maths with understanding	2	3

	• Professional development of mathematics teachers • Students' development of algebra and calculus concepts in high school • Teachers' Mathematical meanings for teaching school maths •		
Mr Moila	• Teachers' Mathematical meanings for teaching school maths • Professional development of mathematics teachers •	2	2
Mrs Ngoako	• Mathematics Education • Investigations & Modelling	2	3

Models of supervision

The individual and co-supervision models are used. Co-supervision is mostly done for mentoring purposes and multi-, inter- and trans-disciplinary (MIT) research. Some supervisors in the College supervise across departments. Students are therefore advised to study the lecturer profiles of other departments in the College when trying to identify a suitable supervisor.

Opportunities regarding external supervision

External supervisors may be considered if a suitable supervisor is not available in the Department. However, this will depend on the financial viability of the Department.

Contact details of the department

Dr Motseki: Nkoana Simon Radipere Building, 6-37; tel: 012 429 6627; e-mail: motsepd@unisa.ac.za **(M&D Coordinator)**

Prof MF Machaba: Main Campus, Nkoana Simon Radipere Building : 7-10; Tel: 012 426 8582; emachamf@unisa.ac.za(CoD)

Admission requirements, selection criteria and selection information relevant for prospective master's and doctoral students

Minimum admission requirements for master's and doctoral studies in the College of Education

Master of Education

A Bachelor of Education honours degree in Inclusive Education, Special Education or Learning Support, Remedial Education, Disability Studies or an appropriate postgraduate

diploma, or a 480 credit Bachelor of Education degree in Inclusive Education with a minimum of 96 credits at NQF level 8. The average mark obtained for the degree shall be **60%.** All students should have completed a module in research methods and methodologies as part of their previous level 8 qualification. The application should accord with the various research focus areas/areas of specialisation of the department, the department's capacity to provide expert supervision and the requisite qualifications listed above.

Doctor of Philosophy (PhD) in Education

A Master of Education degree in Inclusive Education/Special Education/Disability Studies/Remedial Education or a module in Inclusive Education/ Special Education/Disability Studies/Remedial Education at master's level. The average mark obtained for the degree shall be 60%. The application should accord with the various research focus areas/areas of specialisation of the department, the Department's capacity to provide expert supervision and the requisite qualification.

Supporting documentation to be submitted with application

Full Research Masters

All relevant documentation as specified by the Department for Master's and Doctoral Administration Support.

Students should submit a short research outline of 600–750 words which outlines the intended research project, the research approach, problem statement, short literature review and a working title. In addition, a list of five scholarly articles and two books that have been consulted to compile the research outline should be provided. These sources should be predominantly recent, with the exception of (classical) theories which can only be found in old sources. The Harvard referencing method should be used. Students should provide a declaration that they have consulted the relevant department's website prior to submitting their application and should propose the name of his/her preferred supervisor. Any form of plagiarism in the research outline is unacceptable.

For doctorate:

All relevant documentation as specified by the Department for Master's and Doctoral Administration Support.

Students should submit a short research outline of 800–900 words which outlines the intended research project, problem statement, the research approach, a short literature review and a working title for the project. In addition, a list of ten scholarly articles and four books that have been consulted to compile the research outline should be provided. These sources should be predominantly recent, with the exception of (classical) theories which can only be found in old sources. The Harvard referencing method should be used. Students should provide a declaration that they have consulted the relevant department's website prior to submitting their application and should propose the name of his/her preferred supervisor. Please note that any form of plagiarism in the research outline is unacceptable.

PLEASE NOTE: Students should clearly indicate in their research outline that they intend to focus on Inclusive Education in their PhD studies. It is therefore imperative that the first heading of the research outline should read: *PhD in Education, focusing on Inclusive Education*.

Selection procedures followed in the selection of candidates for postgraduate studies

All applications will be considered simultaneously by the Departmental Higher Degrees Committee, Chair of the Department, Director of the School, the Head of the Office of Graduate Studies and Research and the M&D Coordinator for purposes of fairness and transparency. Only candidates who meet the minimum eligibility criteria will be considered.

The department's supervision capacity and availability of external supervisors will be the first and most important selection criterion. No applicant will be admitted without a supervisor being allocated to the student. If a student requests to be supervised by a particular supervisor, but the supervisor is not available because of his/her existing supervision load, it is the department's prerogative to allocate an alternative supervisor (internal or external). Further selection will be done based on the following selection criteria (weight attached to each criteria is indicated between brackets as a percentage of the overall evaluation): Student's academic record and experience in research (30%) understanding of research methods as evident from the research outline (30%); academic writing skills (30%); addressing of past inequalities by taking race, gender and disability status into consideration (10%).
If deemed necessary, the department may request an interview with the applicant.
Only a limited number of students per year can be accommodated in the MEd in Inclusive Education (course work) – qualification code: 90067. Students who are not admitted into the MEd in Inclusive Education (course work) may be considered for the full research MEd in Inclusive Education- qualification code: 98443, if a supervisor is available.
The department will keep record of all applications and reasons will be provided for unsuccessful applications.

Possible alternative pathways

The following alternative pathways exist for applicants who do not meet the admission requirements:

- Applicants with degrees that have different structures from normal South African honours or master's degrees, applicant's whose degrees do not clearly correspond to the department's admission requirements (e.g. no mark awarded for previous dissertations, no clear evidence of having completed a research-related module as part of the previous qualification, etc.) or applicants who do not meet admission requirements but who possess applicable experience in research or working experience relevant the field of interest, that may qualify them for admission to a master's or doctoral degree will be required to apply for recognition of prior learning (RPL). Prior academic and research activity by the applicant will be evaluated in accordance with formal Unisa RPL procedures and the outcome of the RPL process will be submitted to and approved by the Chair of the Department. If the approved outcome of the RPL process is positive, the applicant will be allowed to proceed with an application for admission, subject to all terms and conditions governing the admission process.
- Applicants who apply for a master's degree on the strength of a postgraduate diploma or a 480 credit bachelor's degree with a minimum of 96 credits at level 8 and who have not completed a module in research methodology will be required to obtain

knowledge about research methods and methodology by working through a prescribed reading list which will be forwarded to them by the chair of the Departmental Higher Degrees Committee upon request from the student. The student will have to complete and pass a number of assignments related to research methodology. The student may reapply in subsequent years.

- Applicants who do not meet the minimum requirement of 60%, may apply for an alternative pathway by submitting a portfolio containing a motivation letter indicating reasons for wanting to do the qualification and for selecting the specific area he/she is applying for, a CV highlighting experience relevant to the field of interest and evidence of engagement with research which could include one or more of the following: a written report of a scholarly nature, a literature survey, a paper presented at a conference, a published article.

The following alternative pathways exist for applicants whose applications were unsuccessful:

- Students who have been refused admission because of limited capacity within the department or because their topic was not viable may reapply in subsequent years. It should be clearly indicated that it is a **reapplication**. The normal selection process will apply in case of reapplications.
- Students who were unsuccessful because of an inadequate research outline may revise their research outline and may reapply in subsequent years.
- A student whose application was unsuccessful because of inadequate academic writing skills may reapply in subsequent years provided that he/she can provide proof of measures put in place to improve his/her academic writing skills (e.g. enrolled for and passed a course in academic writing skills).

Application procedures and when to apply

The Department of Inclusive Education will not make use of differentiated registration dates. Applications for admission and registration will take place in accordance with the dates set by the Department for Master's and Doctoral Administration Support for bulk applications and registrations.
Students should:

- apply for a student number, following the steps outlined in https://www.unisa.ac.za/sites/corporate/default/Apply-for-admission/Master%27s-&-doctoral-degrees/Apply-for-a-student-number-and-apply-for-admission
- apply for a space in one of the focus areas using the online application process
- once acceptance in the research focus area and the allocation of a supervisor has been confirmed, they may register for the research proposal module.