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**THE NELSON MANDELA  
AFRICAN INSTITUTION OF SCIENCE AND TECHNOLOGY  
(NM-AIST)**

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**Criteria for Admission into Master's and PhD Programmes**

**October, 2016**

## **1.0 Introduction**

The admission criteria for Master's and PhD programmes at the Nelson Mandela African Institution of Science and Technology are intended to provide opportunities for candidates with diverse qualities to join the Institution by expanding the scope for admission such that factors other than GPAs are also considered for admission. Because NM-AIST is being developed into a research-intensive institution, the criteria provide for admission of students that have substantial research experience in order to inculcate a research culture into students with no research experience through peer interaction and also attract students' scholarships/fellowships through research programmes/projects. The current admission criteria will attract more students with qualifications and experience required for promoting research and innovation excellence in line with the Mission and Vision of the Institution.

The criteria for admission into Master's and PhD programmes at NM-AIST are outlined below.

## **2.0 Admission into Master's and PhD Programmes**

### **2.1 Master's and PhD by Coursework**

#### **2.1.1 Master's by Coursework and Dissertation**

To be considered for admission into a Master's programme by Course work, the minimum requirements are:

- (i) Possession of a second class Bachelor's degree with at least a GPA of 3.0/5.0 or its equivalent in an appropriate area of study from an accredited university or similar institution of higher learning.
- (ii) Applicants holding unclassified degrees (e.g. M.D, BVM & DDS) should have at least an overall of "C" grade and an average of "B" grade in the relevant subject or field of his/her specialization.
- (iii) The applicant must satisfy the Programme and specialty specific requirements as specified by the respective School/Department hosting the programme.

#### **2.1.2 PhD by Coursework and Dissertation**

To be considered for admission into a PhD programme by Coursework, the minimum entry requirements are:

- (i) Possession of a second class Bachelor's degree with at least a GPA of 3.0/5.0 or its equivalent in an appropriate area of study from an accredited university or similar institution of higher learning.
- (ii) Possession of a Master's degree from an accredited university or similar institution of higher learning with a minimum GPA of 3.5/5.0 and at least an average of "B" in the relevant subjects or field of specialization.
- (iii) Applicants for admission into PhD programmes **MUST** have at least average of "B" in Master's degree or equivalent from an accredited university or similar institution of higher learning.
- (iv) The applicant must satisfy the Programme and specialty specific requirements as specified by the respective School/Department hosting the programme

## **2.2 Master's and PhD by Research and Thesis**

### **2.2.1 Master's by Research and Thesis**

To be considered for admission into a Master's programme by thesis at NM-AIST, the minimum entry requirements are:

- (i) Possession of a Bachelor's degree from an accredited university or similar institution of higher learning with a GPA of at least 3.5/5.0.
- (ii) Demonstrate ability to undertake research by either providing evidence of at least ONE year working experience in a research group/environment or at least ONE publication in an accredited peer-reviewed journal as the FIRST or SECOND author.
- (iii) Submission along with application documents, a concise ONE-page concept note of what he/she wishes to research on as part of the study in order to demonstrate his/her ability to organize thoughts in writing, logically and creatively. The candidate shall be required to defend the concept note before a panel appointed by the host School/Department. Be ready to pursue prescribed skills and capacity enhancing courses which are offered to all Master's students at NM-AIST as common core courses and as may be recommended by the supervisors, to enhance research performance. The courses may be taken flexibly during the duration of the programme but MUST be successfully completed before graduation.

### **2.2.2 PhD by Research and Thesis**

To be considered for admission into a PhD programme by thesis at NM-AIST, the minimum entry requirements are:

- (i) Possession of a Bachelor's degree from an accredited university or similar institution of higher learning with a GPA of at least 3.5/5.0.
  - (ii) Possession of Master's degree from an accredited university or similar institution of higher learning with a minimum GPA of 3.5/5.0
  - (iii) Demonstrate research experience by either producing evidence of at least TWO publications in accredited peer-reviewed journals, being the FIRST author in ONE publication and FIRST or SECOND author in the second publication, or produce evidence of a patent/prototype emanating from his/her research/innovation work and/or a funded research project with a PhD training component.
  - (iv) Submit along with application documents, a concise TWO-page concept note of what he/she wishes to research on as part of study in order to demonstrate his/her ability to organize thoughts in writing, logically and creatively. The candidate shall be required to defend the concept note before a panel appointed by the host School/Department.
- 3.0** Be ready to pursue prescribed skills and capacity enhancing courses which are offered to all PhD students at NM-AIST as common core courses and as may be recommended by the supervisors to enhance research performance. The courses may be taken flexibly during the duration of the programme but MUST be successfully completed before graduation.

#### 4.0 Programme and Specialty Specific Requirements

For all science based programmes, students possessing Advanced Level Certificate of Secondary Education (ACSE) must have at least TWO principal passes in sciences subject or at EGM combination level

In addition to the minimum entry requirements for Master's and PhD programmes stipulated above, there are additional requirement specific for each programme and/or specialty stipulated by the host Department/School that will also be considered for admission into the respective programme or specialty as shown in Table 1 below:

**Table 1: School of Life Science and Bioengineering**

Degree Program	Specialization	Prerequisite degree Courses
Life Sciences	Health and Biomedical Sciences	Veterinary Science or Medicine (BVSc, BVM, DVM); Human Medicine (MD); Biomedical Sciences; Clinical Sciences; Animal Science; Microbiology; Molecular Biology; Biotechnology; Physiology (Medical or Veterinary), Pathology (Medical or Veterinary ); Immunology (Medical or Veterinary ); Parasitology; Zoology and related fields.
	Sustainable Agriculture	Agriculture; Crop Science; Biology; Horticulture; Agronomy; Plant Pathology; Biotechnology; Botany and Forestry; Agricultural Economics; Crop Pathology, Agricultural Education and Extension; Agroecology, Botanical Science; Range Management and related fields.
	Food and Nutritional Sciences	Food Science; Home Economics and Human Nutrition; Food Technology; Biochemistry; Clinical Nutrition; Dietetics; Child and Maternal Care; Food Biotechnology; Functional Food; Food Development; Food Safety; Food quality and Safety and related fields.
	Biodiversity and Ecosystem Management	Ecology and Biodiversity; Wildlife Science and Conservation; Conservation Biology; Forestry; Silviculture; Aquaculture; Evolutionary Biology; Tropical Biodiversity and Wildlife Management; Organic Chemistry; Microbiology; Agroecology; Animal Science; Population Biology and related fields.
Bio-Engineering	Vaccines and Diagnostics Development	Food Science; Biochemistry; Bioengineering; Biotechnology; Mechanical or Electrical Engineering; Chemical Engineering and related fields.
	Bio-product Development	Molecular Biology; Microbiology; Biotechnology; Bioinformatics; Biological Science; Biotechnology and Laboratory Sciences; Biomedical Technology, Chemical Engineering; Mechanical or Electrical Engineering and related fields.
Master of Science in Public Health Research (MScPHR)	Determinants of Health and Diseases	Social Sciences (Sociology, Anthropology), Environmental Sciences, Doctor of Medicine, Veterinary Science/Medicine, Human Nutrition Sciences, Statistics, Biology, Informatics and related fields
	Intervention Research	Statistics, Doctor of Medicine, Veterinary Science/Medicine, Environmental Sciences, Human Nutrition Sciences, Biology and related fields
	Implementations and Health Systems Research	Social Sciences, Doctor of Medicine, Environmental Sciences, Health System Management, Economics, Statistics, Informatics and related fields

**Table 2: School of Computational and Communication Science and Engineering (CoCSE)**

<b>Degree Programme</b>	<b>Specialization</b>	<b>Prerequisite degree Courses</b>
Mathematical and Computer Science and Engineering (MCSE)	Applied Mathematics and Computational Science (AMCS)	Mathematics; Applied Mathematics and related fields A student to be admitted in Master's or PhD in Applied Mathematics and Computational Science Specialty, shall be required to have at least 2 Principal passes of which one shall be from Advanced Mathematics in Advanced Level Certificate of Secondary Education. The students must also have taken Mathematics or Statistics at the Bachelor degree.
	Computer Science and Engineering (CSE)	Computer Science; Software Engineering; Informatics; Information Technology; Computer Engineering, or related fields
Information and Communication Science and Engineering (ICSE)	Information Technology Systems Development and Management (ITSDM)	Information Systems; Information Technology; Informatics; Computer Science; Software Engineering; Computer Engineering, or related fields
	Electronics and Telecommunications Engineering (ETE)	Telecommunications Engineering; Electronics Engineering; Electrical Engineering; Computer Networks, or related fields

**Table 3: School of Materials, Energy, Waters and Environmental Science**

<b>Degree programme</b>	<b>Specialization</b>	<b>Prerequisite degree Courses</b>	<b>Specific Requirements</b>
Hydrology and Water Resources Engineering	Hydrology and Climatic Studies	Water Resources Engineering, Irrigation Engineering, Geology, Hydrogeology, Environmental Science, Environmental Engineering, Geography, Civil Engineering, Sanitation Engineering, Mining Engineering and related fields.	Applicants <b>MUST</b> have at least “B” grades at a Bachelor’s degree, in courses majoring the degree programme/ specialty applied for. Work experience and knowledge in modelling will be an added advantage.
	Water Resources Engineering		
	Irrigation Engineering		
	Water Supply and Sanitation		
Environmental Science and Engineering	Environmental Science	Chemistry, Biology, Zoology, Aquatic/Marine Sciences, Chemical Engineering, Environmental Science/Engineering, Food Sciences/Engineering, Biochemical Engineering, Agriculture, Wildlife, Forestry, Mining Engineering, Mineral Processing, Geology, Public health, Ecotourism and Natural Resources Conservation Water Resources Engineering, Microbiology and related fields.	In addition to the above, applicants holding Bachelor’s degrees majoring in Chemistry or Biology like Bachelor of Education with Chemistry/Biology and Bachelor of Science (Chemistry/Biology) <b>MUST</b> have at least “B” grades in Chemistry, Biology and/or other courses related to Environmental Science/Engineering, Chemical Engineering and related courses.
	Environmental Engineering		
Materials Science and Engineering	Structural Materials	Physics, Chemistry, Biology, Mechanical Engineering, Structural Engineering, Mathematics and/or related courses, Mechanical Engineering, Civil Engineering, Chemical Engineering, Computer Engineering, Computer Science, Electrical Engineering, Polymer Engineering, Materials Science and Engineering and related fields.	Applicants holding Bachelor’s degrees majoring in Chemistry, Physics or Biology, like Bachelor of Education with Chemistry/Biology/Physics and Bachelor of Science (Chemistry/Biology/Physics) <b>MUST</b> have at least “B” grades in Chemistry, Biology, Physics courses and/or other courses related to Environmental Sciences/Engineering and Chemical Engineering. Work experience in indigenous raw materials application, material structure and failure and nanotechnology will be an added advantage.
	Energy Materials		

**Table 3: School of Materials, Energy, Waters and Environmental Science (continue)**

<b>Degree programme</b>	<b>Specialization</b>	<b>Prerequisite degree Courses</b>	<b>Specific Requirements</b>
Sustainable Energy Science and Engineering	Sustainable Renewable Energy Engineering	Energy Engineering, Electrical Engineering, Mechanical Engineering, Chemical Engineering, Chemicals and Processing Engineering; Bachelor's degrees in other Engineering disciplines or natural sciences (Physics and Chemistry) may also be sufficient provided that relevant coursework in Thermodynamics, Basic Engineering, Statics and Dynamics Controls, Heat Transfer, Fluid Dynamics, Energy and Mass Transfer, Reactor Design, Electrochemistry, Semiconductors, Mathematics:-with a focus on Numerical Analysis, Vector Calculus, Differential Equations, Computer Programming knowledge or related fields were pursued.	Applicants MUST have at least "B" grades in Chemistry, Physics, Mathematics, Energy Sciences and/or Mechanical Engineering and related courses in their Bachelor's degrees.
	Sustainable Nuclear Power Engineering		
	Sustainable Power Generation and Energy Utilization		

## 5.0 English Proficiency

Since English is the primary language of instruction, all applicants seeking admission to academic programmes at NM-AIST must possess adequate knowledge of written and spoken English as a prerequisite for admission. This demonstration may take one of the following forms:

- (i) Successful completion of a baccalaureate degree from a recognized university or similar institution of higher learning where English is the language of instruction.
- (ii) Successful completion of a postgraduate degree programme at a recognized university or similar institution of higher learning where English is the language of instruction.
- (iii) Submission of official results of the Test of English as a Foreign Language (TOEFL) with a paper-based score of 550 (or higher), computer-based score of 213 (or higher) or Internet-based with a score of 80 (or higher).

## 6.0 Foreign Academic Transcripts and Certificates

Candidates who have been awarded Bachelor's and/or Master's degrees at accredited universities or similar institutions of higher learning which issue academic documents in languages other than English shall submit notarized English translations of all supporting documentation including, but not limited to, transcripts, degrees, and diplomas.

The academic levels or equivalence of the qualifications obtained from foreign institutions must be authenticated by the Tanzania Commission for Universities (TCU).

## **7.0 Processing of the Applications and Admissions**

In order to enable students make adequate preparations including soliciting sponsorship as well as providing flexibility in the admission process, applications will be processed as follows;

- (i) Application for admission into various programmes will be received all year round.
- (ii) Candidates for Master's and PhD programmes by coursework will be admitted only once per year i.e. beginning of the new academic year.
- (iii) Candidates for Master's and PhD programmes by research thesis will be admitted throughout the year.
- (iv) Validity of the admission into any programme shall be one year from the date of commencement of the academic year in which the candidate was admitted. Thereafter, the candidate shall be required to re-apply for admission.