**THE NELSON MANDELA
AFRICAN INSTITUTION OF SCIENCE AND TECHNOLOGY**

Guidelines for Conducting Students' Research

January 2022

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LIST OF ABBREVIATIONS

DVC-ARI	Deputy Vice Chancellor – Academic, Research and Innovation
IPR	Intellectual Property Rights
NM-AIST	Nelson Mandela African Institution of Science and Technology
PhD	Doctor of Philosophy
SETI	Science, Engineering, Technology and Innovation
SRC	School Research Committee
SSA	Sub-Saharan Africa

STATEMENT BY THE VICE-CHANCELLOR

The Guidelines for Preparation and submission of Students' Research Proposals and Dissertations/Thesis/Project Report, Conduct of Research, Preparation and Submission of Dissertations/Theses have been developed to guide students and supervisors on the roles of various parties in the process of preparation of students' research proposals, implementation of the research projects, preparation and submission of dissertations/theses. The Guidelines are intended to ensure that the students' research activities are well streamlined so that good quality results are obtained and high-quality dissertations/theses are produced commensurate with the NM-AIST's desire of building a world-class research-intensive university. The development of this document is yet another clear indication of the commitment that the NM-AIST puts on Research and Innovation in line with the Vision and Mission of the institution. Being an aspiring Transformative Research-One Institution, the Guidelines are an invaluable tool for supervisors, students, researchers and the University Management in enhancing the execution of research activities emphasizing on quality of the process and outcomes.

In developing these guidelines, various documents related to guidelines for administration of students' research and preparation of dissertations/theses in various universities within and outside the country were consulted. Therefore, I hope that supervisors, students and users of the guidelines will find this document useful for and in guiding the process from research proposal development through to submission of dissertations/thesis for examination. The Management of this institution expects that strict adherence to the Guidelines and other related administrative instruments, such as the regulations stipulated in the Prospectus, will result in the quality of research outputs, dissertations/theses and publications emanating therefrom meeting the expected quality from an institution developing into a world-class research-intensive university.

These guidelines will be reviewed from time to time as the need arises and to enable the Institution to keep pace with the fast-changing academic, scientific and technological developments globally.

On behalf of the Management of the NM-AIST, I wish to thank all those who participated in one way or the other in the preparation of this document. The commitment and efforts of the task force that spearheaded the review of the 2015 Guidelines and preparation of these guidelines as well as the staff in the Office Deputy Vice Chancellor for Academic, Research and Innovation are highly acknowledged for making these guidelines a reality.

Prof. Emmanuel J. Luoga
Vice Chancellor   **January, 2022**

CHAPTER 1: GENERAL INTRODUCTION

1.1 Background Information

The Nelson Mandela African Institution of Science and Technology in Arusha (NM-AIST) being one in a network of Pan-African Institutions of Science and Technology envisions to train and develop the next generation of African scientists and engineers to impact profoundly on the continent's development through the application of Science, Engineering, Technology and Innovation (SETI).

NM-AIST aspires to develop itself into a "world-class" world-class research-intensive institution for postgraduate and post-docs studies and research in SETI. The training programmes at the NM-AIST, among other things, are designed to enhance SSA's SETI capacity to harness the resources of nature and to generate industrial and business solutions for the needs and problems of the society and industry and hence improve livelihoods and economic growth. The NM-AIST aims to become a transformative research-one institution as reflected in the objectives of the University as well as its vision and mission.

1.2 The NM-AIST Vision

The vision of the NM-AIST is to be a centre of excellence in science, engineering, technology and innovation for humanity's sustainable development.

1.3 The NM-AIST Mission

The mission of the NM-AIST is to create a hub of inventions and innovations, scout and nurture inventors for enhanced value addition to the society and industry for Tanzania, Africa and global sustainable and inclusive growth.

1.4 The Objectives of the NM-AIST

The goal of the NM-AIST is to be a world-class research-based University fostering leadership in science, engineering, technology and innovation; promoting entrepreneurial spirit; and commercializing impactful innovations. Under this goal, the objective of the NM-AIST is to educate the next generation of African scientists and engineers by equipping them with the technical, entrepreneurial and leadership capacities to solve African problems thereby contributing to the economic and social transformation of EA and SSA.

The specific objectives for the NM-AIST are to:

(i) Postgraduate Training and Skills Development and Management strengthened/ mainstreamed/ enhanced

(ii) Impactful SET research, innovation and incubation delivered

(iii) Increased Academia, Public and Private engagement and partnerships

(iv) Institutional Capacity and Operational Efficiency of NM-AIST to deliver its core mandates/ services strengthened.

1.5   Situation Analysis

The NM-AIST is an academic institution that is developing within an environment of a high concentration of talents, science, and technology. Due to advancement in science and technology and adoption of the research groups by the NM-AIST, it is therefore important that the NM-AIST puts in place a system that will ensure correspondingly growing capacity to generate solutions to address the multitude of needs and problems of our African society and industry through student research and project. A system that will also ensure that every graduate who emerges from this institution is adequately equipped to become a reliable development labour force that will provide leadership in addressing the needs and problems of society and industry. Therefore, the NM-AIST needs to ensure that there are guidelines in place to facilitate high-quality student research and project output.

The guidelines are designed to enable students to develop plausible research proposals, conduct responsible and responsive research and come out with impressively rich research outputs in form of various forms of publications, innovations and policy briefs. The guidelines are also intended to guide the various parties on their roles during the preparation and submission of students research proposals, the conduct of students research, and preparation of Dissertations/Thesis/Project reports, to enable all to collectively contribute to the attainment of the NM-AIST's desired world-class performance.

1.6   The Goal of the Guidelines

The goal of the Guidelines is to enhance t h e quality of research, consistency of processes and coherence with the vision and mission of the institution.

1.7   Objectives of the Guidelines

The guidelines will serve to provide a framework upon which students will base the development of their research proposals, the conduct of their research, and preparation of Dissertations/Theses/Project reports and other scientific writings that meet world-class standards. Specifically, the guidelines seek to:

(a)   Guide students on research proposal preparation

(b)   Guide students on the conduct of research

(c)   Strengthen supervision of students' Research work

(d)   Guide students on dissertation/thesis/Project preparation

1.8   Scope of the Guidelines

The Guidelines focus on the preparation of students' research proposals, implementation of the students' research projects, preparation of dissertations, theses and project reports for examination, and the roles of students, supervisors and other relevant parties in the institution.

CHAPTER 2: ROLES OF THE VARIOUS PARTIES IN THE DEVELOPMENT OF STUDENTS RESEARCH PROPOSALS, CONDUCT OF STUDENTS RESEARCH, AND PREPARATION OF DISSERTATIONS/THESES/ PROJECT REPORT

2.1   Introduction

The purpose of this chapter is to provide a clear and concise outline of the role each party has to play in the supervision of students' research at the NM-AIST.

2.2   Roles of Schools/Departments

The role of Schools is to provide an enabling environment for both supervisors and students to select research topics that are aligned to the NM-AIST Research and Innovation Agenda, to prepare quality research proposals, to conduct research within the allowed timeframe and finally to prepare and submit quality and acceptable student dissertation/thesis/Project reports for graduation.

2.3   Role and Responsibilities of Supervisors

2.3.1   Roles and Responsibilities of the Supervisor during Coursework and Research

Successful completion of a Master's or PhD research and dissertation/thesis requires a conducive learning environment including a close and cordial working relationship between the student and his/her supervisor(s). The supervisor is the agent of the University responsible for ensuring that the student's work attains a satisfactory standard and therefore, he/she has to acquaint himself/herself with all the University's Regulations and Guidelines governing student's supervision. The following are the roles and responsibilities of the supervisor concerning the supervision of a Master's and PhD student during the coursework and/or research phase:

(a)   To ensure that the Master's or PhD student maintains satisfactory progress throughout the study period by providing adequate advice and encouragement during the coursework and research phase.

(b)   To assist the Master's or PhD student in the selection of a researchable topic or subject, formulation of an appropriate research proposal and ensure that the candidate adheres to the regulations and guidelines as required.

(c)   To constantly appraise the potential and limitations of the research problem/work before the candidate goes too far with the research work.

(d)   To determine whether or not the candidate will collect meaningful data within the prescribed period of research, and whether or not the proposed research problem is a

long term one that does not fit as a higher degree research topic, etc. In this regard, the supervisor's insight is required to intervene and mitigate against the common problem of a student wasting his/her efforts and time, by helping him/her adjust and/or redefine the scope.

(e) To monitor the candidate's progress throughout the research period by using the following methods to track progress:

(i) Allocating time for regular consultations between the candidate and the supervisor to discuss the research work. Frequent consultations help to make the supervisor aware of the student's progress on the research work and suggest remedial measures to any problems encountered before it is too late.

(ii) To ensure that supervisor-student consultation is institutionalized, it is recommended that it should not be less than once per month.

(iii) Causing the candidate to submit quarterly reports to the supervisor for transmission to the Head of Department, School Board and Senate.

(iv) The supervisor shall make specific comments on the students' progress and the comments shall be registered in the Departmental or School Boards meeting proceedings and subsequently reported to the Senate.

(v) The supervisors' comments or reports shall form the basis of evaluating the quality of supervision and students' progress and will form points of reference in cases of problems with the candidate's progress.

(vi) The supervisor shall report any problem regarding the progress of the candidates that he/she has failed to handle or address, to the Dean of School for appropriate intervention to be made on time.

(vii) Organizing seminar presentations by the candidates every quarter as may be agreed upon in the Department. Seminar presentations on the student's research progress to the relevant audience are an opportunity for him/her to receive constructive criticism from experts and others in his/her field of research.

2.3.2 Roles and Responsibilities of Supervisor during Preparation of Dissertation/ Thesis/Project report

To ensure that the dissertation or thesis prepared by a Master's or PhD candidate is of the acceptable quality and standards as specified in the NM-AIST regulations, and to avoid untoward and frustrating eventualities to the student, supervisor(s) and the University, it is recommended that the supervisor undertakes the following:

(a) Be accessible and show interest in the candidate's research work, and endeavour to cultivate a positive and friendly relationship with the candidate.

(b) Regularly discuss the dissertation/thesis drafts with the candidate, and to save the student's time, the supervisor should undertake to meet the candidate and to discuss his/her dissertation/thesis draft within two weeks of receiving a manuscript.

(c) Read and/or review the candidate's drafts carefully and critically, giving constructive suggestions on how to improve the dissertation/thesis.

(d) Guide students into the preparation of good quality manuscripts for publication as required by the journal to which the manuscripts shall be submitted.

(e) Advice the candidate on compliance with the guidelines for the preparation of dissertations/theses as stipulated in these guidelines, as well as acceptable scholarly presentation of the dissertation/thesis.

(f) Read the entire final draft and satisfy himself/herself that the dissertation/thesis is ready for submission and examination.

(g) Recommend to the Dean of School on the adequacy, completeness and quality of the dissertation/thesis and potential examiners for the candidates' dissertation/thesis.

(h) Guide the candidate in the revision of the dissertation/thesis if such revisions are recommended by the examiners.

(i) If an academic advisor is unsure how to respond to a situation, they should discuss the matter with the Senior Tutor.

(j) The academic advisors should ensure confidentiality.

2.3.3   Responsibilities, Roles and Conduct of the Student Research/Project work

The success of the student's Master's or PhD work largely depends on the commitment and conduct of the student himself/herself. The supervisor's main responsibility is to guide the student towards the achievement of his/her career development goals. Therefore, a student pursuing a Master's or PhD degree at the NM-AIST has the following responsibilities concerning his academic and research progress:

(i) To read thoroughly and to be conversant with all the Regulations and Guidelines governing Master's and PhD degree studies and to abide by them.

(ii) To consult with and agree with the supervisor on the research topic/subject and prepare a research/project proposal as stipulated in the relevant Regulations and Guidelines.

(iii) To prepare and present graduate seminars as stipulated in the Regulations, and any other presentations as the supervisor and/or Chair of the Research Group may recommend.

(iv) To prepare work plans and/or schedules, undertake field or laboratory work, and carry

out data analysis as per work plans/schedules within the prescribed period for the study programme.

(v) Prepare and keep the laboratory logbook (hard and soft copies) of their work.

(vi) To write and submit to supervisor(s), progress reports on time as stipulated in the Regulations and Guidelines and as the supervisors may determine, as well as produce academic/research outputs of the research programme within the prescribed period of the study programme.

(vii) To make regular consultations with the supervisors and promptly report any administrative or academic difficulties or problems experienced in the course of the study programme for appropriate intervention by the supervisor or other relevant office with the view of finding a solution(s).

(viii) To participate in academic and/or research-related activities or programmes as the supervisor may recommend including attending seminars, symposia, workshops and conferences within and outside the NM-AIST.

(ix) To complete his/her research work and write a thesis/dissertation/project report of an acceptable standard in terms of adequacy, scholarly presentation and quality as stipulated in the Regulations and Guidelines and within the prescribed period for the study programme.

(x) To attend to any amendments or revisions of the progress report, dissertation/thesis/project report and publications as directed by the supervisor, graduate seminar assessors and examiners of the dissertation/thesis/project report.

(xi) To ensure that no publication or other communication or correspondence on outputs or outcomes of his/her research work is made outside the Department without approval by the supervisor.

(xii) To ensure that any publications emanating from dissertation/thesis/project work for the award of a degree of the NM-AIST contain a statement indicating that the work is based on a dissertation/thesis/project work submitted for a degree of the Nelson Mandela African Institution of Science and Technology.

(xiii) To produce intermediary and final electronic and properly bound copies of the dissertation/thesis/project report and publications as stipulated in the relevant Regulations and Guidelines.

(xiv) To comply, at all times, with academic, research and publication ethics, and maintain academic integrity throughout the study period.

(xv) To ensure that issues of Intellectual Property Rights (IPR) are handled following the Intellectual Property Policy and Guidelines of NM-AIST and that, in all cases, issues of IPR involve discussion with supervisors and officers responsible for IPR Management at the Institution.

(xvi) To acknowledge properly any assistance received from persons and institutions within and outside the NM-AIST during his/her studentship at the NM-AIST.

(xvii) To renew one's annual registration with the NM-AIST as stipulated in the relevant regulations and guidelines until the study programme is completed or otherwise.

(xviii) To ensure that the written dissertation/project report or thesis demonstrates a high standard of proofreading and copy editing (including attention to layout, spellings, grammar, sentence structure, punctuation marks, etc). The dissertation or thesis should be checked for accuracy, including references, cross-references and sequences of numbers. Figures, diagrams and tables must be numbered sequentially in the dissertation/thesis. Candidates are cautioned that the NM-AIST is not responsible for any cost related to dissertation/thesis production including the cost incurred for editorial works. Candidates shall be responsible for ensuring that no changes are introduced to the intellectual content in the process of typographical editing.

2.3.4 Assurance of Quality Supervision

The following have to be considered in appointing or replacing supervisors for Master's or PhD students to ensure that quality supervision is attained:

(a) A Master degree student shall be supervised by at least two experienced UQF Level 10 qualified supervisor(s) and in addition, the supervisor(s) must have attained his/her PhD degree award in at least the last year.

(b) A candidate at PhD study programme shall be supervised by a minimum of two qualified and experienced supervisors who possess UQF Level 10 qualifications and preferably at least one of them being at the rank of associate or full professor.

(c) The maximum number of postgraduate students to be supervised by one supervisor at any particular time shall not exceed fifteen (15) Masters and five (5) PhD candidates.

(d) The staff member's effective supervision shall be taken into consideration by the Dean of School during annual performance appraisal and promotion. Effective supervision entails seeing through a candidate to effective completion of his/her dissertation/thesis work.

(e) If the supervisor leaves the Institution when the student is in the final stages of his/her studies, arrangements shall be made for the same supervisor to continue supervising the student to the completion of his/her studies. However, if the supervisor declines and/or by the nature of his new assignment he/she will not be available to perform the supervisory duties or if the student is just beginning his/her research work, another supervisor shall be appointed.

(f) If the student's main supervisor is to be away from the University for more than three consecutive months and is unable to provide adequate supervisory services, physically or virtually, an acting supervisor shall be appointed.

(g)   If the reason for the supervisors' absence is infirmity and it is not possible to predict when the supervisor will be in sound health to continue with the supervision, another supervisor shall be appointed to replace the sick one. If and when the original supervisor recovers, he may continue supervising the student if he so desires.

(h)   A standard Students' Progress Report form shall be used to maintain uniformity in the type of information or reports of supervisors submitted to decision-making bodies.

2.4   Procedures for Handling Supervisor-Student Conflicts

(a)   The University will strive to promote and ensure that the working relationship between a supervisor and his/her student is always cordial. However, it is understood that while the majority of supervisor-student relationships are expected to generally be good, there may be cases of misunderstandings because of the following reasons:

   (i)   Breakdown of communication between the student and the supervisor.

   (ii)   The hostile relationship between the supervisor and the student.

   (iii) Refusal of the candidate to follow the supervisor's advice leads to clashes between them.

(b)   Conflicts between the supervisor and student need to be addressed as promptly as possible to mitigate against damage to the image of the supervisor, the Institution and the student's career. When misunderstandings or problems between a supervisor and student occur, the following procedure should be followed in dealing with the situation:

   (i)   Both the supervisor and the student should, independently and promptly, report the problem, in writing to the Dean of School.

   (ii)   The Dean of School shall study the nature of the problem and make effort to resolve the conflict. However, if the Dean of School fails to address the problem, may refer the case to the Dean of Students for appropriate action accompanied by a report of the efforts has taken to address the matter.

(c)   The Dean/Director of the School/Institute/Centre shall study the nature of the problem and recommend to the DVC-ARI for one of the following actions.

   (i)   The student be informed in writing and warned of his/her weakness if it is established that he/she is the cause of the problem.

   (ii)   The supervisor be informed in writing and warned of his/her weakness if it is established that he/she is the cause of the problem but continue to supervise the candidate under the conditions to be specified and which will facilitate the Dean of School to monitor the progress of the supervision process.

(iii) A new supervisor be appointed to guide the candidate if the Dean of School is convinced that this would be the best solution.

(iv) Appoint an Advisory Panel to guide the student if there is no other single person in the Department who has the expertise to supervise the student or he/she may recommend that the student be transferred to another Research Group where possible and where necessary.

(d) The DVC-ARI shall consider the case and recommend to the Senate for any other appropriate action, including discontinuation of the student from studies by applicable regulations and guidelines upon the advice of the Senate Teaching and Learning Committee.

CHAPTER 3: DEVELOPMENT OF STUDENTS RESEARCH PROPOSALS

3.1　Background

Research proposals are a very useful means of helping students to conceptualise their research projects and clarify their areas of focus. A research proposal also ensures that a student has thought through all the potential pitfalls and conducted the essential pre-planning. If done properly, a research proposal should prepare the ground for the smooth execution of the student's research. In addition, research proposals serve to convince other people including supervisors that the research that is planned to be undertaken is both important and feasible. Furthermore, it provides a means for a student to convey to others, a message that he/she has critically reviewed the research topic has selected a suitable method to answer the research questions and that it is feasible for the research project to be completed within the designated time frame. Various formats of research proposals exist.

3.2　Structure of the proposal

The proposed structure of a research proposal shall have the following features:- Title, Name of Student and School/Department, Name(s) of Supervisor(s), Introduction, Problem statement, Justification, Objectives (objectives must be stratified to distinguish between General and specific objectives), Hypothesis/Research questions, Literature review, Materials and Methods, Location and duration, Source(s) of funds and budget, Schedule of activities, References, Signature of student and date, and Signature(s) of supervisor(s) and date.

The research proposals should have a *maximum size of 20 and 25 pages for Master's and PhD students*, respectively. Any other extra and necessary information that a candidate needs to include in the proposal preparation may be presented as an appendix (Research Budget, Research timeline, etc).

3.2.1 Title

The title of a research proposal should be informative and concise. It should convey to the reader the main focus of the research. Students should try to limit the title to a single sentence excluding any words that are not essential to the overall understanding of the title. A research title for a Master's should not exceed 16 words while for PhD research should not exceed 20 words.

3.2.2 Introduction

The introduction to a proposal sets the tone. The researcher must appear appropriately confident, organized, and clear as to the intent of the research to be undertaken. The introduction should begin with a capsule statement of what is being proposed and then should proceed to introduce the subject to someone unfamiliar with the topic. One cannot assume that the proposal reviewer is familiar with the topic of the proposal. The introduction should briefly outline the problem statement, the research justification/and or rationale, the goals and objectives of the project, the

hypothesis/research questions, how long it will take, and give enough background to enable the reviewer to place this particular research problem in a context of common knowledge.

3.2.3 Problem Statement

The candidate must clearly state the problem situation by identifying key concepts and variables. It must clearly show the incidence and prevalence of the problem; findings of other studies and the major unanswered questions or aspects.

In clarifying the problem, the candidate must show the following:

(a) Indicators of what a researcher claims to be a problem should be given

(b) Evidence of the existence of the problem must be given, e.g. figures quantifying the problem

(c) The extent of the problem must be stated

(d) Adverse effects of the problem should also be given

(e) The context of the problem should also be provided

3.2.4 Research Justification

The candidate must clearly state convincing statements showing the importance of the proposed problem/research topic. This follows after problem identification and definition (statement). The candidate must answer the following questions:

(a) Why is the problem important?
(b) Can the selection of the proposed problem/research topic be justified?
(c) Can others be convinced of its importance?

3.2.5 Objectives

The main objective (purpose) is what one hopes to accomplish by the proposed research. Specific objectives are statements of precise outputs to be achieved within the research time frame and that can be measured in support of the main objective. Properly written objectives should adhere to 'SMART' characteristics i.e. Specific (states exactly what will be achieved i.e. what will be done and for whom), Measurable (if it is a possible measure or quantifies attainment of objective or its results), Achievable (if the objective can be accomplished within the available time frame, resources and support), Relevant (if the objective will affect the desired goal or strategy) and Time-bound (if the objective can be accomplished within a specified time frame).

3.2.6 Hypothesis/Research Questions

The hypothesis is a tentative assumption about relationships (cause, effect or association) between

two variables. It is tentative because it is insufficient to argue for or against the relationships hypothesized before research is conducted. After the research is conducted, an assumption may be found to be false or true.

Candidate must note that all hypotheses should be operational, i.e. must:

(a)   Indicate how variables and expected relationships are to be empirically measured

(b)   Show how the researcher will judge whether the relationship is significant or insignificant

(c)   Be derived from conceptual hypothesis, by stating what concepts mean in research

In stating the hypothesis, the candidate must consider the following:

(a)   Clarity and precision - has to consist of clearly defined concepts

(b)   Specificity - has to show expected relations between variables

(c)   Testability - possible to collect empirical data & test it

(d)   Theoretical relevance - should be related to a body of knowledge

(e)   Consistency - logically consistent

(f)   Simple - capable of being tested within a reasonable time

Candidates opting for research questions must note that all research questions must be operational and empirically measured.

3.2.7 Research Framework

The candidate has an option to indicate variables to be studied and their hypothetical relationships, between or among them as it fits the type of research. The candidate may present the conceptual framework either in a narrative or diagrammatic format or both formats.

3.2.8 Literature Review

Literature reviews should be selective and critical. Reviewers want to know about pertinent works and a fair evaluation of them. The style of the bibliographical item itself depends on the discipline and it should be followed scrupulously throughout the proposal. Discussions of work done by others should identify clear research gaps and give the reviewer a clear impression of how this project will build upon what has already been done. Additionally, a review of the literature will highlight how the project under consideration differs from other related projects.

3.2.9 Research Methodology/Methods

The connection between the research objectives and the research method should be evident. The reviewer must see this connection if the proposal is to be given any further consideration. It is

better here to risk stating the obvious than to risk the reviewer assuming that the approach and methodology have not been carefully developed and thought out. However, there are cases whereby the research itself is aimed at the development of method(s) and if so, this has to be clearly stated.

3.2.10 Duration

Students should be realistic in designing their programme of work. Overly optimistic notions of what the given research can accomplish will only detract from the proposal's chances of being approved. The proposal should distinguish between long-range research goals and the academic objectives for the award being sought.

3.2.11 Schedule of Activities

There should be a clear timeline and activities that will be accomplished during the research period. Students should try to be as detailed as possible about the schedule of the proposed work i.e. Indicating when the first step will be completed and when will subsequent steps start and so forth. For complex projects, a calendar detailing the projected sequence and interrelationship of events often gives the reviewer assurance that the investigator is capable of careful step-by-step planning.

3.2.12 Data Handling

Since the aim of undertaking scientific research is to collect data, students should be specific about the means of evaluating the data and coming up with derivatives and conclusions. They should try to imagine the questions or objections of a hostile critic and show that the research plan anticipates them.
The student should adhere to guidelines stipulated in Data Management Policy and Guidelines as approved by the NM-AIST Council.

3.2.13 Research Budget

To be complete, the proposal should have an estimated budget. It is essential to ensure that the budget is: realistic and activity-based; includes all sources of funding for the proposed study; includes all the operational costs of transport, equipment, subsistence allowances, etc. Emphasis is on standard or acceptable rates and justification for every single cost item. Regardless of the source of funding (sponsored/private), a student research proposal must have a full research budget. At least 50% of the research budget should be directed to research materials, reagents, equipment, consumables, bench fees, etc. and the rest should be for other activities such as transport, allowances to cater for accommodation for students, daily subsistence allowances for supervisors (if needed) and labour for fieldwork. Schools/Departments and supervisors must closely and appropriately guide students on how to prepare, justify and submit realistic research budgets based on specific research activities.

3.2.14 Citation and Referencing format

For uniformity and standardization, research proposals and dissertations/theses at the NM-AIST should follow the latest version of the **American Psychological Association (APA)** citation and referencing styles. The rules of APA styles are detailed in the Publication Manual of APA (www.apastyle.org), except for the school of CoCSE may use IEEE referencing style (https://journals.ieeeauthorcenter.ieee.org/your-role-in-article-production/ieee-editorial-style-manual/).

CHAPTER 4: PREPARATION AND SUBMISSION OF DISSERTATIONS/ THESES

4.1   General Information

Candidates must follow the specifications laid down in these guidelines when preparing dissertations/theses or project reports. Dissertations/theses or project reports that do not conform to specifications stipulated in these guidelines shall not be accepted for consideration of award of the NM-AIST degree. The term "Dissertation" is used in this context to mean a research report written and submitted for consideration in partial fulfilment of the requirements for the degree award. The term "Thesis" as used in these guidelines refers to a research report submitted by a Master's and PhD candidate that does not follow a complete scheduled coursework programme, in fulfilment of the requirements for the degree award.

4.2   General Requirements for Dissertation/Thesis or Project Report Preparation, Submission and Examination

Requirements for dissertation/thesis or project report, are stipulated in Academic Regulations on the requirements for the award of a Master's and PhD Degree of the NM-AIST.

At the end of the prescribed study period, a PhD candidate is required to prepare a dissertation/thesis, which shall be written in the British English language, in the form of a monograph. Candidates shall use gender-neutral language in writing their dissertations/theses unless the nature of the research requires the use of gender-specific language. The main text of the dissertation/thesis shall be written in the third-person form, viz. avoiding the use of words like I, me, mine, we, our, ours, etc.

The dissertations/thesis must be printed on A4 (210 x 297 mm), acid-free white quality paper.

Candidates should paginate the preliminaries (portions preceding the introduction) in lower case Roman numerals (i.e., i, ii, iii, etc.) beginning with the title page. The body of the Dissertation/thesis pages should be numbered in Arabic numerals (i.e., 1,2,3,4, etc) consecutively throughout. The page numbers should appear just below the centre of the lower margin.

The minimum requirement to be attained before a Master's or PhD candidate submits his/her dissertation or thesis for consideration of award of a degree of the NM-AIST shall be as prescribed in Academic Regulations.

4.3   Dissertation/Thesis or Project Report Text Format

When publishing the papers, students will be obliged to follow the given text format of the particular journals. However, the NM-AIST will provide a LaTeX template that may be used by students in preparing their dissertations/theses or project reports.

This should be consistent and it is recommended that the LaTeX or Microsoft Word typesetting system shall be used. When submitting the hard or loose bound copies for examination

and a properly bound copy for final submission, the dissertations/thesis or project report text must be in the following format:

(a) Word-processed

(b) In a font of 12 points (Times New Roman font type)

(c) Spaced at 1.5 line space and evenly distributed with full justification on both right and left sides

(d) Clear space where a new paragraph is starting (do not use the "Enter Button" of your keyboard). Define paragraph spacing using the Paragraph tab in a Word processor

(e) The left-hand margin must be 1` from the left edge of the paper

(f) The right-hand margin must be 1` from the right edge

(g) The top margin should be 1` from the top of the page

(h) The bottom margin must be 1` from the bottom of the paper

(i) Printed on single-sided right-hand pages only

(j) The main title of the dissertation or thesis must be written in capitals (well indented, centred) in 14 points bold fonts. A sub-title should be written in the capital followed by lower case letters i.e. Title Case. The title of the dissertation must not exceed 20 words

(k) The name of the author should follow the title, be inserted at the centre of the title page and written in Title Case, 12 points bold

4.4 Dissertation/Thesis or Project Report Structure

The dissertations/theses submitted for the award of the NM-AIST degrees must include the features described below:

4.4.1 Title/Cover Page

The cover page of the final dissertation/thesis document should be properly paper of good quality. The colour of the cover shall be recommended by Schools and approved by Senate.

(a) For dissertations, the following words must be inserted below the author's name: "A Dissertation Submitted in Partial Fulfilment of the Requirements for the Degree of (insert name of the degree) of the Nelson Mandela African Institution of Science and Technology, Arusha, Tanzania.

(b) For theses, the following words must be inserted below the author's name: "A Thesis Submitted in Fulfilment of the Requirements for the Degree of (insert name of the degree) of the Nelson Mandela African Institution of Science and Technology, Arusha, Tanzania.

(c) The month and year of completion of the dissertation i.e. year when the final error-free

dissertation/thesis was accepted by the university authority.

(d)　　The spine shall bear the following:

    (i)　　The surname and initials of the candidate;

    (ii)　　The degree for which the dissertation/thesis has been submitted; and

    (iii)　　The year of degree award.

The writing on the spine should read from the bottom to the top. Candidates may arrange the binding of their dissertations with any binding firm provided they follow the specifications indicated in these guidelines.

The subsequent pages shall follow the sequence as outlined below:

(a)　　Abstract

(b)　　Author's declaration and copyright

(c)　　Certification

(d)　　Acknowledgements

(e)　　Dedication (if any)

(f)　　Table of contents

(g)　　List of tables, figures, plates, illustrations, appendices

(h)　　List of abbreviations and symbols

(i)　　The main text is divided into chapters as follows:

    (i)　Chapter 1: Introduction

    (ii)　Chapter 2: Literature review

    (iii)　Chapter 3: Materials and Methods

    (iv)　Chapter 4: Results and Discussion

    (v)　Chapter 5: Conclusions and Recommendations

(j)　　References

(k)　　Appendices

(l)　　Research outputs will include but not limited to:

    (i)　　Journal papers

    (ii)　　Conference papers

    (iii)　　Poster presentations

4.4.2　Abstract

The abstract should be concise but comprehensive. It should be on one page, if possible. It should highlight the important points of the dissertation, including the key objectives, study

area, period, methodology, results and conclusions. The abstract should be no more than 250 and 350 words for a Master's and PhD dissertation/thesis, respectively.

4.4.3 Declaration by the Candidate

Every dissertation/thesis submitted for a postgraduate degree at the NM-AIST must be accompanied by a declaration by the candidate to the satisfaction of the Senate, stating that it is the candidate's original work and that it has not been submitted for consideration of a similar degree award in any other University.

4.4.4 Statement of Copyright

The dissertation/thesis shall contain the following statement of copyright by the author: "This dissertation/thesis is copyright material protected under the Berne Convention, the Copyright Act of 1999 and other international and national enactments, in that behalf, on intellectual property. It must not be reproduced by any means, in full or in part, except for short extracts in fair dealing; for researcher private study, critical scholarly review or discourse with an acknowledgement, without the written permission of the office of Deputy Vice-Chancellor for Academic, Research and Innovation on behalf of both the author and the NM-AIST.

4.4.5 Certification

The supervisor(s) should certify that they have read the dissertation/thesis, and found it to be in a form acceptable for examination. The statement is for the initial submission; at the final submission, the supervisor should sign again and certify for acceptance.

4.4.6 Acknowledgments

In this section, the candidate should acknowledge the people or institutions that rendered support or other assistance, which made the execution of the dissertation/thesis work possible.

4.4.7 Dedication (Optional)

In this section, a candidate may or may not wish to dedicate his/her work.

4.4.8 Table of Contents, List of Tables, Figures, and Illustrations

The candidate should include a Table of Contents. This can be generated automatically from the text or prepared manually. The list of tables, figures and illustrations should be arranged in the same format as the Table of Contents.

4.4.9 List of Abbreviations and Symbols

This section should include all abbreviations and symbols used in the main document as well as definitions of keywords.

4.4.10 Body of Text

Tables, figures, diagrams and plates should be numbered in separate sequences and should be cited/ referred to in the text. Each table and illustration should have a full caption.

The first chapter of the document should be a comprehensive introduction which consists of the Background of the Problem, Statement of the Problem, Rationale of the Study, Objectives (objectives must be stratified to distinguish between General and Specific objectives), Research Questions (and/or Hypothesis) and Significance of the study and delineation of the study. Proceeding chapters shall be in the following order: Literature Review, Materials and Methods, Results and Discussion and Conclusion and Recommendations. All published papers, conference papers and posters shall be attached as research outputs after appendices immediately after the References and Appendices.

The maximum heading levels of sections should not exceed 3, for example, 1.1.1. In the case of subsections then the sequence should be starting with Roman letters (small), italics and then bullets.

Students need to ensure that typescripts are legible and that the fonts, as well as the format, are consistent throughout.

Students should be able to itemise within a paragraph, use some forms, for instance, the (a), (b), (c). Consecutive short sentences can also be itemised by starting them with a bullet point aligned with the left-hand column margin and ending them with a semi-colon.

4.4.11 References

All sources cited in the text should be included on the list of references.

4.4.12 Appendices

Appendices should contain detailed data or information that explains the summaries provided in the main text. All appendices must be referred to in the text.

4.4.13 Footnotes

(a)   The footnotes should be included in the text only if their use is unavoidable.

(b)   The footnotes should be numbered consecutively with a superscript number at the relevant author's name or point in the text.

(c)   They should be separated from the text by a line across half the page.

4.4.14 Tables

(a)   Each table should be typed on a separate sheet in case it covers half a page or more.

(b)   Tables should be numbered consecutively using Arabic numbers (e.g. 1, 2, 3, etc) in the same order they are referred to in the text.

(c)   Each table should bear adequate and self-explanatory captions placed above it. For tables that are presented in a landscape format (horizontal), the caption should be typed at the left-hand margin length-wise.

(d)   Only the first letter of the first word of captions and column headings in a table except where otherwise necessary should be capitalised.

(e)   The fewest possible lines should be used to avoid the use of vertical lines to separate columns.

(f)   The acknowledgements of a source should be placed below tables, using the example; Source: Mosha and Anita (1992), etc.

(g)   References for tables in the text should be given in full only in the references list at the end of the dissertation and not as footnotes to the text.

(h)   Authors should take notice of limitations set by the size and layout of the document. Large tables should be avoided in the main text and if necessary they should be placed as Appendices at the end of the manuscript. A table in the text should not exceed the printed area of the page. Fold-out is not accepted in the main text. If any data are to be presented in the table which exceeds the printed area of the page, an attempt should be made to divide the data to be presented in two or more tables or reduce the size using smaller fonts or reduce using photocopying machines to the readable extent.

(i)   Table design should follow a scientific publication format where vertical rules should be avoided.

(j)   All tables must be referenced (cited) in the main text.

4.4.15 Illustrations and Figures

(a)   Illustrations and figures should be presented on separate sheets in case they cover half a page or more.

(b)   Figures should be numbered sequentially in Arabic numbers (e.g. Figure 1, 2, 3, etc.).

(c)   Captions should be typed below figures.

(d)   Capital letters should be used for the first letter of captions, except where otherwise necessary.

(e)   All illustrations and figures must be referenced (cited) in the main text and ordered in the sequence of their appearance.

(f)   When referring to illustrations or figures in the main text, use the form for example Fig. 3, Fig. 4, etc.

(g)   As much as possible symbols and lines should be standard, large and thick enough. Free hand-drawn lines should be avoided.

(h)   Photographs are only acceptable if they have good contrast and intensity. Only sharp

and glossy copies should be used.

(i) All figures and illustrations should be of scientific publication-quality i.e., with a resolution of 300 dpi and above.

4.4.16 Units of Measure

(a) The System International (SI) units should be used.

(b) The Units should be spelt out except where they are preceded by numbers.

(c) Note that abbreviations for units should be the same in singular and plural e.g. write Kg, not Kgs.

(d) Express rates or amount per unit in the form of 50 kg/ha or 50 kg N/ha or 50 kg ha-1

4.4.17 Numbers

(a) In numbers with four digits on either side of the decimal point, digits should be run together, e.g. 1000; 8285; 0.3284

(b) In numbers with more than four digits, you should leave a space (not a comma) between each group of three digits on either side of the decimal point e.g. 1 262 843; 256 421; 10 000; 0.032 86.

(c) In columns of numbers (e.g. in tables) containing four or more than four digits, digits should be grouped into three as follows: 28 0321 422862

(d) Use a stop, not a comma, where there is a decimal point e.g. write 0.2, not 0,2.

(e) Precede the decimal point with a zero, for numbers below unity, e.g.0.62 not .62.

(f) Spell out numbers from zero to nine, but use figures for higher numbers, e.g. six plots; 10 plots.

(g) In a series of three or more numbers, use figures irrespective of magnitude, e.g. "In trials with 9 cultivars in Tanzania, 7 in Uganda ......".

(h) Figures should be used whenever a number is followed by a unit of measure and for days, years, dates, page numbers, classes, etc., e.g. 5 kg, 2 g, 3days, 1 year, 6 January, page 13, type 7, etc.

(i) Spell out numbers that occur at the beginning of sentences.

(j) Express fractions as decimals, though percentages and simple fractions can still be used.

(k) For simple fractions use the form one-quarter, two-thirds, not ½, ¼,2/3 etc.

(l) Where possible, avoid large figures ending in several zeros. Either spell them out or use an exponential for part of the number; e.g. for1600000 write 1.6 million or 1.6 x 10^6.

4.4.18 Percentage

Use the % symbol only with figures, e.g., 62%, and spell out the words " per cent" or "percentage" when they occur without figures.

4.4.19 Formulae and equations

The internationally accepted format should be used if specified by publishers or textbooks. All equations must be written (inserted) using the Equation Editor tool in a Word processor. Only standard symbols should be used.

4.4.20 Time

The universally accepted 24-h clock format should be used, e.g. 0730 h, 2345 h, etc.

4.4.21 Date and Year

The format for the date to be used should be 22 January, 2013.

4.4.22 Year

  (a)   The year should be written as the 1990s, not in the 1990's

  (b)   For two calendar years, it should be written as 2001-02, not 2001 02

  (c)   For single non-calendar years, i.e. parts of two years or seasons that extend over two years, it should be written as 2001/02 not 2001 2

  (d)   For two non-calendar years, this should be written as 2000/01 – 2001/02.

4.4.23 Local Terms

If local or unfamiliar terms are used, e.g. for plant or animal species, food products, etc., the scientific names should be written in italics or underlined or a description provided when the terms are first used.

4.4.24 Abbreviations

  (a)   A selected list of symbols and prefixes which, in addition to those for SI units, can ordinarily be used. However, these should be spelt out in full if they are used in an unfamiliar context.

  (b)   Where abbreviations of organisations names have to be used, technical terms etc. should be spelt out in full the first time they occur, followed by the abbreviation in brackets, e.g. Nelson Mandela African Institution of Science and Technology (NM-AIST); sugarcane mosaic virus (SCMV), etc. Thereafter, only the abbreviation can be used.

  (c)   In acronyms, degree designations, etc. it is usual to omit full stops, e.g. USA, not U.S.A., PhD not PhD.

(d) Do not use any abbreviations in the title, the abstract or at the beginning of a sentence.

(e) Abbreviations and symbols should be spelt-out at the beginning of sentences.

(f) The abbreviation should be followed by a period (For Example Dr. not Dr, Mr. not Mr or Prof., not Prof).

(g) Never use an extra period when a sentence ends with an abbreviation because your abbreviation already has a period, thus there is no need to use an extra period.

(h) A list of abbreviations or symbols should be sorted in alphabetical order that gives their definitions.

(i) After defining an abbreviation or acronym for the first time in your main text, you no longer need to use the full term, except at the beginning of a sentence.

4.4.25 References

(a) List all references cited in full at the end of the text, and not as footnotes to the text pages, tables, or figures.

(b) The references should be arranged alphabetically by authors. All authors, surnames and initials should be included (i.e., never use et al.), followed by the year of publication in parentheses; a full stop, the title of the paper; report; book; etc. (as used in the original document and should not be abbreviated), the journal volume number; the issue number (only if the pagination starts afresh in each issue concerned).

(c) If the reference is to a book, the town of publication, the publisher, the edition number (if not the first) should be added. Journal and book titles should be underlined or italicised.

(d) To avoid errors in citations and references, a reference manager e.g., EndNote, Zotero, or Mendeley should be used throughout.

4.5 Submission of Dissertation/Thesis or Project Report

Respective schools/departments should ensure time is provided for dissertation/thesis or project report preparation, submission and examination before the graduation as stipulated in the Academic Regulations. The supervisor has the mandate to decide whether the student is ready to submit or not.

4.5.1 Submission for Examination

The candidate should submit at least four (4) hard-loose bound copies to the respective Department for examination. However, candidates should not submit their dissertations for examination until their main supervisors have read them and certified in writing that the dissertation is ready for examination. Regulations regarding submission and examination of dissertations/theses are presented in the Prospectus.

4.5.2 Final Submission

The candidate shall submit at least four (4) final properly bound copies of dissertations/thesis or project report to the respective School for distribution to relevant offices and individuals after having satisfactorily completed all the corrections/revisions recommended by examiners and after being verified by the Internal Examiner. Final copies of the dissertations/theses must be submitted one month before the official date of the graduation ceremony.

The final submission of dissertations/theses shall comprise the following:

(i)   For Masters:

(a)   Error-free certification written by a supervisor to the DVC-ARI through Internal Examiner of the candidate's the dissertation/Project report and Dean of School.

(b)   Soft copy of the dissertation/thesis in PDF and word formats and supporting research materials (e.g., computer codes and data)

(c)   At least four (4) hardbound copies as prescribed by the NM-AIST standards.

(d)   Evidence of payment of all University fees from the Bursar's office and certification that there are no outstanding dues by the candidate.

(e)   Abstract in both Swahili and English language.

(ii)   For PhD:

(a)   Error-free certification written by the supervisor to the DVC-ARI through Internal Examiner of the candidate's dissertation and Dean of School.

(b)   Soft copy of the dissertation/thesis in PDF and word formats and supporting research materials (e.g., computer codes and data)

(c)   At least four (4) hardbound copies as prescribed by the NM-AIST standards.

(d)   Evidence of payment of all University fees from the Bursar's office and certification that there are no outstanding dues by the candidate.

(e)   Abstract in both Swahili and English language.

CHAPTER 5: PREPARATION AND SUBMISSION FORMAT FOR FINAL PROJECT REPORT

5.1   General Information

Candidates must follow the specifications laid down in these guidelines when preparing project reports. Project reports that do not conform to specifications stipulated in these guidelines shall not be accepted for consideration of award of the NM-AIST degree. The term "Project Report" is used in this context to mean a Project/Research report written and submitted for consideration in partial fulfilment of the requirements for the Master's degree award.

5.2   General Requirements for Project Report Preparation, Submission and Examination

Requirements for project report, are stipulated in Academic Regulations on the requirements for the award of a Master's and PhD Degree of the NM-AIST.

At the end of the prescribed study period, a master's candidate is required to prepare a Project report, which shall be written in the British English language, in the form of a monograph. Candidates shall use gender-neutral language in writing their dissertations/theses unless the nature of the research requires the use of gender-specific language. The main text of the dissertation/thesis shall be written in the third-person form, viz. avoiding the use of words like I, me, mine, we, our, ours, etc.

The Project Report must be printed on A4 (210 x 297 mm), acid-free white quality paper.

Candidates should paginate the preliminaries (portions preceding the introduction) in lower case Roman numerals (i.e., i, ii, iii, etc.) beginning with the title page. The body of the Project report pages should be numbered in Arabic numerals (i.e., 1,2,3,4, etc) consecutively throughout. The page numbers should appear just below the centre of the lower margin.

The minimum requirement to be attained before a Master's candidate submits his/her Project report for consideration of award of a degree of the NM-AIST shall be as prescribed in Academic Regulations.

5.3   Project Report Text Format

When publishing the papers, students will be obliged to follow the given text format of the particular journals. However, the NM-AIST will provide a LaTeX template that may be used by students in preparing their project reports.

This should be consistent and it is recommended that the LaTeX or Microsoft Word typesetting system shall be used. When submitting the hard or loose bound copies for examination and a properly bound copy for final submission, the project report text must be in the following format:

(a)   Word-processed

(b)   In a font of 12 points (Times New Roman font type)

(c)   Spaced at 1.5 line space and evenly distributed with full justification on both right and left sides

(d)   Clear space where a new paragraph is starting (do not use the "Enter Button" of your keyboard). Define paragraph spacing using the Paragraph tab in a Word processor

(e)   The left-hand margin must be 1` from the left edge of the paper

(f)   The right-hand margin must be 1` from the right edge

(g)   The top margin should be 1` from the top of the page

(h)   The bottom margin must be 1` from the bottom of the paper

(i)   Printed on single-sided right-hand pages only

(j)   The main title of the dissertation or thesis must be written in capitals (well indented, centred) in 14 points bold fonts. A sub-title should be written in the capital followed by lower case letters i.e. Title Case. The title of the dissertation must not exceed 20 words

(k)   The name of the author should follow the title, be inserted at the centre of the title page and written in Title Case, 12 points bold

5.4   Project Report Structure

The Project Report submitted for the award of the NM-AIST degrees must include the features described below:

5.4.1 Title/Cover Page

The cover page of the final project report document should be properly paper of good quality. The colour of the cover shall be recommended by Schools and approved by Senate.

(a) For project reports, the following words must be inserted below the author's name: "A Project Report Submitted in Partial Fulfilment of the Requirements for the Degree of (insert name of the degree) of the Nelson Mandela African Institution of Science and Technology, Arusha, Tanzania.
(b) The month and year of completion of the project i.e. year when the final error-free of project report was accepted by the university authority.
(c) The spine shall be bearing the following: (i) The surname and initials of the candidate; (ii) The degree for which the project report has been submitted; and (iii) The year of degree award.

The writing on the spine should read from the bottom to the top. Candidates may arrange the binding of their project report with any binding firm provided they follow the specifications

indicated in these guidelines.

The subsequent pages shall follow the sequence as outlined below:
(a) Abstract
(b) Author's Declaration
(c) Copyright
(d) Certification
(e) Acknowledgements
(f) Dedication (if any)
(g) Table of Contents
(h) List of Tables (if any)
(i) List of Figures (if any)
(j) List of Plates (if any)
(k) List of Illustrations (if any)
(l) List of Appendices (if any)
(m) List of Abbreviations and Symbols
(n) Main text divided into chapters as follows:
    (i) Chapter One: Introduction
    (ii) Chapter Two: Literature Review
    (iii) Chapter Three: Materials and Methods
    (iv) Chapter Four: Results and Discussion
    (v) Chapter Five: Conclusion and Recommendations
(o) References
(p) Appendices will include but not limited to
    (i) Research Outputs
    (ii) Journal Papers
    (iii) Conference Papers
    (iv) Poster Presentations

5.4.2 Abstract

The abstract should be concise but comprehensive. It should be on one page, if possible. It should highlight the important points of the project report, including the key objectives, study area, period, methodology, results and conclusions. The abstract should be no more than 250 words for a Master's project report.

5.4.3 Declaration by the Candidate

Every project report submitted for a postgraduate degree at NM-AIST must be accompanied by a declaration by the candidate to the satisfaction of the Senate, stating that it is the candidate's original work and that it has not been submitted for consideration of a similar degree award in any other University.

5.4.4 Statement of Copyright

The project report shall contain the following statement of copyright by the author: "This project report is copyright material protected under the Berne Convention, the Copyright Act of 1999 and other international and national enactments, in that behalf, on intellectual property. It must not be reproduced by any means, in full or in part, except for short extracts in fair dealing; for researcher private study, critical scholarly review or discourse with an acknowledgement, without the written permission of the office of Deputy Vice-Chancellor for Academic, Research and Innovation on behalf of both the author and NM-AIST.

5.4.5 Certification

The supervisor(s) should certify that they have read the project report, and found it to be in a form acceptable for examination. The statement is for the initial submission; at the final submission, the supervisor should sign again and certify for acceptance.

5.4.6 Acknowledgments

In this section, the candidate should acknowledge the people or institutions that rendered support or other assistance, which made the execution of the project work possible.

5.4.7 Dedication (Optional)

In this section, a candidate may or may not wish to dedicate his/her work.

5.4.8 Table of Contents, List of Tables, Figures and Illustrations

The candidate should include a Table of Contents. This can be generated automatically from the text or prepared manually. The list of tables, figures and illustrations should be arranged in the same format as the Table of Contents.

5.4.9 List of Abbreviations and Symbols

This section should include all abbreviations and symbols used in the main document as well as definitions of keywords.

5.4.10 Body of Text

Tables, figures, diagrams and plates should be numbered in separate sequences and should be cited/ referred to in the text. Each table and illustration should have a full caption.

The first chapter of the document should be a comprehensive introduction which consists of the Background of the Problem, Statement of the Problem, Rationale of the Study, Objectives of the Study, Research Questions, Hypothesis (for the study that require testing of hypothesis), Significance of the Study and Delineanation of the Study, in that order.

Proceeding chapters shall be in the following sequence: **Literature Review** consists of the Theoretical Literature Review, Empirical Literature Review and Conceptual Framework. **Survey, Materials and Methods** consist of the Area of the Study, Research Methods, Data Collection, Data Analysis, System Development Approach, Ethical and Ethical Consideration. **Results and Discussion**, and **Conclusion and Recommendations**.

All published papers, conference papers and posters shall be attached as project outputs after appendices immediately after the References and Appendices.

The maximum heading levels of sections should not exceed 3, for example, 1.1.1. In the case of subsections then the sequence should be starting with Roman letters (small), italics and then bullets.

Students need to ensure that typescripts are legible and that the fonts, as well as the format, are consistent throughout.

Students should be able to itemise within a paragraph, use some forms, for instance, the (a), (b), (c). Consecutive short sentences can also be itemised by starting them with a bullet point aligned with the left-hand column margin and ending them with a semi-colon.

5.4.11 References
All sources cited in the text should be included in the list of references.

5.4.12 Appendices
Appendices should contain detailed data or information that explains the summaries provided in the main text. All appendices must be referred to in the text.

5.4.13 Footnotes
(a) The footnotes should be included in the text only if their use is unavoidable.
(b) The footnotes should be numbered consecutively with a superscript number at the relevant author's name or point in the text.
(c) They should be separated from the text by a line across half the page.

5.4.14 Tables
(a) Each table should be typed on a separate sheet in case it covers half a page or more.
(b) Tables should be numbered consecutively using Arabic numbers (e.g. 1, 2, 3, etc) in the same order they are referred to in the text.
(c) Each table should bear adequate and self-explanatory captions above. For tables that are presented in a landscape format (horizontal), the caption should be typed at the left-hand margin length-wise.
(d) Only the first letter of the first word of captions and of column headings in a table except where

otherwise necessary should be capitalised.

(e) The fewest possible lines should be used to avoid the use of vertical lines to separate columns.

(f) The acknowledgements of a source should be placed below tables, using the example; Source: Mosha and Anita (1992), etc.

(g) References for tables in the text should be given in full only in the references list at the end of the project report and not as footnotes to the text.

(h) Authors should take notice of limitations set by the size and layout of the document. Large tables should be avoided in the main text and if necessary they should be placed as Appendices at the end of the manuscript. A table in the text should not exceed the printed area of the page. Fold-out is not accepted in the main text. If any data are to be presented in the table which exceeds the printed area of the page, an attempt should be made to divide the data to be presented in two or more tables or reduce the size using smaller fonts or reduce using photocopying machines to the readable extent.

5.4.15 Illustrations

(a) Illustrations should be presented on separate sheets in case they cover half a page or more.

(b) Figures should be numbered sequentially in Arabic numbers (e.g. Figures 1,2,3, etc.) and refer to them in the text in order of appearance.

(c) Captions should be typed below figures.

(d) Capital letters should be used for the first letter of captions, except where otherwise necessary.

(e) When referring to figures in the text, use the form, for example, Fig. 3: etc.

(f) As much as possible symbols and lines should be standard, large and thick enough. Free hand-drawn lines should be avoided.

(g) Photographs are only acceptable if they have good contrast and intensity. Only sharp and glossy copies should be used.

5.4.16 Units of Measure

(a) The System International (SI) units should be used.

(b) The Units should be spelt out except where they are preceded by numbers.

(c) Note that abbreviations for units should be the same in singular and plural e.g. write Kg, not Kgs.

(d) Express rates or amount per unit in the form of 50 kg/ha or 50 kg N/ha or 50 kg ha-1

5.4.17 Numbers

(a) In numbers with four digits on either side of the decimal point, digits should be run together, e.g. 1000; 8285; 0.3284

(b) In numbers with more than four digits, you should leave a space (not a comma) between each group of three digits on either side of the decimal point e.g. 1 262 843; 256 421; 10 000; 0.032 86. (c) In columns of numbers (e.g. in tables) containing four or more than four digits, digits should be grouped into three as follows: 28 0321 422862

(d) Use a stop, not a comma, where there is a decimal point e.g. write 0.2, not 0,2.

(e) Precede the decimal point with a zero, for numbers below unity, e.g.0.62 not .62.

(f) Spell out numbers from zero to nine, but use figures for higher numbers, e.g. six plots; 10 plots.

(g) In a series of three or more numbers, use figures irrespective of magnitude, e.g. "In trials with 9 cultivars in Tanzania, 7 in Uganda ......".

(h) Figures should be used whenever a number is followed by a unit of measure and for days, years, dates, page numbers, classes, etc., e.g. 5 kg, 2 g, 3days, 1 year, 6 January, page 13, type 7, etc.

(i) Spell out numbers that occur at the beginning of sentences.

(j) Express fractions as decimals, though percentages and simple fractions can still be used.

(k) For simple fractions use the form one-quarter, two-thirds, not ½, ¼,2/3 etc.

(l) Where possible, avoid large figures ending in several zeros. Either spell them out or use an exponential for part of the number; e.g. for1600000 write 1.6 million or 1.6 x 106.

5.4.18 Percentage

Use the % symbol only with figures, e.g. 62%, and spell out the words per cent or percentage when they occur without figures.

5.4.19 Formulae

The internationally accepted format should be used if specified by publishers or textbooks.

5.4.20 Time

The universally accepted 24-h clock format should be used, e.g. 0730 h, 2345 h, etc.

5.4.21 Date and Year

The format for the date to be used should be 22 January, 2013.

5.4.22 Year

(a) The year should be written as the 1990s not in the 1990's

(b) For two calendar years, it should be written as 2001-02, not 2001 02

(c) For single non-calendar years, i.e. parts of two years or seasons that extend over two years, it should be written as 2001/02 not 2001 2

(d) For two non-calendar years, this should be written as 2000/01 – 2001/02.

5.4.23 Local Terms

If local or unfamiliar terms are used, e.g. for plant or animal species, food products, etc., the scientific names should be written in italics or underlined or a description provided when the terms are first used.

5.4.24 Abbreviations

(a) A selected list of symbols and prefixes which, in addition to those for SI units, can ordinarily be used. However, these should be spelt out in full if they are used in an unfamiliar context.

(b) Where abbreviations of organisations names have to be used, technical terms etc. should be spelt out in full the first time they occur, followed by the abbreviation in brackets, e.g. Nelson Mandela African Institution of Science and Technology (NM-AIST); sugarcane mosaic virus (SCMV), etc. Thereafter, only the abbreviation can be used.

(c) In acronyms, degree designations, etc. it is usual to omit full stops, e.g. USA, not U.S.A., PhD not PhD.

5.4.25 References

(a) List all references cited in full at the end of the text, and not as footnotes to the text pages, tables or figures,

(b) The references should be arranged alphabetically by authors. Authors, surnames and initials should be included (i.e. never use et al.), as per APA System/IEEE Referencing style.

(c) If the reference is to a book, the town of publication, the publisher, the edition number (if not the first) should be added. Journal and book titles should be underlined or italicised.

5.4.26 Project Report Text Format

When publishing the papers, students will be obliged to follow the given text format of the particular journals. However, NM-AIST will provide a template to be used by all students in preparing th Project report. This should be consistent and it is recommended that the LaTeX or Microsoft word typesetting system can be used.

When submitting the spiral-bound copies for examination and Properly bound for final submission the project report text must be in the following format:

(a) Word-processed

(b) In a font of 12 points (Times New Roman font type)

(c) Spaced at 1.5 line space and evenly distributed with full justification on both right and left sides

(d) Clear space of 12 points where a new paragraph starts

(e) The left-hand margin must be 1" from the left edge of the paper

(f) The right-hand margin must be 1" from the right edge

(g) The top margin should be 1" from the top of the page

(h) The bottom margin must be 1" from the bottom of the paper

(i) Printed on single-sided right-hand pages only

(j) The main title of the dissertation or thesis must be written in capitals (well indented, centred) in 14 points bold fonts. A sub-title should be written in the capital followed by lower case letters i.e. Title Case. The title of the project report must not exceed 20 words.

(k) The name of the author should follow the title, be inserted at the centre of the title page and

written in Title Case, 12 points bold.

APPENDICES

Appendix 1: SRC Form 1.1: Registration of Topic for Dissertation/Project/Thesis

Student's surname		**Student Registration No.**	
First names			
Postal address:			
Phone: **Cell phone:**		**E-mail:**	
Gender: M/F			
Nationality:			
Prior qualifications:			
The provisional title of dissertation/thesis or project report			
School			
Department			
Degree			
Principal supervisor			
Position		**Qualifications**	
Co-supervisor(s)			
Position		**Qualifications**	
Supervisor comments			

Signed
Principal Supervisor _ **Date:** _ _ _ _ _ _ _ _ _ _ _
Signed
Student   _ **Date:** _ _ _ _ _ _ _ _ _ _ _

School approval _ _ _ _ _ _ _ _ _ _ _ Date of Minutes in which recorded: _ _ _ _ _ _ _ _ _ _ _

Signed   _ Date: _ _ _ _ _ _ _ _ _ _ _
Chair, Research Group

Signed
Dean _ **Date:** _ _ _ _ _ _ _ _ _ _ _

Appendix 2: SRC Form 1.2: Registration of Proposal for Dissertation/Project/Thesis

Student's surname		Student Registration	
First names			
Postal address:			
Phone: Cell phone:		E-mail:	
Gender: M/F			
Nationality:			
Prior qualifications:			
Confirmed title of dissertation/thesis or project report:			
School			
Department			
Degree			
Principal supervisor			
Position		Qualifications	
Co-supervisor(s)			
Position		Qualifications	
Supervisor comments			

Summary (Insert a summary of approximately 250 words)

Key terms (max. 10 words or phrases)	

Student undertaking:

I, the undersigned, certify that:

This proposal for the dissertation/thesis has not been submitted to any other educational institution for a qualification.

All publications from postgraduate studies will be regarded as the property of the NM-AIST.

Where intellectual property is developed under the supervision of the NM-AIST involving institutional or government expenditure, such IP will be owned by the NM-AIST.

I understand that the dissertation/thesis is the copyright of the NM-AIST and may not be published or reproduced without the prior permission of the university.

I understand that I am required to submit an article for publication based on my research results, with the NM-AIST affiliation clearly stated.

I understand that plagiarism is wrong, and incurs severe penalties including possible suspension or expulsion.

I shall list all assistance obtained, such as editorial, financial, and statistical assistance, and assistance from other institutions or persons, on the Acknowledgements page of the dissertation.

I have read and taken cognizance of the responsibilities of students and supervisors, as included in the (Roles of the various parties in the development of students' research proposals, conduct of students' research, and preparation of dissertations/theses).

I will follow the NM-AIST guidelines for writing thesis/dissertations.

I have read and taken note of the "Guide to postgraduate studies".

I understand that all subsequent registrations are not automatic, but pending the approval of my supervisor(s) and based on suitable progress.

I understand that non-compliance with the Memorandum of Understanding may result in deregistration.

OPTIONAL: Where this is considered necessary by the Supervisor, specify any financial assistance to be provided to support this study and how these funds are to be used

YEAR	CATEGORY	USE	SOURCE	AMOUNT
	Bursaries & salaries			
	Computers & stationery			
	Laboratory costs			
	Fieldwork			
	Equipment			
	Conferences & courses			
	Other running costs			
	TOTAL			

Signed _ **Date:** _ _ _ _ _ _ _ _ _ _ _
Candidate

Signed _ **Date:** _ _ _ _ _ _ _ _ _ _ _
Internal Supervisor

School approval:

Reviewers (please print names)	Qualifications
Recommendations	
Review Panel Chair	**Date**

Date on which proposal was presented in the School:	
Date of School Board Minutes in which recorded:	

Signed _ Date: _ _ _ _ _ _ _ _ _ _ _
Chair, Research Group

Signed
Dean _ Date: _ _ _ _ _ _ _ _ _ _ _