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

ONLINE AND BLENDED LEARNING GUIDELINE

DECEMBER, 2023

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ACRONYMS

EE	External Examiner
GPA	Grade Point Average
IE	Internal Examiner
NM-AIST	Nelson Mandela African Institution of Science and Technology
PDF	Portable Document Format
PhD	Doctor of Philosophy
SETI	Science, Engineering, Technology, and Innovation
STLC	Senate Teaching and Learning Committee
DVC-ARI	Deputy Vice Chancellor-Academics, Research and Innovation
DVC-PFA	Deputy Vice Chancellor-Planning, Finance and Administration
TCU	Tanzania Commission for Universities
OAS	Online Application System
SIMS	Scholars Information Management System

DEFINITION OF KEY TERMS

Academic programme: The design of learning content, which is multi- dimensional and includes intentions, structure of content, delivery modes, academic resources and assessment modes.

Assignment: Task that has been given to a scholar in the form of homework, tests or questions.

Back riding: Falsifying, or attempting to falsify, attendance records, graded exercises of any kind, or any information or document intended to excuse the scholar from participation in any academic exercise.

Benchmark: Point of reference against which something may be measured, that is, minimum standard

Cheating: An activity that is intended to gain unfair academic advantage through: (a) copying answers, data, or other information (or allowing others to do so) during an examination, quiz, laboratory experiment, or any other academic exercise in which the scholar is not expressly permitted to work jointly with others; (b) using any device, implement, or other form of study aid during an examination, quiz, laboratory experiment, or any other academic exercise without the academic member of staff permission; and (c) disseminating or receiving answers, data, or other information by any means other than those expressly permitted by the professor as part of any academic exercise

Coursework: Work that is assigned or performed as part of a course of study for the purpose of continuous assessment in the learning process.

Credit accumulation: The process of achieving credits over time in relation to a planned programme of study.

Credit transfer: The process by which learners may transfer credit value(s) from one programme to another, both programmes belonging to the same university or from one learning environment to another, i.e. involving programme of two different universities having received recognition for knowledge, skill or competence acquired, which may occur within a programme of study, across a university, between universities within a single country or on an international basis.

Credit value: The number of credits awarded for successful achievement of particular learning outcomes.

Credit: Measurement unit for 'notional' or 'average learning' time, which includes all the activities that the learner is expected to undertake in order to achieve the learning outcomes. A credit in the University Qualifications Framework (UQF) equates to learning outcomes achievable in 10 hours of learning time determined on the basis of a learner with an average learning speed, that is, one credit equals 10 notional hours.

Curriculum: Any documented programme of study.

Degree: A qualification awarded to scholars upon successful completion of a course of study in higher education, normally at a college or university.

Directorate: A non- autonomous governance unit within the premises of or in close proximity to a university established by a legal instrument of a university and such an institution may also be established in respect of an autonomous institute or centre.

Discipline: Branch of knowledge, skills and competences acquired through teaching or learning at university or professional level through specific programmes (e.g. Agriculture, Education, Law, ICT etc.).

Dissertation: Formal, written treatise covering a subject in great detail,

and is submitted usually in the course of qualifying for specific higher awards. Awards associated with dissertation involve taught courses prescribed by the institution and/or dissertation based on research.

Distance Education: Mode of learning where the scholars are not present in person at the site and do not have a direct face to face contact with the teacher but can use various modes to access education, like e- learning, video conferencing, e-mail, etc. In this mode of education, the scholar is not required to attend the classes regularly, and the evaluation of his/her work is done through the tests conducted at regular intervals.

Distance Learning: Mode of education delivering, in which the source of information and the scholars are not physically present, as they are separated either by time or distance or even by both.

Double Degree: Degree obtained through a collaboration arrangement between two or more universities awarded separately by each of the collaborating universities.

Education and training: Any process by which learners may acquire knowledge, skills or competence.

e-Learning: Learning by utilising electronic technologies to access educational curriculum outside a traditional classroom and in most cases, it refers to a course, programme or degree delivered completely online.

Forgery: Falsifying and/or fabricating data, records, or any information relevant to the scholar's participation in any course or academic exercise, or tampering with such information as collected or distributed by an academic member of staff.

Guideline: A statement that indicates how a particular process should be undertaken or done according to a set routine or sound practice.

Impersonation: Assuming another individual's identity or allowing another person to do so on one's own behalf for the purpose of fulfilling any academic requirement or in any way enhancing the scholar's grade or academic standing.

Independent study: Method of learning whereby a scholar pursues certain topics or subject areas independently.

Learning outcome: Statement that describes significant and essential learning that learners have achieved and can reliably demonstrate what the learner will know and be able to do by the end of a course or study programme.

Facilitator: Formal instruction in a class/facilitator room, theatre or assembly hall whereby a qualified member of facilitator talks to a large class and there is little or no group discussion.

Library: A collection of sources of information and similar resources made accessible to a defined community for reference or borrowing providing physical or digital access to material and may be a physical building or room, or a virtual space or both whose collection can include books, periodicals, newspapers, etc.

Massification: Exponential increase is scholar enrolment beyond the institution's normal capacity.

Open learning: An independent learning process by a learner through a diversity of online or print materials outside the classroom and without direct instruction by a tutor or teacher.

Outreach: An activity by an academic institution (done by staff or /and scholars) that provides service or advice to members of the society or community or industry.

Plagiarism: To deliberately present work, words, ideas, theories, etc., derived in whole or in part from a source external to the scholar as though they are the scholar's own efforts.

Principle: Fundamental context that a plan, operation or system is based on.

Programme delivery cycle: Time it takes to teach all courses or modules of the programme.

Programme: Curriculum of studies that leads to some form of recognition through an academic, technical or professional award in a discipline.

Quality Assurance: Process of establishing stakeholder confidence that provision of education (input, process and outcomes) fulfills expectations or measures up to threshold minimum requirements

Quality Audit: Process for checking that procedures are in place to assure quality, integrity of standards of provision and outcomes.

Recognition of Prior Learning (RPL): Process of assessing, accrediting and certifying the previous learning of a learner however (through formal, non-formal or informal learning) and wherever obtained for purposes of access to higher education and career progression.

Research Seminar: A platform where scholars present their research works in international workshops, national workshops, exhibitions or journal clubs.

Scholarly Work: Any work (including but not limited to research proposals and reports, dissertations/theses, and other literary work) that has been written and submitted for either publication or assessment for academic qualifications.

Semester: Part of the academic year structured into a minimum of 15 teaching weeks.

Seminar: Small-group teaching situation in which a subject is discussed, in depth, or a problem collectively addressed and solved by the participants.

Standard: Specification of aspects, elements or principles to which an institution, programme, higher education institution or quality assurance agency should conform or by which quality is judged.

Thesis: Document presenting the author's research and findings submitted in support of the outcome of the study of candidature for an academic award or professional qualification.

Tutorial: Same as seminar.

Unit: A non- autonomous governance unit within a college, school, faculty, directorate, department or campus centre established by a legal instrument of a university and such an institution may also be established in respect of an autonomous institute or centre.

University Qualifications Framework: Tool for comparing levels, credits and competencies attained by the holder of the qualification awarded in a foreign university institution.

Synchronous model: In which teaching must be carried out in a real time. Teachers and scholars coincide, despite not being in the same physical space.

Asynchronous model: Where the interaction activity between teachers and scholars take place at different times and locations.

STATEMENT BY THE VICE-CHANCELLOR

The regulation for Master's and PhD Programmes at NM-AIST have been developed in order to guide scholars and teaching staff in teaching, learning and supervision.

This guideline also identifies the roles of various parties in the process of preparation, guiding and monitoring scholars' academic progression. The regulations are intended to ensure that the scholars' academic, innovation, and research/project activities are well streamlined both online and blended learning so that in any circumstance's scholars are able to learn via electronic and online media as well as face-to-face teaching. The development of this document is yet another clear indication of the commitment that NM-AIST has to comply with the development of science and technology based on research and innovation in line with the Vision and Mission of the institution. Being a research-based Institution, the regulations are an invaluable tool for supervisors, scholars, researchers, and the University Management in enhancing the execution of academic and research activities, emphasizing on quality of the process and outcomes.

In developing these regulations, various documents related to regulations for the administration of scholars' academic progression in various universities within and outside the country were benchmarked. Therefore, it is my hope that teaching staff, supervisors, scholars, and users of this guideline will find this document useful for and in guiding, regulating, and monitoring the process from online registration, online enrolment, of courses and coursework, online assignment, viva voce examination and research proposal development through to submission of dissertation/projects/thesis/project report for examination.

This document 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 Regulations and preparation of these regulations as well as the staff in the Office Deputy Vice-Chancellor for Academic, Research, and Innovation, are highly acknowledged for making these regulations a reality.

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Prof. Maulilio Kipanyula   **December, 2023**
The Vice-Chancellor

CHAPTER ONE

INTRODUCTION

1.1. Background

The Nelson Mandela African Institution of Science and Technology (NM-AIST), Arusha was established by the Government of the United Republic of Tanzania (URT) in the year 2009 to be research-based institution [(articles 3.-(3), 3.-(4) ,4.-(1) and 4.-(2) of the NM-AIST Charter 2013)] and to have a special status equivalent to or more than benchmarked institutions such as Indian Institutes of Science and Technology (IITs), Massachusetts Institute of Technology (MIT), California Institute of Technology (Caltech), University of Cambridge, Stanford University and Princeton University. The NM-AIST enrolls only postgraduate and post-doc scholars in its research-based Masters, PhDs and Post-doc programs with the understanding that the scholars already have prior knowledge of the basic scientific principles obtained during their lower education levels. As such, the main function of the NM-AIST is high-tech research and innovation development in line with its motto "Academia for Society and Industry".

The NM-AIST is also in a network of Pan-African Institutions of Science and Technology (AISTs) located across the continent of Africa and it has been designed to carter for the African Union's Eastern African countries' region for solving complexity of Life Sciences problems among others. Thus, the ultimate goal of the NM-AIST is create technologies that will stimulate, catalyze and promote economic growth and sustainable development in Tanzania and Sub-Saharan Africa.

1.2. Vision of the NM-AIST
To be a centre of excellence in science, engineering, technology and innovation for humanity's sustainable development.

1.3. Mission of the NM-AIST
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. Situation Analysis
The Economic commission for Africa (2011) identifies major Africa's development challenges among others to be i) adverse impact of climate change, ii) increasing water scarcity, iii) biodiversity and ecosystem loss, iv) desertification, v) low resilience to natural disasters, vi) energy crisis, vii) food crisis, viii) health insecurity, ix) low penetration of ICT services and x) poor disaster response mechanisms. The NM-AIST is well placed and works strongly to address these challenges for improved life and social economic development. As such, the NM-AIST has identified areas to concentrate on including bio innovation for ecosystems health and food security, Materials for Water, Energy and Food, emerging Information and Communication Technologies (ICT) Systems, Development and Business Process Modeling and Innovation Systems and Management. All these niche areas are housed

within well-structured organization systems involving schools namely School of Life Sciences and Bioengineering (LiSBE), School of Materials, Energy, Water and Environmental Sciences (MEWES), School of Computational and Communication Sciences and Engineering (CoCSE), School of Business Studies and Humanities (BuSH) and Research centers (including CREATES-FNS, WISE FUTURES, CENIT@EA,DDI, VLIR and C-CODE), research chairs (including OR TAMBO and UNESCO research chair on Science Technology Innovation and Leadership) and research groups (including those coordinated at School levels).

Knowing the aims of establishing the NM-AIST in creating innovative technological solution, a number of institution initiatives have been put in place to fast truck its operations towards realizing its vision. For instance, the NM-AIST is currently operating a 5-Dimension Business Model (Figure. 1) that explicitly puts research and innovation agenda in the first place, then postgraduate training and skills development, outreach and community engagement, incubation management and commercialization as the main components of the model.

To realize implementation of this model, players in the NM-AIST operation networks including scholars need to be guided on basic alignments towards a common focus. It is based on this ground that the current scholar's research and innovation guideline is developed.

Legend:

⋯▶   Flow of information from members of and or the society and industry

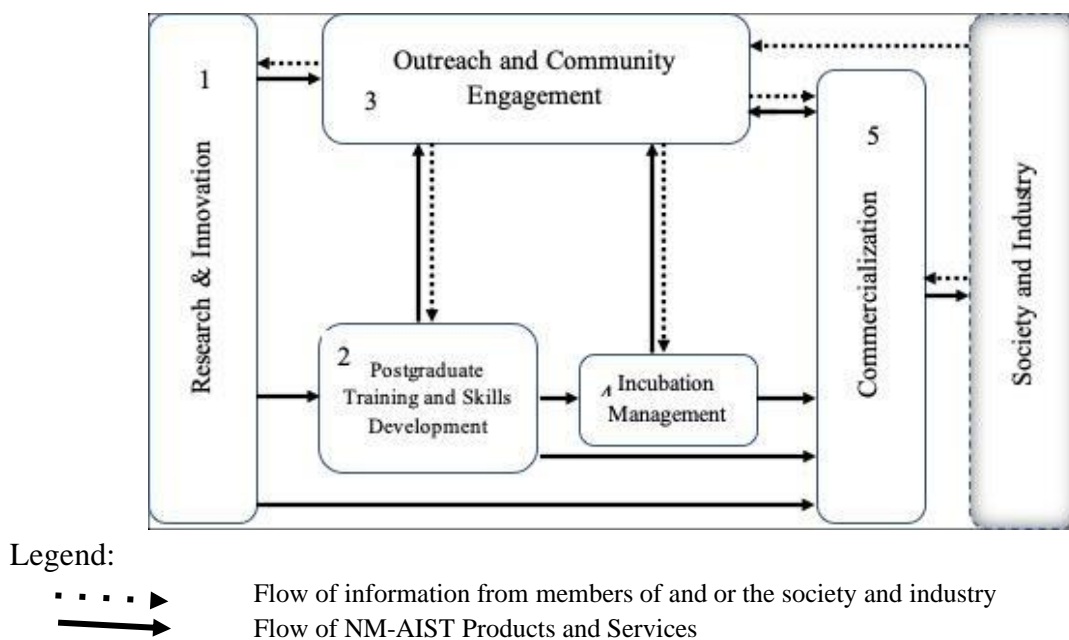──▶   Flow of NM-AIST Products and Services

Figure 1. The 5 Dimensions Business Model

1.5. Scope

These guidelines are useful to research-based scholars/innovators at MSc, PhD and Postdoctoral levels at the NM-AIST.

1.6. Core values

    a)   Unlocking scholars' transformative potentials

b)   Cherishing rights, differences and dignity of all
c)   Building trust, honest, integrity and respect
d)   Excellence and Productivity
e)   Innovation and accountability

1.7. Purpose

NM-AIST recognizes the necessity of evolving teaching methods to prepare scholars for the fourth Industrial Revolution and cultivate 21st-century skills, emphasizing scholar-centered approaches and policy development. This guideline's purpose is to aid facilitator and stakeholders in implementing and enhancing online and blended learning, promoting flexible education that transcends geographical constraints and aligning with evolving educational expectations.

CHAPTER TWO

ONLINE AND BLENDED LEARNING REQUIREMENT

2.1 Applications and Registration of scholars

2.1.1.   Online Admission Applications

i)   NM-AIST has upgraded its online admissions/applications for Master's and PhD scholars by using NM-AIST Online Application System (OAS) through institutional website

ii) The invitation for admission applications advertised for the subsequent academic year is normally uploaded into the NM-AIST website (www.nm-aist.ac.tz) in the month of February of the particular year and is performed throughout the year.

iii) It shall be the duty of the Director of Academic Affairs to notify candidates of the decision of the board as soon as may be and to inform a candidate whose application has been approved or disapproved by the board.

2.1.2.   Registration of scholars

i)   NM-AIST adopted both physical and online registration of scholars to ease the registration process.

ii) All scholars should register for courses through the online registration system at the beginning of each semester

iii) Tanzania Commission for Universities (TCU) has to authenticate the academic levels or equivalence of the qualification obtained from foreign universities before scholars are being registered for studies at the NM-AIST.

iv) Foreign scholars and others who obtained their academic degrees from foreign universities can lodge their applications for foreign award assessment through TCU's website, https://faas.tcu.go.tz/login.php

v)   Where necessary the candidate can be granted a provisional registration subject to submission of original certificates and transcripts for verification.

2.1.3.   Teaching and Facilitation

i)   NM-AIST shall ensure that the facilitator involved in online teaching and learning have the required pedagogical skills to facilitate the process.

ii) NM-AIST shall ensure that the facilitator have the required technical skills and tools to facilitate online teaching.

iii) Facilitators should design the course or module with a clear structure. Organize content logically, and provide a consistent and intuitive navigation structure for online materials.

iv) NM-AIST shall ensure scholars get a section to familiarize themselves with the technology tools and platforms for online and blended learning.
v) NM-AIST shall ensure to conduct pedagogical and technical skills for facilitators at least once yearly.

2.1.4. Technology and Infrastructure

i) NM-AIST will develop an appropriate infrastructure to support online course delivery for both scholars and facilitators. The infrastructure should include networks and bandwidth of more than 200 mbps to support adequate and consistent Internet access, computers capable of running the course platform and providing Internet access, and a physical location where scholars and teachers have access to computers and the network. Since scholars will use online course materials at hours largely of their own choosing, Facilitators need access to a computer and high-speed access to the Internet both at work and at home.

ii) NM-AIST must ensure that all necessary ICT infrastructure is adequately resourced to allow for the accessible and dependable delivery of online and blended courses to all scholars including marginalized scholars, regardless of location.
iii) The teaching models which shall be adopted by the institution are synchronous learning and asynchronous learning.
iv) The list the technologies available for synchronous and asynchronous teaching:
   a) Videoconference: a two-way simultaneous audio and video communication process that allows communication between groups of people located in different physical spaces.
   b) Teleteaching, where only audio and voice exist.
   c) Own television channels.
   d) Chat services.

2.1.5. Technical and Administrative Support

i) In addition to hardware and software, NM-AIST will provide technical and administrative support for scholars and facilitators.
ii) Technical support will include a 24/7 support system for questions and answers.
iii) Administrative support will include a grading and registration system that can be easily used by facilitators, and institutional administrators, and accessible to scholars and other stakeholders.

2.1.6. Learning Resources

i) NM-AIST shall ensure that the learning resources are accessible on a variety of devices including mobile phones and tablets.
ii) All learning resources should consider copyright matters.
iii) All learning resources must align with the stated learning objectives and outcomes of the course. They should contribute to the mastery of specific knowledge, skills, or competencies.

iv) Learning resources should be prepared using a variety of resources to cater different learning styles and preferences. This can include text-based materials, videos, interactive simulations, podcasts, quizzes, and more.

v) All learning resources should be ensured accessible to all scholars, including those with disabilities. Provide alternative formats and captions for multimedia content, and ensure that documents are screen reader-friendly.

vi) Learning resources should incorporate interactive elements into resources whenever possible. For example, use discussion forums, quizzes, or online collaborative tools to engage scholars and promote active learning.

vii) Ensure that the learning resources are organized logically and are easy to navigate. Provide clear instructions on how to access and use each resource.

CHAPTER THREE

ONLINE AND BLENDED LEARNING

3. Delivery mode

i) NM-AIST adopted an online or blended learning model of teaching in some courses. The delivery method will be a combination of "online activities and face to face sessions" or "face to face sessions, online tutorials, and face to face presentations" or "synchronous and asynchronous sessions".

ii) Online and blended training will employ methods to allow access to facilitator notes, slides and other materials to all registered scholars at their convenience (e.g. Google Classroom, Moodle).

iii) All courses need to be designed and implemented based on the principles of scholar-centered learning that encourage scholars to actively participate in the learning activities.

iv) Online and blended programmes must follow the approved NM-AIST curriculums and teaching or learning methods will be problem-based learning, competency learning, project-based learning, experiential learning, challenge-based learning, research-based learning, and flipping classroom.

v) The design and delivery of the online Teaching and Learning must support and be constructively aligned with the predetermined Course Learning Outcomes (CLO). No changes should be made to the approved CLOs of the course. In the case of unavoidable changes, amendments MUST be submitted to the Senate for approval.

vi) NM-AIST shall orient scholars to participate in online/blended learning before the commencement of studies.

vii) NM-AIST shall orient facilitator to participate in online/blended learning and teaching before the commencement of studies.

viii) All scholars will be reached using affordable technologies so that they can consent on using such a model to support learning.

ix) Scholars registered at NM-AIST who are ineligible for online or blended learning for medical reasons or others will be supported by the institution upon successful submission of request to Deputy Vice Chancellor Academic, Research and Innovation.

x) The overall scholar's attendance in a subject/course for the respective scholar to be allowed to sit/do final assessment must be not less than 80% of the time allocated to the subject/course in the semester as verified by the Course Facilitator.

xi) For the distance support, the facilitator will make sure that the study-training materials are accessible to all scholars in each class using affordable technologies. Such technologies will include but not limited to emails, online platforms (Google Classroom, Moodle, Zoom, Skype etc.,) and/or any other Computer Assisted Test mode approved by the Senate through respective School Board and STLC.

xii) Facilitators are required to provide the links to the external websites and/or applications in the official learning management system. This is to ensure that scholars have a one-stop-centre to access all the learning materials.

xiii)   Facilitators are required to ensure that the number and complexity of tasks given commensurate with the course credit load and scholar learning time. Facilitators can plan to conduct online assessments with small groups of scholars to avoid congestion. If this approach in small groups is implemented, facilitators must ensure that the assessments carried out are fair and equal across all groups.

xiv)   For courses that rely heavily on face-to-face interactions such as community engagement, design studio, clinical bedside teaching, and courses that involve practical elements such as laboratories, studio, service-learning, work-based learning etc., facilitators are encouraged to be creative in arranging the use of on-site laboratories, studio, clinics etc.

CHAPTER FOUR

ONLINE AND BLENDED LEARNING ASSESSMENT

4.1. Evaluation of Coursework

i) Coursework evaluation will employ approved online examination platforms such as Moodle, Zoom, Google classroom, Skype, Emails and/or any other Computer Assisted Test mode approved by the Senate through respective School Board and STLC.

ii) Online and blended learning evaluation will be carried out in one or combination of the following options: Active participation in class, Test, Assignment, Presentations, Quiz, Simulations or Virtual Labs, or Examination

iii) Facilitators are **allowed** the flexibility and creativity to conduct an Alternative Summative Assessment(s) once each course learning outcome has been completed. Once the course learning outcomes of the course is completed, facilitators may do a summative assessment of that course learning outcomes any time within the semester.

iv) The facilitator will need to send an invitation and clear instructions (date, time, and platform to use) to all scholars at least two weeks before the start of the evaluation.

v) For scholars who will not be reachable/accessible during online evaluation, the facilitator (s) will explore other different arrangements to assess them and report to the Head of Department/Dean of school within 3 days before the date of scheduled online evaluation.

vi) Submission of evaluation will be either automated (timed out) or specified by the facilitator based on the nature of the evaluation.

vii) Failure to submit an evaluation examination/test/assignment report within allocated time without reasonable cause will translate to score 0 (Zero).

viii) Facilitators should announce/populate the results of every assessment within a reasonable time to the scholars through the LMS.

ix) Any cheating during the conduct of examination will be dealt using existing *NM-AIST Examination Regulations*

4.2. Assessment Weightages

i) Pass mark for each course will be as per existing *NM-AIST Regulations and Guidelines.*

ii) The continuous assessment weightage and final summative assessment weightage will be as per approved curricula.

4.3. Scholar Learning Time (SLT)

Scholars learning time (SLT) is the amount of time a scholar spends learning in online and blended learning environments. The SLT translation from face-to-face learning to blended learning can vary depending on several factors including the subject matter, the individual student's pace and needs, the students' technology Proficiency, and the teacher's guidance.

For translating or converting the face-to-face curriculum to blended learning, the following calculation illustrates the SLT for several online interactions:

a) **Facilitator Hour**: Facilitator hour will be the same as used in face-to-face learning.

b) **Practical Time**: All practical sessions will be performed in a blended mode and not fully on-line. In case of blended learning, a practical hour will be the same as in in face-to-face learning

c) **Seminar and tutorials**: Seminar hour will be the same in face to face and blended learning

d) **Assignment**: Seminar hour will be the same as used in face-to-face learning whether it is conducted online or blended.

e) **Independent Studies**: An independent study time of study will be differently interpreted as scholar will need more time to review study material and seek guidance from facilitator. In this case a scholar should be given more individual study time than in a face-to-face learning environment. A one hour in face-to-face learning will be equated to one and a half hour for the case of blended learning environment. This is to compensate for additional time need. Example of a converting face to face learning time to blended learning time

Mode of Delivery	Facilitator Hours	Practical Hours	Seminar/Tutorial	Assignments	Individual Study Time	Total
Face to face learning	30	15	15	20	20	100
Blended learning	30	15	15	20	30	110

4.4. Deterring Plagiarism/Cheating

Remote online assessment presents opportunities for plagiarism/ cheating that may be minimal in a traditional face-to-face assessment like the final examination. However, there are numerous ways to deter dishonesty in assessment.

i) The facilitator should design assessments that engage scholars' higher order thinking skills (HOTS), for example, via proposing solutions to complex problems. This will put emphasis on the method or thinking process rather than the actual final answer, eg. a particular value from a calculation-based question, or a list of points or items for other types of questions.

ii) The facilitator should assign unique questions/tasks so that each scholar's assessment item is different from the other. However, care must be taken to ensure that all scholars are assessed at the same level of difficulty and complexity for the same learning outcome.

iii) Facilitators should use various online tools to detect plagiarism (e.g. Turnitin) and deter cheating (e.g. randomized multiple-choice questions (MCQ) question order).

iv) The exam should have strict time-limits on online assessments (e.g. timed online quiz), and the use of video face capture technology can also be used to deter cheating.

v) Facilitators/facilitator should educate and warn scholars about the penalties for cheating and plagiarizing.

vi) Scholars can be required to agree to a statement of authenticity before beginning and before submitting each assessment. Facilitators may require scholars to video/audio record their statements, or type/write and sign written statements.

4.5. Conduct of Research and Seminar Presentation by Master and PhD Scholars

i) Scholars pursuing Masters or PhDs by Research and Thesis, Coursework and Dissertation, or Coursework and Project shall agree with the assigned supervisor on supervision modalities, timeliness, and timely output and then sign a memorandum of understanding and submit it to the deans of the respective school for record-keeping accountability.

ii) Scholars pursuing Masters or PhD by Research and Thesis, Coursework/Dissertation or Coursework and Dissertation, the research part will be constantly guided by the supervisor(s) using affordable technologies such as: emails, online platforms (Moodle, Zoom, Google Meet, Skype) phone calls and/or WhatsApp approved by the Senate through respective schools and STLC.

iii) Submission of Scholar Research Progress reports as per NM-AIST Academic Regulations shall be mandatory and will be done using the available online form. The reports should be signed either digitally or original signatures depending on the available mechanism.

iv) Masters and PhD scholars must undertake a graduate seminar course as stipulated in NM-AIST Academic Regulations, which will be done and assessed online, and credited accordingly. Each scholar shall explore available options of delivering referred graduate seminars by either Face-to-Face or Online model based on the most convenient option and prevailing circumstances, the same will be endorsed by the respective school for operationalization.

v) The scholars who wish to deliver a graduate seminar presentation by the online model shall submit a written request by email to the /Dean of the school who will consider and approve appropriate online platforms which should support the visibility of the presenter, such as Zoom, Skype, Google Meet or Video Conference.

vi) The scholar allowed to deliver a graduate seminar presentation by the online model shall submit the Proposal/dissertation/thesis/project and PowerPoint presentation to the panelist at least three working days before the date of presentation.

vii) Before the proposal is approved, the scholar shall present it online, which shall be assessed and graded as stipulated in NM-AIST Academic Regulations.

4.6. Preparation, Submission, and Examination of Dissertations/Theses

i) Master and PhD scholars will comply with NM-AIST Regulations and Guidelines regarding the preparation of Dissertations/Theses/Project.

ii)　　No examination arrangements will be made unless a scholar has given three months' notice of intention to submit a dissertation/project/thesis. Scholars shall submit a form electronically using NM-AIST email through her/his Supervisors without copying another person. The main supervisor shall submit to Dean of School, and Dean will give the notice in writing to the Deputy Vice-Chancellor for Academic, Research, and Innovation (DVC-ARI) indicating Scholar's intention to submit the dissertation/thesis/project by filling in the online Intention to Submit Dissertation/Thesis/ project/ Form.

iii)　　Submission of the dissertation/thesis for examination will be done electronically in word or latex and PDF format using emails to the supervisor, and the main supervisor will submit to the Dean of School and copy the Academic Officer of the respective school for follow-up.

iv)　　The Academic Officer will circulate the dissertation/project/thesis to both internal and external examiners who will mark and return back them for documentation.

4.7. Conduct of Proposal and Viva Voce Examinations Defense

4.7.1　　General Guidelines

i)　　Conduct of proposal defense, presentation, oral defense, and *viva-voce* examinations shall comply with the NM-AIST Academic Regulations and Guidelines, which will accommodate the option of online distance examination for scholars and panelists who will not be physically present at NM-AIST campus.

ii)　　Half an hour before oral defense/*Viva voce* time, the Chairperson should check that the scholar and panel members are clearly available and connected online.

iii)　　If a scholar went off before the end of defense due to a network case, the scholar must inform the panelist by using other means within 5 minutes. In addition, the chair may declare postponement of the defense. The responsible School will arrange a new date for the candidate.

iv)　　If found that by any means that the candidate tempered with the online defense/*viva voce* for the purpose to sheet or interfere with the examination process, the candidate shall be deemed for discontinuation.

v)　　If the defense of *viva voce* is interrupted or hacked, the candidate shall be deemed to repeat the whole presentation/defense.

vi)　　The procedure on the conduct of *viva voce* shall be followed as detailed in 1.3.2 (i) (g) of the Academic Regulation for Degree Awards.

4.7.2　　Oral Defense

i) For the online defense mode, the defending candidate will be required to be the sole occupant of the room during the oral defense examination. Therefore, the scholar will need to make a declaration on whether there is no other person in the presentation room.

ii) The maximum duration of the online oral defense examination shall be as detailed in the Section 2.6.3(vii) NM-AIST Academic Regulations.

4.7.3 Viva Voce Examinations

i) The Dean of School shall inform the scholar in writing regarding the examination arrangements for the defense of the dissertation/thesis at least two weeks before the examination. The scholar wishing to conduct oral defense online shall submit a written request by email at least 14 days before the expected date of *viva-voce* examination to the Head of the Department/Dean of School, who will consider and approve/disapprove the request.

ii) Online platforms to support presentations and evaluation of postgraduate scholars during *viva-voce* examinations will be those which support the visibility of the presenting scholar such as Zoom, Skype, Google Hangouts/Meet, Video Conference etc., as it will be approved by the Senate/Council.

iii) Members of the general public, staff, and other scholars (inside or outside Tanzania) may be allowed to attend virtually the *viva-voce* examination but they shall be disconnected just after the Question-and-Answer session. Those interested in hearing the viva-voce Examination outcome may be invited back to join the outcome announcement session.

iv) The *viva-voce* shall be announced within and outside NM-AIST through the website or other means at least **two** weeks before the examination date. The English Version abstract of the dissertation/thesis shall also be announced. The announcement is intended to disseminate the work undertaken by the scholar to the NM-AIST community and the general public.

v) Non-panelist members who are not staff of NM-AIST wishing to attend the *viva voce* examination will be required to submit requests and confirm their attendance to the Dean of school at least 5 days before the date of *viva-voce* examination provided with the viva voce link.

vi) For the online defense mode, the defending candidate will be required to be the room's sole occupant during the *viva-voce* examination.

vii) The maximum duration of the *viva-voce* examination online shall be three hours apportioned as detailed in Section 2.6.3 (vii) the NM-AIST Academic Regulations for degree awards.

4.8. Submission Dissertation/Thesis for Error Free Clearance

i) Master's and PhD degree scholars should submit a dissertation/thesis by EMS/DHL or physical for clearance to the supervisor, then a supervisor who will transmit to the School Dean, before the Dean submits to the DVC-ARI.

ii) Before properly binding, the scholar shall submit a spiral-bound dissertation/project/thesis by EMS/DHL or physical to the Secretary of the Senate Teaching Learning Committee (STLC) through the school for checking and certifying compliance to the standards stipulated in the guidelines for the preparation of dissertation/projects/theses.

iii)   The Secretary of STLC will need at least five working days to provide feedback on the submissions and shall recommend to the Chairman of Senate Teaching and Learning Committee if an error-free status of the dissertation/thesis has been achieved. If a loose-bound error free status is not achieved, the spiral-bound dissertation/project shall be returned to the scholar through the respective School.

iv)   An error-free certification will be issued by the Chairman of the STLC upon submission of the final version of the hard-bound dissertation/project/thesis and soft copies through the Supervisor and Dean of School. If any deficiency in the quality of the hard-bound dissertation/thesis is observed by the Chairperson of STLC, the dissertation/project/thesis shall be returned to the scholar through the respective School for addressing the deficiencies.

4.9. Special Considerations

i)   When assigning an online assessment, facilitators and course facilitators need to carefully consider scholars' access to technology. This includes international scholars and scholars with special needs.

ii)   Check if all scholars have access to the technology needed for the assessment planned. If most scholars have access, but only a small number do not, consider giving special consideration to these scholars. Assign them a less technology-intensive assessment, for example, a phone interview.

iii)   If facilitators instruct the scholars to use apps with limited-access in the free version, make sure they keep track of the time they have left to complete and save their work in a permanent file.

iv)   As much as possible, try to conduct asynchronous assessments and learning activities so that scholars with poor connectivity do not lose out.

v)   Deadlines may be a bit more difficult for scholars to meet. Facilitators may need to be more flexible than usual with synchronous assessment times and asynchronous assessment deadlines.

vi)   Before setting a time for a synchronous assessment time, or a deadline for submission, get input from scholars whether the date and time is viable. Some scholars may require special consideration and extended or more flexible deadlines (e.g. scholars with limited internet access; scholars stuck in a small home with young babies/toddlers who may disturb them when they are trying to study).

vii)   Keeping in mind that scholars will now have additional online alternative assessment workload (formative assessment), the Course Coordinator needs to ascertain the deadlines for assessments are well planned and not intensive towards the end of the semester.

CHAPTER FIVE

SUPPORTING SERVICES

To ensure the quality of learning, scholars and facilitator need to have adequate and reliable technical support. NM-AIST shall ensure to provide the following:

i) The Institution shall put in place a Technical Support Help Desk allowing scholars to call, send emails or chat synchronously with technical personnel and helper leaner to be integrated into online/blended learning

ii) The Institution shall provide access to scholars with an online advising platform whereby all scholars should be assigned with the academic advisor.

iii) The Institution shall make sure that scholars advisory services are factored into the overall online and blended learning programme through the Directorate of Academic Affairs

iv) The Institution shall make sure to have technical staff with skills for online programmes development and delivery.

v) The technical staff supporting online activities should be available 24/7 to provide support to staff and scholars.

vi) The Institution shall make sure of the facilities for recording online courses including camera; computers with recommended graphics capability; video conferencing facilities are available and accessible to the facilitators and facilitators.

vii) The Institution shall make sure its Learning management system is available 24/7/365 and accessible inside and outside the institution.

viii) The Institution shall make sure it has a digital library that is subscribed to the latest online databases for various resources and accessible to staff and scholars within and outside the campus.

ix) The Institution shall make sure it has complaint procedures to handle scholar's matters related to online and blended learning.

x) The Institution shall offer online counseling services to address scholars' mental health and well-being concerns.

xi) The Institution shall facilitate peer support networks or forums where scholars can connect, share experiences, and seek advice from their peers.

xii) The Institution shall make sure it provides the supporting service to scholars with special needs.

CHAPTER SIX

MONITORING AND EVALUATION

This section of the guidelines establishes a structure for monitoring and evaluating (ME) online and blended learning best practices that connect online and blended learning with face-to-face institutional norms and protocols to ensure the high quality of online and blended learning.

The institution quality assurance unit (QAU) will be a responsible unit for coordinating the process of monitoring and evaluating online and blended learning in the same way it monitors and evaluates other institutions academic activities.

The elements of monitoring and evaluation for online and blended learning will be as follows:

    a) The purpose of monitoring and evaluation.

    b) Who and What to evaluate and monitor.

    c) How to perform the monitoring and evaluation.

6.1 Purpose of monitoring and evaluation

i) The QAU shall continuously monitor and evaluate academic institutional activities so as to maintain and improve the quality of online and blended learning, improve accountability and effectiveness of the people and department responsible for the delivery of the online and blended learning, as a tool for curriculum review and adaptations, increase and enhance stakeholder confidence, and as a means of meeting specific accreditation and regulatory requirements in offering Msc and PhD programmes. The Monitoring and evaluation measures should also help to improve scholars' engagement in the learning process.

ii) The QAU through schools shall give a focus to scholars' engagement in classes to ensure online and blended learning quality is maintained at the same level as face-to-face learning.

iii) This improvement of scholar's engagement can be monitored and evaluated through the Learning Management System (LMS) by tracking the course content personalization or following scholar-centered learning approach.

iv) The scholars-centered teaching is achieved through continuously monitoring and evaluation of scholar's attendance, scholars' responses to discussion forums and chats, scholars' responses to individual quizzes posted by the facilitator, and on time submission of assignments.

v) The QAU will be able to review the individual facilitator(s) content personalization strategy and timely advise on the additional measure (if needed) so as to improve overall scholars' engagement and improve quality of online and blended learning.

vi) The QAU shall provide the feedback to the facilitator and school for holistic improvement of the online and blended learning.

vii) The data gathered during monitoring and evaluation can identify patterns of low engagement, such as high drop-out rates or low participation in online discussions. With this data, the QAU in cooperation with Direct of Academic Affairs shall advice course facilitators to redesign courses, reevaluate content, or adapt teaching methods to better capture scholars' interest and motivation.

6.2 Who and What to evaluate and monitor

The QAU will use the LMS to monitor and evaluate the following stakeholders:

i) **Scholars**: The scholars' performance, participation, and engagement in online courses are assessed through the LMS so as to gauge their learning progress and overall satisfaction. This includes tracking their completion rates, quiz and assignment scores, and participation in discussion forums and chats.

ii) **Facilitators**: Facilitators who teach online or blended courses are subject to evaluation. Their teaching methods, responsiveness to scholar needs, and effectiveness in delivering course content are assessed through scholar feedback, peer reviews, and observations. The goal is to ensure they are providing high-quality education and engaging with scholars effectively.

iii) **Course Design and Content**: *With the help of schools*, the design of online courses and the quality of course content is also evaluated. This includes assessing the organization of course materials, the clarity of instructions, multimedia elements, and the alignment of learning objectives with assessments. Effective course design is essential for scholar engagement and learning outcomes.

iv) Technology and Infrastructure: The LMS and other supporting technological infrastructure are continuously monitored for reliability and usability. **With the help of ICT unit**, any technical issues or barriers that hinder scholars' access to course materials or engagement are addressed promptly.

v) **Administrators and Support Staff**: Institutional administrators and support staff including examination officers, admission officers, lab technicians and ICT officers are continuously evaluated to ensure they are providing the necessary resources, support, and guidance to scholars and faculty.

6.3 How to perform the monitoring and evaluation

The M&E is performed to ensure the quality of service is the same or above the face-to-face learning environment. The baseline data for performing M&E is obtained from the course content, programme learning objectives and face to face academic regulations.

i) As in face-to-face learning, the QAU will perform Data Collection through the LMS quarterly. This data collected may include:

    a) Scholar participation: Track the number of logins, time spent on the platform, and engagement with course materials.

b) Assessment data: Collect data on quiz scores, assignment submissions, similarity/plagiarism score of the submitted assessments.

c) User feedback: Encourage scholars to provide feedback on the course content, platform usability, and overall experience.

d) Progress tracking: Monitor scholars' progress through the course modules and lessons.

ii) The QAU will quarterly monitor each course in the LMS (i.e. at the beginning of semester and in the middle of the semester) data, analyze the data and send feedback and needed improvement to Director of Academic Affairs for circulations to Deans of respective schools. The LMS analytics and reporting tools will be used to generate reports and dashboards that provide insights into scholar behavior and performance.