THE NELSON MANDELA AFRICAN INSTITUTION OF SCIENCE AND TECHNOLOGY

SHORT COURSES CALENDAR

YEAR 2025

SN	COURSE TITLE	COURSE CONTENT	DURATION (DAYS)	DATES START - END	COURSE FEE (IN TSH)
1	Artificial Intelligence for Information Professionals.	• Understanding core AI concepts and Ecosystem • Hands- on Mastery of AI Driven tools • Design and Deploy AI- Enhanced Services • Measure and optimize AI impact • Address ethical AI and Data Governance	4	10-14/03/2025	650,000
2	Fundamentals of Block chain Technology	• Introduction to fundamentals of block chain technology • Design and create smart contracts for automating processes and transactions within real-world ICT systems. • Develop hands-on skills for assessing and improving blockchain security, including the identification of vulnerabilities and the implementation of security measures. • Configure and deploy consensus mechanisms to enhance the reliability and performance of distributed ICT systems. • Conduct security audits and address smart contract vulnerabilities, significantly improving the overall security of blockchain-based ICT systems. • Analyze and identify practical use cases for blockchain technology in various sectors, enabling them to apply blockchain solutions to real-world challenges in business enterprises, the public sector, and social impact projects.	5	7- 11/4/2025	1,250,000
3	Big data analysis and HPC Applications	• Introduction to Big data Analysis • Shared and distributed memory parallel computing • Weather modeling • Bioinformatics • Computational fluid dynamics • GPGPU Computing • Bioinformatics • Code & Compiler optimization	12	19-31/4/2025	1,250,000
4	Energy management and auditing in industries, residential and commercial buildings	• Introduction to energy management and auditing in energy conservation • correlation between energy management and audit • Energy consumption Estimation • power rating of different electrical appliances in use	3	07-10/5/2025	350,000
5	Smart farming: Integrating Agrotool with mobile technology	• Apply the Agrocares Soil scanner for monitoring soil health • Carry out soil sampling and soil analysis protocols using Agrocares scanner integrated with mobile app • Perform online data access through agrocares portal (portal.soilcares.com) and data interpretation • Make informed decision on precision farming based on real- time nutrient intelligence	3	17-19/5/2025	600,000

5	Building and Sustaining Competitive Advantage	• Introduction to competitive advantage • Basics of Business Competitiveness • Identify Potential Sources of Competitive Advantages • Design effective strategies • Convert concepts into effective action plans	5	25-30/5/2025	600,000
6	Animal disease detection (Lab based)	• Introduction to animal disease detection • Brucellosis detection using ELISA	5	08-13/6/2025	1,200,000
7	Effective Writings Skills for Office, Academic and Career Development	• Introduction to workplace writing skills • Select and apply relevant CV Templates • Digital tools in writings • Cover letters, expression of interest and statement of purpose writings	12	20-01/7/2025	960,000
8	Resources mobilization strategy and proposal writing	• PART A • Introduction to Resource Mobilization Strategy • Understanding different ways of resources mobilization\Resources Mobilization principles • Resources Mobilization Approach • Resources Mobilization Cycle • Sources of Fund • PART B • Understanding Principles of Project Management • Writing and Organizing Effective Proposals • Use of Monitoring and Evaluation Framework • Writing a good research report	4	08-12/7/2025	500,000
9	Microcontroller programming	• Introduction to micro-controller programming • Design and develop embedded system • Design and implement electronic circuit • To interface sensors and actuators with the microcontrollers • To program microcontrollers using C, C++ and Embedded C.	5	19-14/7/2025	1,000,000
10	Business (Enterprise) Management tools and Financial analysis	• Introduction to business management tools • Introduction to Business Model Canvas (BMC) • Development of BMC • Introduction to Business Plan (BP) • Development of BP • Financial analysis tools (budget preparation, financial projections)	5	21-26/7/2025	700,000
11	Organoleptic assessment of fish (lab based)	• Introduction to Organoleptic assessment of fish • Sensory evaluation of the fish including appearance, aroma, texture and flavor • Assessment the fish's visual appeal, smell, firmness and taste to ensure quality and freshness	5	21-26/7/2025	1,200,000
12	Development and Management of Strategic Plans	• Introduction to strategic plan • Framework for strategic Planning • Understanding Business Environment and Organization Context • Framing the Strategy • Strategy Implementation	5	01-06/8/2025	600,000
13	Cloud Computing and cyber security	• Introduction to Cloud Computing and cyber security • Effective cloud resource management • Cloud security expertise • Cyber security assessment	5	13-18/8/2025	510,000

14	Plant Tissue culture (lab based)	• Iintroduction to Plant Tissue culture • Isolation of plant pathogens	5	25-30/8/2025	1,200,000
15	Python and Java Programming	• Introduction Python and Java Programming • Competence in Java programming • Problem solving skill in both python and Java • Web development skills • Career Advancement	12	7-19/9/2025	1,020,000
16	Writing review and original papers: Strategies and Tools	• Information search • Mind mapping skills • Evidence synthesis skills • Data analysis and visualization skills • Publishing skills	5	24-29/9/2025	800,000
17	Medicinal plants analysis (lab based)	• Introduction to Medicinal plants analysis • Sample preparation and Compound identification • Antimicrobial effects	5	1-6/10/20225	1,200,000
18	Embedded Systems and Internet of Things	• Introduction to Embedded Systems and Internet of Things • design and develop an embedded system • program the peripherals of the embedded systems • To interface sensors and actuators for embedded systems • design the Internet of things for a specific purpose • To interface and program wireless modules in the IoT systems • To secure the IoT systems • To send data to and from the IoT clouds	12	13-25/10/2025	1,200,000
19	Culture and antimicrobial analysis for animal samples (lab based)	• Introduction to Culture and antimicrobial analysis for animal samples • Sample collection • Sample Culture • Gram staining • Specie biochemical identification • Antimicrobial sensitivity test	5	2-7/11/2025	1,200,000
20	Water quality analysis (lab based)	• Introduction to Water quality analysis • Physical parameters • Chemical parameters	5	14-19/11/2025	1,200,000
21	Characterization of materials using FTIR (lab based)	• Introduction to Characterization of materials using FTIR • Sample preparation • Generation of the machine • Technique of IR spectroscopy • Calibration of the machine • Method creation, sample analysis and data analysis • Interpretation of the results	5	26-30/11/2025	1,200,000
22	Molecular biology analysis (lab based)	• Introduction to Molecular biology analysis • DNA /RNA extraction • DNA /RNA amplification by Real Time and conventional methods • DNA /RNA quantification by Nano drop and gel electrophoresis	5	1-6/12/2025	1,200,000
23	Grant writing and management skills	• Introduction to grant writing and management skills • Strategies for acquiring funds • Grant acquisition tools preparation • Sustainable grant management	5	10-15/12/2025	750,000

24	Advanced E-records and Office Management in Digital Era	• Introduction to basic client services • Behavioral and managerial competencies • Practical communication skills (both digital and non -digital channels) • Organizing physical layout and online work space effectively • Case studies on client services and office management	5	14-19/12/2025	700,000
25	Smart Systems Security	• Introduction to smart systems (i.e., self-monitoring analysis and reporting systems) • Vulnerability assessment • and ethical hacking • fundamentals for smart • systems • ICT policies for smart systems in a cooperate environment. • Managing digital data for smart systems	5	19-23/12/2025	1,250,000

For further information or enquiry use the following contacts: Website:
www.nm-aist.ac.tz