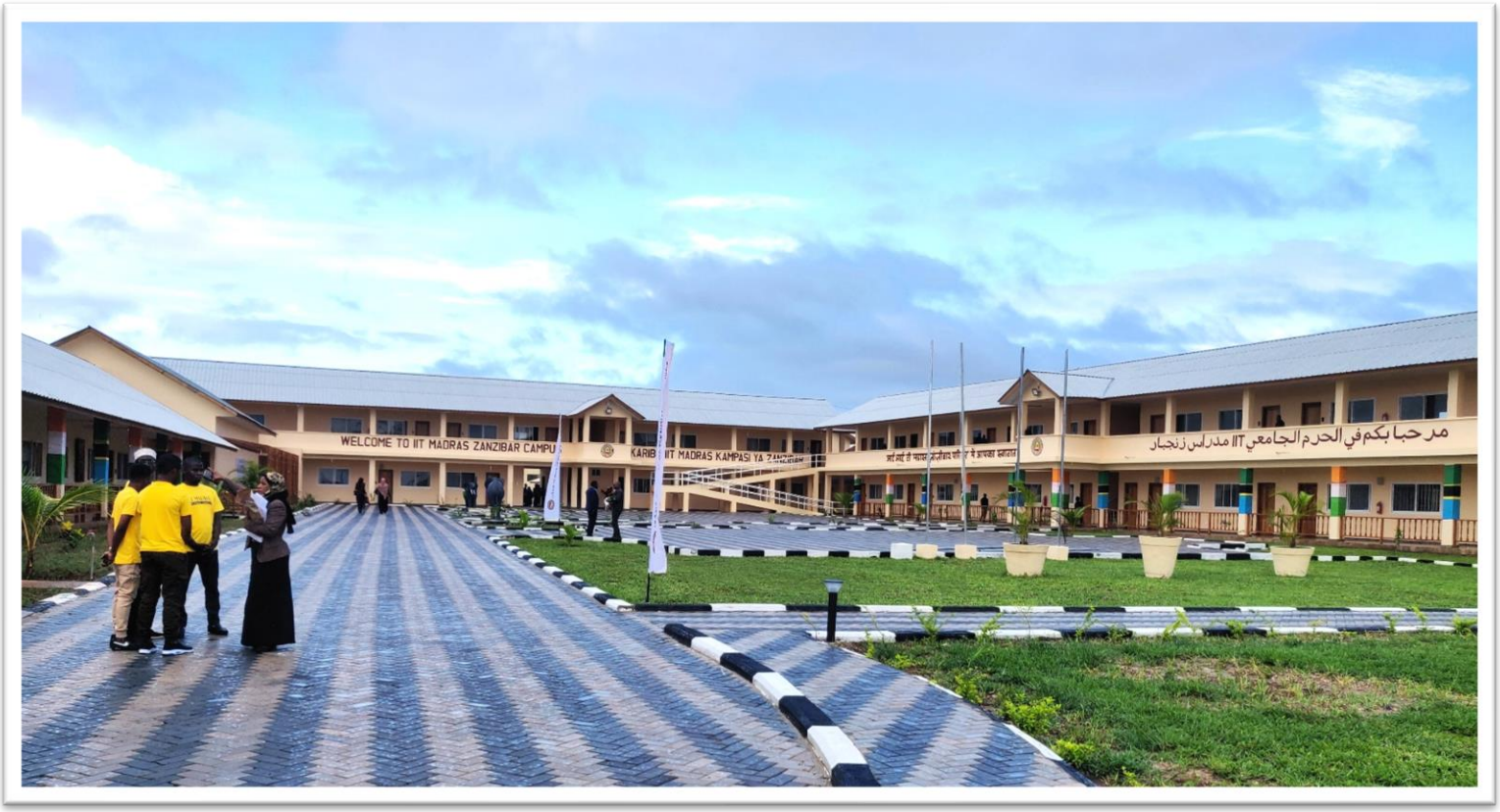
Indian Institute of Technology Madras
Zanzibar Campus

IIT Madras Zanzibar Campus Screening Test (IITMZST) 2024



Information Brochure

For Admission to BS and MTech programs in Data Science and Artificial Intelligence

Indian Institute of Technology Madras, Zanzibar Campus

V .1.1 January 24, 2024

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About IIT Madras Zanzibar:

The Indian Institute of Technology Madras (IITM) is an institute of national importance established through an Act of Indian Parliament in 1959. The IITM Zanzibar campus is proposed as a world-class institution serving the educational and research needs in the African region in general and Tanzania in particular. As a unique partnership between the Government of Zanzibar and IIT Madras, the Zanzibar Campus of IIT Madras has already taken off from October 2023, offering two programs: a 4-year Bachelor of Science (BS) in Data Science and Artificial Intelligence (DSAI) and a 2-year Master of Technology (MTech) in Data Science and Artificial Intelligence (DSAI). It promises to bring the same rigor that has defined IIT Madras academic culture to its Zanzibar campus in an effort to substantively contribute to the human resources development of the region.

Academic Programs:

BS in Data Science and Artificial Intelligence:

The IITM Zanzibar campus offers admission into the undergraduate program leading to 4-year Bachelor of Science (BS) in Data Sciences and AI. The total number of seats available in this program is 75.

MTech in Data Science and Artificial Intelligence:

The IITM Zanzibar campus also offers a post graduate program leading to 2-year Master of Technology (MTech) in Data Science and AI. The total number of seats available for this program is 25.

Eligibility Criteria:

Both the programs are open to students across the globe who satisfy the minimum eligibility criteria. It is expected that candidates have basic proficiency in English.

All applicants for both BS and MTech must satisfy the eligibility criteria in terms of educational qualification. Registration / Admission will be canceled if it is found at a later date that the candidate does not meet the eligibility criteria.

For the BS program, the candidate should have passed one of the following exams:

Advanced Certificate of Secondary Education (Form VI) with 3 principal passes in natural sciences;
Final examination of the 10+2 system or two-year Pre-University, conducted by any recognized Central/ Indian State Board (CBSE etc.);
General Certificate Education (GCE) Examination (London/Cambridge/Sri Lanka) at the Advanced (A) Level;
High School Certificate Examination of the Cambridge University or International Baccalaureate Diploma of the International Baccalaureate office, Geneva;
Any Public School/Board/University examination in India or in any foreign country recognized as equivalent to 10+2 system by the Association of Indian Universities (AIU).

For the MTech program, the candidate should have passed one of the following exams:

4-year Bachelor's degree with specialization in Engineering / Technology;
Master's degree in Science (if the candidate has a 3-year UG degree)
Any other academic trajectory/career approved by the Steering Committee of IITM Zanzibar.

Age limit:

For the BS program, the candidate must have passed Class XII (or equivalent) in the last 3 years. That means, candidates who have completed the qualifying exam prior to 2021 are not eligible.

For the MTech program, there is no age limit as such. Anyone who meets the minimum eligibility criteria in terms of educational qualification can apply.

Schedule of Screening Test (IITMZST 2024):

Candidates applying to these programs will have to appear in the screening test, i.e. IITMZST 2024. For both BS and MTech programs the test will be of 3 hours duration. The test for BS program will be held on June 9th (Sunday), 2024 during 14:00-17:00 hrs Indian Standard Time (IST) and 11.30-2.30 hrs East African time. The test for MTech will be held on March 31st-(Sunday), 2024, from

14:00-17:00 hrs IST and 11.30-2.30 hrs East African Time. It may be noted that the examination date will remain unchanged even if it is declared a public holiday.

Selection process for BS in Data Science and AI:

The selection of candidates for admission involves a three-stage process. In Stage 1, all the applications are assessed on the basis of the information provided by the applicant, such as previous academic performance, and curricular or co-curricular achievements. No candidate will be eliminated in this round unless his/her application is incomplete or the candidate does not meet the minimum eligibility criteria. In Stage 2, all candidates whose applications are found to be complete are eligible to appear for the screening test (IITMZST 2024). Candidates shortlisted based on their performance in Stage 1 and Stage 2, will appear in an interview which constitutes Stage 3. The list of the candidates shortlisted for interview, will be uploaded on the website; candidates will also be intimated by email.

The distribution of marks across these stages is the following:

Stage 1	Assessment of applications	10 marks
Stage 2	Online Screening test	60 marks
Stage 3	Online Interview	30 marks

The subjects covered in the Screening Test and their respective weightage of marks for the BS program is provided below.

1	English and Comprehension	10 marks
2	Analytical ability	10 marks
3	Mathematics	25 marks
4	Chemistry and Physics	15 marks

The detailed BS syllabus can be found at the bottom of this document (Annexure 1)

Selection Process for MTech in Data Science and AI:

The selection of candidates for admission involves a three-stage process. In Stage 1, all the applications are assessed on the basis of the information provided in the applications such as previous academic performance, other curricular or co-curricular achievements, teaching/research/work experience (if any). No candidate will be eliminated in this round unless his/her application is incomplete or the candidate does not meet the minimum eligibility criteria. In Stage 2, all candidates whose applications are found to be complete are eligible to appear for the screening test (IITMZST 2024). Candidates shortlisted based on their performance in Stage 1 and Stage 2, will appear in an interview which constitutes Stage 3. The list of the candidates shortlisted for interview, will be uploaded on the website; candidates will also be intimated by email.

The distribution of marks across stages is the following:

Stage 1	Assessment of applications	10 marks
Stage 2	Online Screening test	60 marks
Stage 3	Online Interview	30 marks

The subjects covered in the Screening Test and their respective weightage of marks for the MTech program is provided below.

1	Technical Aptitude	50 marks
2	General Aptitude	10 marks

The detailed syllabus can be found at the bottom of this document (Annexure 2)

Mode and Pattern of IITMZST 2024:

The screening test will be a computer-based test (CBT) held online separately for BS and MTech programs. It will test the candidate's aptitude to pursue the courses offered by IITM Zanzibar. The question paper will be in English. The IITMZST 2024 is of three hours duration and consists of objective type multiple choice questions (MCQs), multiple select questions (MSQs) and numerical

answer type questions (NAT). The candidates must carefully read and adhere to the detailed instructions given in the online question paper available at the time of examination. The Admit Card issued to the candidates will carry the details of the guidelines to be followed during the test.

There will be no negative marking in the screening test. Although sufficient care will be taken for the correctness of questions, in the event that a question(s) needs to be dropped, full marks for that question(s) will be awarded to ALL candidates.

Academic Guidelines:

Regulations at IITM Zanzibar campus are developed along the lines of the existing UG/PG norms of IIT Madras. The number of hours of classroom activity, lab/practical hours etc. will be strictly adhered to in the timetable (not to mention providing sufficient time for study and extra-curricular activities outside class hours).

Timetable (classes, exams, etc.) will be developed for Zanzibar considering the local holidays, students' study abroad programs and internships.

Online Registration and Registration Fee:

Candidates can apply / register online by visiting the IIT Madras Zanzibar website https://www.iitmz.ac.in/. They can also pay the registration fee online through payment gateway available there. The same link can be used for all relevant information and update.

Registration for both BS and MTech	**Dates**
Online registration begins	January 05, 2024
Online registration closes	March 15 2024 for MTech April 15 2024 for BS
Registration fees	1500 Indian Rupees / 20 US Dollars

The registration fee shown above DOES NOT INCLUDE service charges, processing fees, and any other charges that the payment gateway/banks may levy. Registration fee once paid is non-refundable and non-transferable.

Examination Centres:

The screening test will be conducted simultaneously at several centers in different parts of the world.

Arusha, Tanzania	Durban, South Africa	Bangalore, India	Kolkata, India
Dar Es Salaam, Tanzania	Dhaka, Bangladesh	Bhubaneswar, India	Mumbai, India
Dodoma, Tanzania	Kampala, Uganda	Chandigarh, India	New Delhi, India
Mbeya, Tanzania	Kathmandu, Nepal	Chennai, India	Patna, India
Pemba, Zanzibar	Lilongwe, Malawi	Coimbatore, India	Pune, India
Unguja, Zanzibar	Lagos, Nigeria	Guwahati, India	Thiruvananthapuram, India
Abu Dhabi, UAE	Lusaka, Zambia	Hyderabad, India	Varanasi, India
Dubai, UAE	Muscat, Oman	Indore, India	Visakhapatnam, India
Addis Ababa, Ethiopia	Nairobi, Kenya	Jaipur, India	
Colombo, Sri Lanka	Ahmedabad, India	Kanpur, India	

All candidates have to reach the examination centre at their own expense and have to make their own arrangements to appear for the examination.

Application must be complete in all respects. Incomplete application or application with incorrect information is liable for rejection. The details entered by the candidates should be as per the documents they upload.

Communication will be sent to the candidates through their registered email id or cell phone. The candidates are required to provide their email id and a valid mobile phone number while filling the application form. The mobile number will help us to "SMS/WhatsApp" important messages to the candidates or help the candidates to know their application status.

For all admission-related queries, write to admissions@iitmz.ac.in

Admit Card:

The candidates can download their admit card tentatively three weeks before the test date. The admit card will bear the name, photograph, date of birth, address and the address of the Test Centre allotted. The candidate should carefully examine the admit card for all the entries made therein. In case of any discrepancy, the candidate should inform the competent authority through email or WhatsApp message.

Please note that impersonation is a legally punishable offence. No applicant will be permitted to write the examination without a valid admit card. If the identity is in doubt, the candidate may not be allowed to appear in the examination.

Fee Structure:

The annual tuition fee is 12,000 USD for BS students and 6,000 USD for MTech students. Living expenses will be extra.

Important dates (for BS Candidates):

Applications Opening Date	January 05, 2024
Applications Closing Date	April 15, 2024
Date and Time of Examination	June 09, 2024 2:00 PM - 5:00 PM Indian Standard Time 11.30 AM - 2.30 PM East African Time
Dates of Interviews for shortlisted candidates	June 23 -30, 2024
Announcing results and sending admission letters	July 10, 2024

Important dates (for MTech Candidates):

Applications Opening Date	January 05, 2024
Applications Closing Date	March 15, 2024
Date and Time of Examination	March 31, 2024 2:00 PM - 5:00 PM Indian Standard Time 11.30 AM - 2.30 PM East African Time
Dates of Interviews for shortlisted candidates	April 05 - April 10, 2024
Announcing results and sending admission letters	April 20, 2024

Annexure 1

Syllabus for BS in Data Science and AI

English and Comprehension:

Reading Skills: Candidates will be required to read given passage(s) that aim(s) to test their comprehension skill and ability to articulate ideas through words. Questions related to the structure and organization of the passages may also be asked.

Vocabulary: This section will be a test of vocabulary and the ability to understand the stated or implied meaning as well as collocation and structure of words.

Analytical ability:

Spatial reasoning, Data interpretation, Analogies, Logical reasoning, puzzles & patterns

Mathematics:

Algebra and Trigonometry: Linear equations in one and two variables, geometric interpretation. Trigonometric identities and equations. Trigonometric functions, inverse trigonometric functions, and their properties. Heights and distance.

Geometry: Cartesian system of rectangular coordinates in a plane, distance formula, section formula, locus, and its equation, translation of axes, the slope of a line, parallel and perpendicular lines, intercepts of a line on the coordinate axes.

Straight lines**:** Various forms of equations of a line, intersection of lines, angles between two lines. Distance of a point from a line.

Circles**:** Standard form of the equation of a circle, the general form of the equation of a circle.

One Variable Differential Calculus: Real-valued functions of a real variable, algebra of functions. Polynomials, rational, trigonometric, logarithmic and exponential functions and inverse functions. Limits, continuity, and differentiability. Operations on limits. Differentiation of trigonometric, inverse trigonometric, logarithmic, exponential, composite and implicit functions.

One Variable Integral Calculus: Integral as an antiderivative. Basic integrals involving algebraic, trigonometric, exponential and logarithmic functions. Integration by substitution, by parts, and by partial fractions. Integration using trigonometric identities. Integral as the limit of a sum. Evaluation of simple integrals.

Vector Algebra: Vectors and scalars, addition of vectors, vectors in two dimensions and three-dimensions. Scalar products, vector products, and vector triple products.

Probability: Probability of an event, addition and multiplication theorems of probability, Bayes' theorem.

Statistics: Calculation of mean, median, mode of grouped and ungrouped data calculation of standard deviation, variance and mean deviation for grouped and ungrouped data.

Permutations and combinations: The fundamental principle of counting. Permutation as an arrangement and combination as a selection. The meaning of P(n,r) and C(n,r), simple applications.

Mathematical logic: Statements and logical operations: or, and, implies, implied by, if and only if. Notions of tautology, contradiction, converse, and contrapositive.

Chemistry:

Structure of Atom: Discovery of electron, proton and neutron; atomic number, isotopes and isobars. Thomson's model and its limitations, Rutherford's model and its limitations, Bohr's model and its limitations. Concept of shells and subshells, shapes of *s*, *p* and *d* orbitals, rules for filling electrons in orbitals - Aufbau principle, Pauli's exclusion principle and Hund's rule, electronic configuration of atoms.

Classification of elements and periodicity: Types of elements, Periodic trends in physical properties of elements -atomic radii, ionic radii, Ionization enthalpy, electron gain enthalpy, electronegativity.

Chemical Bonding and Molecular Structure: Valence electrons, ionic bond, covalent bond, Lewis's structure, valence bond theory, geometry of covalent molecules, VSEPR theory, concept of hybridization, involving *s*, *p* and *d* orbitals and shapes of some simple molecules, Hydrogen bond.

Basic Organic Chemistry: General introduction, classification and IUPAC nomenclature of organic compounds. Electronic displacements in a covalent bond: inductive effect, electrometric effect, resonance and hyperconjugation. Homolytic and heterolytic fission of a covalent bond: free radicals, carbocations, carbanions; electrophiles and nucleophiles, types of organic reactions.

Gaseous State of Matter: Gas laws, Ideal gas and real gas behaviors.

Physics:

Physics and Measurements: Units and Dimensions, Dimensional Analysis, Errors and Least Count

Kinematics: Motion in a straight line - displacement, instantaneous velocity/ acceleration

Laws of Motion: Newton's Laws, Conservation of Momentum

Work, Energy and Power: Work-Energy Theorem, Kinetic and Potential energy, Conservation of Energy

Gravitation: Kepler's Laws, Law of Gravitation, Acceleration due to gravity

Oscillations: Periodic Oscillations, Simple Harmonic motion

Electricity: Current-Ohm's Law, Resistors in Series and Parallel

Optics: Refractive Index, Reflection, Refraction-Snell's law, Mirrors and Lenses

Annexure 2

Syllabus for MTech in Data Science and AI

Technical Aptitude:

Probability and Statistics: Introduction to probability and Sampling theorems, Counting, Conditional and Joint probability, Bayes' Theorem, mean, median, mode and standard deviation, Random variables, Discrete and Continuous distributions, Poisson, Normal and Binomial distributions, z-test, t-test, simple linear regression

Linear Algebra: Matrix algebra: Linear dependence and independence of vectors, Systems of linear equations, Rank, Determinant, Eigenvalues eigenvectors, Eigenvalue decomposition, Singular value decomposition.

Calculus: Functions of a single variable, Limit, continuity, and differentiability, Taylor series, maxima and minima, optimization involving a single variable, First-order differential equations (linear and nonlinear), Laplace transforms

General Aptitude:

Comprehension, Verbal Aptitude, Analytical Aptitude, Quantitative aptitude and Spatial Aptitude.

For all admission queries

Email id: admissions@iitmz.ac.in

IITMZST 2024 Admission Committee

IIT Madras