

IIT Madras International Interdisciplinary Master's Program

Indian Institute of Technology Madras, India, announces the admission for International students in the following M.Tech programs for July 2023 in Sri Lanka Technological Campus, Sri Lanka. Admission to graduate programs is offered to eligible shortlisted students.

GUIDELINES

Eligibility Criteria

- Foreign students are expected to have a working knowledge of English.
- International candidates who have qualified for the award of the Bachelor's degree in Engineering/ Technology or Master's degree in Science are eligible to apply for admission. Please note that you are required to have 4+ years of UG / PG in hand to be eligible for this program.
- If the medium of instruction for their qualifying degree was not English, applicants must produce proof of proficiency in English - IELTS with a minimum score of 6.5 (overall) or a TOEFL score of 80 (overall). Test results should be dated no earlier than 25 July 2021 (for the July 2023 intake) Foreign nationals will register as full-time scholars.
- The Selection Committees may set higher evaluation criteria than the minimum eligibility criteria listed.
- The selection, admission, and award of the MTech degree shall be governed by the ordinances of the senate of IIT Madras.

Application Process

Interested students can fill out the online application and submit. An email confirmation will be notified on your registration. The applicants will have to undergo a screening test. Shortlisted students will be called for an interview to check their knowledge and interest towards the M.Tech programs.

Application Materials

- UG Transcripts, Degree Certificate, marksheets
- PG Transcripts, Degree Certificate, marksheets, if any.
- Any other academic records/ exam details
- English Language Proficiency scores, if applicable (refer notes below)
- Curriculum Vitae
- Statement of Purpose (800-1000 words)
- Work Experience Certificates
- Proof of Citizenship
- Passport or ID card
- Recent Official Passport Size photograph
- Long-term health condition, disability, or mental health certificate
- A relieving letter from your employer (if employed)

*Note: Merge documents if you need to attach more than one file. File formats supported – jpeg

Notes on Application:

- Fields marked with an * are required.
- Foreign students are expected to have a working knowledge of English. Proof of English language competence is mandatory if the medium of instruction for the qualifying exam was not English. We accept IELTS Academic with a minimum score of 6.5 (overall) or a TOEFL* score of 80 (overall). Language proficiency test results should be dated no earlier than 25 July 2021 (2-year validity)
- Documents submitted in a foreign language should be accompanied by a full English language translation. The translation should be certified by the translator and bear their certification credentials.

- In your Statement of Purpose, please focus on
 - ❖ Why you wish to study in this program
 - ❖ Why you are suited to this/ these area(s) of study
 - ❖ Further reading you have done in these areas
 - ❖ Your ability to think critically and analytically
 - ❖ Your long-term plans and how this program will help you achieve your goals
- Incomplete applications or those submitted after the deadline will not be accepted.
- Note that admissions are decoupled from the scholarships at IIT Madras. Any scholarship received is separate from the admission offer the student receives. Please note that if you wish to be funded through a scholarship, you must also apply to the concerned body separately. Award of financial assistance/ scholarship depends on the granting body. Admission to a program does not indicate the award of a scholarship.
- Please note that filling this form does not indicate selection to the program
- Please write to queries@ge.iitm.ac.in if you require any assistance
- The Indian Institute of Technology Madras, reserves the right to require the applicant to submit relevant supporting materials.

SYLLABUS FOR WRITTEN TEST OF I2MP CPS AND DS

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 and related concepts such as rank, determinant, Eigenvalues and eigenvectors, Eigenvalue decomposition, Singular value decomposition.

Linear dependence and independence of vectors, Systems of linear equations

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

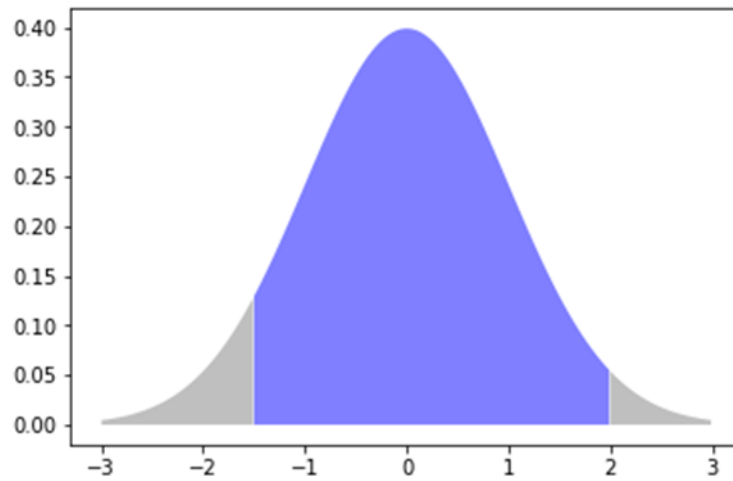
General Aptitude: Verbal Aptitude, Analytical Aptitude, Quantitative aptitude and Spatial Aptitude.

SAMPLE QUESTION PAPER

1. Which of the following methods can be used to understand correlation between categorical variables?
 - a. Select one or more:
 - b. Spearman
 - c. Kendall's Tau Rank correlation
 - d. Pearson

2. A car company purchases engine blocks from suppliers A, B, and C. Out of the 100 units supplied by A, two units were found to be defective. Similarly, out of 200 and 300 units supplied by B and C, the number units found to be defective were 10 and 15 respectively. If a quality control person of the car company picks up a block and if the selected block is from A, what is the probability that the block is defective?
 - a. 0.020
 - b. 0.045
 - c. 0.330
 - d. 0.350

3. What is the area of the following blue shaded region?



- a. 0.815
- b. 0.317
- c. 0.910
- d. 0.159

4. A talent exam is conducted annually which has a mean score of 200 and a standard deviation of 30. If a student's Z-score is 1.50, what was his score in the exam?

- a. 245
- b. 230
- c. 200
- d. 170

5. The rank of the matrix A is

$$A = \begin{bmatrix} 2 & 1.5 & 2 \\ 1 & 0.75 & 0 \\ 2.25 & 3 & 1 \end{bmatrix}$$

- a. 1
- b. 2
- c. 3
- d. 0

6. The weights of 10 students of a given class were found to be 70, 67, 62, 68, 61, 68, 70, 64, 64, 66 kilograms. The mean weight of students in that class was found to be 64 kilograms. The t statistic is:
- 1.72
 - 2.00
 - 2.95
 - 0.62
7. A new COVID19 test has been developed by researchers. The test gives a positive result in 96.5 % of the cases when the individual is affected by COVID19. However, it gives a positive result in 3% of the cases when the individual is healthy. The data collected on 10000 individuals shows that 23 individuals have the COVID19. Then, what is the probability that an individual with a positive test is affected by COVID19?
- 0.07
 - 0.7
 - 0.965
 - 0.023
8. What is the Laplace transform of t^5 ?
- $5 / s^5$
 - $120 / s^5$
 - $6 / s^6$
 - $120/s^6$
9. Two independent random variables X and Y are uniformly distributed in the interval $[-1, 1]$. The probability that $X+Y$ is less than 1 is
- $6/8$
 - $7/16$
 - $7/8$
 - $9/16$

10. A square matrix A has zero determinant - i.e. $\det(A)=0$. Which of the following are true?

- a. $Ax=0$ has only trivial solution $x=0$.
- b. 0 is an eigen value of A.
- c. A has full rank
- d. None of the above

11. Consider the initial value problem

$$\frac{dy}{dt} = t^2 + 1$$

with $y(0) = 8/3$. The value of y at $t=1$ is _____

12. The absolute maximum value of $f(x)=8x - x^4$ is _____.

13. The minima of $f(x)=8x - x^4$ is _____.

14. A researcher collected a set of 48 observations for the length of a fish. The mean length of the fish computed using the 48 observations is 20 cm. For a new fish, the length is observed to be 39 cm. With the new observation, the updated mean length of the fish is _____.

19. Which of the following 2×2 matrix has its eigen vectors as $v_1 = [-3,1]^T$, $v_2 = [1,1]^T$?

a. $\begin{bmatrix} 4 & 2 \\ 6 & 8 \end{bmatrix}$

b. $\begin{bmatrix} 4 & 6 \\ 2 & 8 \end{bmatrix}$

c. $\begin{bmatrix} 4 & 8 \\ 6 & 2 \end{bmatrix}$

d. $\begin{bmatrix} 8 & 2 \\ 6 & 4 \end{bmatrix}$
