

Admission Notification for M. Tech. Programme in Computer Science and Engineering Mizoram University

The Department of Information Technology (IT) jointly with Computer Engineering Department (CE), Mizoram University (A Central University) is inviting applications for admission in Master of Technology (M. Tech.) in Computer Science and Engineering for the session 2019-2020.

Intake Capacity:

School	Programme	Intake
Engineering & Technology	M.Tech in Computer Science and Engineering	12+3 (Sponsored)

Eligibility Criteria:

- (a) A candidate who has passed B.E./B.Tech./M.Sc./MCA Or Equivalent Examination in relevant branch from any recognized institute or university having a minimum 55% marks (relaxable by 5% for SC/ST candidates) in aggregate shall be eligible for admission.
- (b) A candidate must have a valid GATE score or must qualify Mizoram University Master of Technology Entrance Examination (MZU-MTEE).
- (c) The selection of the candidates will be based on the GATE score or Mizoram University Master of Technology Entrance Examination (MZU-MTEE) followed by personal interview.

Important dates for M.Tech.(CSE) Entrance Test:

Last date of submission of online application: **10th July 2019(online).**

Date of Written Test/ Interview: **25th July 2019**

Detail Syllabus for the M.Tech.(CSE) Entrance Test:

Section1: Engineering Mathematics

Discrete Mathematics: Propositional and first order logic. Sets, relations, functions, partial orders and lattices. Groups. Graphs: connectivity, matching, coloring. Combinatorics: counting, recurrence relations, generating functions.

Linear Algebra: Matrices, determinants, system of linear equations, eigenvalues and eigenvectors, LU decomposition.

Calculus: Limits, continuity and differentiability. Maxima and minima. Mean value theorem. Integration.

Probability: Random variables. Uniform, normal, exponential, poisson and binomial distributions. Mean, median, mode and standard deviation. Conditional probability and Bayes theorem.

Section 2: Digital Logic

Boolean algebra. Combinational and sequential circuits. Minimization. Number representations and computer arithmetic (fixed and floating point).

Section 3: Computer Organization and Architecture

Machine instructions and addressing modes. ALU, data path and control unit. Instruction pipelining. Memory hierarchy: cache, main memory and secondary storage; I/O interface (interrupt and DMA mode).

Section 4: Programming and Data Structures

Programming in C. Recursion. Arrays, stacks, queues, linked lists, trees, binary search trees, binary heaps, graphs.

Section 5: Algorithms

Searching, sorting, hashing. Asymptotic worst case time and space complexity. Algorithm design techniques: greedy, dynamic programming and divide and conquer. Graph search, minimum spanning trees, shortest paths.

Section 6: Theory of Computation

Regular expressions and finite automata. Context-free grammars and push-down automata. Regular and context-free languages, pumping lemma. Turing machines and undecidability.

Section 7: Compiler Design

Lexical analysis, parsing, syntax-directed translation. Runtime environments. Intermediate code generation.

Section 8: Operating System

Processes, threads, inter-process communication, concurrency and synchronization. Deadlock. CPU scheduling. Memory management and virtual memory. File systems.

Section 9: Databases

ER-model. Relational model: relational algebra, tuple calculus, SQL. Integrity constraints, normal forms. File organization, indexing (e.g., B and B+ trees). Transactions and concurrency control.

Section 10: Computer Networks

Concept of layering. LAN technologies (Ethernet). Flow and error control techniques, switching. IPv4/IPv6, routers and routing algorithms (distance vector, link state). TCP/UDP and sockets, congestion control. Application layer protocols (DNS, SMTP, POP, FTP, HTTP). Basics of Wi-Fi. Network security: authentication, basics of public key and private key cryptography, digital signatures and certificates, firewalls