

SARDAR VALLBHBHAI NATIONAL INSTITUTE OF TECHNOLOGY, SURAT.  
COMPUTER ENGINEERING DEPARTMENT

List of Eligible Candidates for M. Tech. Programme (under ICCR scheme) June – 2021

- The following candidates are requested to appear for M. Tech. written test process online on 28/06/2021 at 10.00 AM. (Please visit institute website for any instructions update. The written test process is online. The Google classroom link will be communicated on your email-id.)


Sr. No.	Name of the Candidate
1.	Rohan Prasad Gupta
2.	Wasihun Kindalem Worku
3.	Nabiullah Karimi
4.	Hasib Ahmed Khaliqi
5.	Abdulwali Gulistani

  
18/06/2021

PG In-charge, CoED

Date: 18/06/2021

Cc. to: (1) Dean (Acad.) (2) Dy. Registrar (Acad.) (3) Prof. I/C CCC for uploading the same on Institute web site.

  
18/06/21

Head, CoED

**Head,**  
**Computer Engg. Deptt**

Enclosed: Syllabus for written test

Sardar Vallabhbhai National Institute of Technology  
Computer Engineering Department  
ICCR MTech Admission  
Syllabus for Written Examination – June 2021

**1. Engineering Mathematics**

*Discrete Mathematics*: Propositional and first-order logic. Sets, relations, functions, partial orders and lattices. Groups. Graphs: connectivity, matching, coloring.

**2. Computer Organization and Architecture**

Number representation and arithmetic / logical operations, ALU, data-path and control unit. Instruction pipelining. Memory hierarchy: cache, main memory and secondary storage; I/O interface (interrupt and DMA mode).

**3. Programming and Data Structures**

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

**4. 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, and shortest paths.

**5. 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 un-decidability.

**6. Compiler Design**

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

**7. Operating System**

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

**8. Databases**

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

**9. 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.