

GATE 2019 CS Syllabus

Candidates who appear for the exam must go through the GATE Computer Science and Information Technology syllabus to score better in the exam. CS syllabus is divided into 10 section as given below:

Computer Science and Information Technology

Section 2: Digital Logic

It deals with logical structure of digital circuits. How the circuits will be made. What the output we will get on joining the circuits.

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

Section 3: Computer Organization and Architecture

It deals with set of rules for microarchitecture of computer.

The topics are: 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

It is studied to know how the information is stored in the computer and how it will be retrieved back efficiently.

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

Section 5: Algorithms

The algorithms are studied to learn how the problems are solved in computer science. It will teach you patterns how can use to solve the problems

The topics are: 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

Theory of computation (alluded to as TOC here on) establishes a solid framework for a great deal of dynamic territories of computer science. In the event that you take a gander at it from a separation, theory of computation is a nearby cousin of Artificial Intelligence than say Probability or Computer vision

The topics are: Regular expressions and finite automata. Context-free grammars and pushdown automata. Regular and context-free languages, pumping lemma. Turing machines and undecidability.

Section 7: Compiler Design

It is useful for the improvement software by hiding low level languages and how to detect errors in softwares.

The topics are: Lexical analysis, parsing, syntax-directed translation. Runtime environments. Intermediate code generation.

Section 8: Operating System

It is deals with the organisational structure of Operating system, types of operating system and how the operating system works.

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

Section 9: Databases

It deals with how the data is stored, what is database, types of database and how database are useful.

The topics are: 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

It deals with types of networks, how the networking is done, how the information is transferred from one point to other.

The topics are: 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.