Blended Gate Course Schedule

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DATE	MODULE	CHAPTER	TOPIC
2020-01-20	C PROGRAMMING	Introduction to C Programming	C: What, Why and How? , Simplified model of a computer, Tools for Coding, Input and Output, Choosing one option vs another, Repeating over and over, Character Set in C , Keywords and Identifiers, Data Types, Variables, Constants
2020-01-21	C PROGRAMMING	Introduction to C Programming	Input and Output, Formatting input and output ,Revision Introduction to C Programming
2020-01-22	C PROGRAMMING	Basics with examples	Reuse and Simplify,Revision Basics with examples
2020-01-23	C PROGRAMMING	Operators and Expressions	Arithmetic Operators: Integers, Arithmetic Operations: Floats, Assignment Operators, Increment & Decrement Operators, Solved Problem [GATE 2017] , Relational Operators, Logical or Boolean operators, Comma operator, Condition (ternary) operator, Solved Problem GATE 2008 , Sizeof operator , Precedence and Associativity, Type Casting/ Conversion, Bitwise Operations,Revision Operators and Expressions
2020-01-24	C PROGRAMMING	Control statements	If else, while loop, do-while loop, for-loop, Nested and Infinite loops, break and continue, goto, switch-case, Sample Problem [GATE 2016], Solved Problem [GATE 2015], Solved Problem [GATE 2015], Solved Problem [GATE 2014], Solved Problem [GATE 2012], Solved Problem [GATE 2004], Solved Problem [GATE 2014],Revision Control statements

2020-01-25	C PROGRAMMING	Functions	Introduction to Functions , Let's dive into functions, Local, Global and Static Variables , Recursion: the basics , Recursion: Towers of Hanoii , Storage classes: auto, extern, static, register , Solved Problems: 1 to 5 [GATE 2019, 2019, 2018, 2018, 2018] ,Revision Functions
2020-01-26	C PROGRAMMING	Pointers	Introduction to pointers , Dereferencing of pointers , Let’s dive into pointers. , Pointers and Arrays , Pointers and 2D arrays , Pointers and Functions , Array of pointers and Void pointers , Dynamic memory allocation ,Revision Pointers
2020-01-27	C PROGRAMMING	Strings	Introduction to Strings in C , Library Functions , Pointers, Arrays and Strings , Pointers to arrays revisited ,Revision Strings
2020-01-28	C PROGRAMMING	Structures and Unions	Introduction to Structures , Lets dive into strcutures , Unions and typedef ,Revision Structures and Unions
2020-01-29	C PROGRAMMING	Files & Miscellaneous topics in C	Introduction to files, File I/O, Enumerators , Function-pointers , Static and Dynamic Scoping + Solved problems ,Revision Files & Miscellaneous topics in C
2020-01-30	DATA STRUCTURES AND ALGORITHMS	Sorting & Searching	Why study DS and Algorithms, Why bother with these simple tasks,Revision Sorting & Searching
2020-01-31	DATA STRUCTURES AND ALGORITHMS	Insertion Sort	Satellite data and key, How it works: Card-sorting, Pseudo code, Correctness, In-place sorting, Stable sort, Online sorting,Revision Insertion Sort

2020-02-01	DATA STRUCTURES AND ALGORITHMS	Analyzing an algorithm , Big O, Theta, Omega notation	Model of computation, Space and time analysis of Insertion Sort-1, Space and time analysis of Insertion Sort-2, Insertion sort: Big O-notation, Notations: Big O, Notations: Big Omega, Theta, Notations: Small O, Omega, Theta, Relationships between various notations, Order of common functions & real world applications, Why does asymptotic analysis matter in the real world, Solved Problem: Polynomials, Solved Problem: n>n0 case, Solved Problem: GATE 2001, Solved Problem: GATE 2011, Solved Problem: GATE 2003, Inversions, Solved Problem: GATE 2003, Inversions, Solved Problem: GATE 2008, GATE 2013, GATE 2006,Revision Analyzing an algorithm , Big O, Theta, Omega notation
2020-02-02	DATA STRUCTURES AND ALGORITHMS	Merge Sort	Why learn another sorting algorithm, How it works: Intuition, Pseudo Code, Analyzing time & space complexity, Recursion tree method: intuition, External Merge-Sort, Solved Problem GATE 2007, Solved Problem , Solved Problem GATE 2015,Revision Merge Sort
2020-02-03	DATA STRUCTURES AND ALGORITHMS	Solving Recurrences& Recursion in programming	Recursion tree method, Master theorem, Extended Master Theorem, Inadmissible cases & Shortcuts, Substitution method, Factorial: Time and Space complexity, Recursion vs iteration, Tail recursion/Tail-Call Optimization,Revision Solving Recurrences& Recursion in programming
2020-02-04	DATA STRUCTURES AND ALGORITHMS	Solved Problems of Solving Recurrences & Recursion in programming	GATE 2011, Fibonacci: Time Complexity, GATE 2007, GATE 2006, Shortcut + GATE 2004, GATE 2009, GATE 2008, GATE 2005, GATE 2003, GATE 2016, GATE 2016,Revision Solved Problems of Solving Recurrences & Recursion in programming

2020-02-05	DATA STRUCTURES AND ALGORITHMS	Bubble Sort, Quick Sort	How it works: intuition + code, Space and time complexity, Why bubble sort should be avoided, Solved Problem GATE 2000, Solved Problem GATE 1995, Why do we need another sorting algorithm?, How it works: intuition, Partitioning, Quick sort by recursion, Time complexity: Best and Worst cases., Randomized quicksort and amortized analysis, Solved Problem GATE 2016, Solved Problem GATE 2009, Solved Problem GATE 2001, Solved Problem GATE 2008, Solved Problem GATE 2015, Solved Problem GATE 2014, Solved Problem GATE 2019,Revision Bubble Sort, Quick Sort
2020-02-06	DATA STRUCTURES AND ALGORITHMS	Selection Sort, Linear time sorting	How it works: intuition + code, Space and time complexity., When to use Selection sort?, Solved Problem GATE 2013, 2009, Solved Problem GATE 2007, Solved Problem GATE 2016, Sample Question, Lower bounds on worst case of comparison sorting, Counting sort: intuition + code, Space and time complexity, Radix Sort, Where to use which sorting algorithm?, Solved Problem GATE 2008,Revision Selection Sort, Linear time sorting
2020-02-07	DATA STRUCTURES AND ALGORITHMS	Circular Linked List	Structure & memory organization, Code for node, Insertion, Delete, Traversal & Search, Drawbacks, Solved Problem GATE 2002, Solved Problem GATE 2010, Motivation for DLL, Structure & memory organization, Insert, Delete, Drawbacks, Motivation, Singly and Doubly Linked Circular Lists, Code, Solved Problem GATE 2016,Revision Circular Linked List

2020-02-08	DATA STRUCTURES AND ALGORITHMS	Stacks concepts, Solved Problems of Stacks	Motivation: Why we need them?, Operations: Push and Pop, How to implement a stack?, Application: Parenthesis check, Infix, Prefix and Postfix, Infix to Postfix, Infix to Prefix, Evaluation of postfix, Evaluation of prefix, More Applications: Call Stack, Worst case, Sedgewick's solution, GATE 2004-1, GATE 2004-2, GATE 2007, GATE 1997, GATE 2005, GATE 1991,Revision Stacks concepts, Solved Problems of Stacks
2020-02-09	DATA STRUCTURES AND ALGORITHMS	Queues	Motivation: Why we need them?, Operations: Enqueue and Dequeue, How to implement them?, Linear and Circular Queue implementations., Solved Problem GATE 2004, Solved Problem GATE 2016, Solved Problem GATE 2013, Solved Problem GATE 2016-2, Solved Problem GATE 2012, Solved Problem GATE 2018, Solved Problem GATE 1996, Solved Problem GATE 2007, Solved Problem GATE 2014,Revision Queues
2020-02-10	DATA STRUCTURES AND ALGORITHMS	Arrays as a data-structure, Solved Problems	One-dimensional array, Multi-dimensional array, Symmetric matrix, Lower triangular matrix & Diagonal matrix, Tridiagonal matrix, Z-matrix, Toeplitz Matrix, Dynamic arrays & Amortized time, Array vs Linked Lists, GATE 2000-1, GATE 2000-2, GATE 2004, GATE 2005, GATE 1994, GATE 1998, GATE 2004, GATE 2015, GATE 2002,Revision Arrays as a data-structure, Solved Problems
2020-02-11	DATA STRUCTURES AND ALGORITHMS	Implementation using Arrays	Linear Search: intuition and code, Intuition, Pseudo code, Binary Search Tree: intuition & terminology, Implementation using Pointers/References, Implementation using Arrays,Revision Implementation using Arrays

2020-02-12	DATA STRUCTURES AND ALGORITHMS	Randomized BST	Build a BST, Operations: Search, Insert, Min and Max, Traversals: in-order & sort, pre-order, post-order, Operations: Delete, Randomized BST,Revision Randomized BST
2020-02-13	DATA STRUCTURES AND ALGORITHMS	Solved Problems	GATE 2003, GATE 2018, GATE 2017, GATE 2017, GATE 2003, GATE 2003, GATE 2013, GATE 2015, GATE 2011, GATE 1994, GATE 2014,Revision Solved Problems
2020-02-14	DATA STRUCTURES AND ALGORITHMS	Trees, Application: Expression Evaluation	Logical structure & implementation, Terminology & Traversals, Types of Binary Trees, Properties of a Tree: Depth, Nodes, Leafs, Application: Backtracking for Sudoku(optional), Application: Backtracking for Eight Queens(optional), Applications of Trees: Hierarchical information, Websites (DOM) (OPTIONAL), GATE 2004, GATE 2010, GATE 2017, GATE 2013, GATE 2006, GATE 2006, Postfix to Expression Tree, Evaluating an expression Tree,Revision Trees, Application: Expression Evaluation
2020-02-15	DATA STRUCTURES AND ALGORITHMS	Heap Sort	Heap: What and Why?, Heapify, Build a Heap, Time Complexity of build_max_heap, Heap Sort, Time and Space complexity of HeapSort, Priority queues: Application of Heaps, Comparison of all sorting methods (time and space complexity), Solved Problem GATE 2006, Solved Problem GATE 2005, Solved Problem GATE 2003, Solved Problem GATE 2018, Solved Problem GATE 2016, Solved Problem GATE 2004-1, Solved Problem GATE 2004-2, Solved Problem GATE 2014,Revision Heap Sort

2020-02-16	DATA STRUCTURES AND ALGORITHMS	Solved Problems	AVL Trees: What and Why?, Height of an AVL Tree & Searching, Single rotation: LL, RR, RL rotation, LR rotation, Insertion with example, Delete, GATE 2009, GATE 2008, Sample Question,Revision Solved Problems
2020-02-17	DATA STRUCTURES AND ALGORITHMS	Solved Problems	Hash-Tables: What and Why?, Direct access table, Hash Functions and collisions, Chaining & load factor, Division method (Modulo Hash function), Multiplication method, Open Addressing (Closed Hashing), Linear probing, Double Hashing, Quadratic Probing, Sparse Matrix representation, Super Fast Search, GATE 2004, GATE 2014, GATE 2015, GATE 2006, GATE 2015, GATE 2007, Sample Question-8,Revision Solved Problems
2020-02-18	DATA STRUCTURES AND ALGORITHMS	Graphs-I	Graphs: Why, What and Basics, Representation of Graphs: Adjacency Matrix, Representation of Graphs: Adjacency Lists, Connectivity in undirected Graphs, Connectivity in Directed Graphs, Breadth First Search: Intuition and example, BFS: Color coding intuition, BFS: Code and Complexity, BFS: Applications, Depth First Search: Intuition and code, DFS: Analysis, DFS: Edge types, Application of DFS: Detect cycles in a di-graph, Application: Strongly connected components, Application of DFS: Topological Sort, Solved Problems GATE 2003, Solved Problem GATE 2016, Solved Problem GATE 2016 - 1, Solved Problem GATE 2000, Solved Problem GATE 2014-Set 1, Solved Problem GATE 2014 Set 2, Solved Problem GATE 2014 Set 3,Revision Graphs-I

2020-02-19	DATA STRUCTURES AND ALGORITHMS	Graphs: Shortest Paths	Minimal Spanning Tree: What and Why?, Kruskal's Algorithm, Prim's Algorithm, Properties of MST, Solved Problem GATE 2016, Solved Problem-2, Solved Problem: MST using Prim's and Kruskal's Algorithms, Solved Problem GATE 2016, Solved Problem GATE 2005, Solved Problem GATE 2006, Solved Problem GATE 2014, Solved Problem GATE 2015, Shortest paths: What and Why?, Dijikstra's Algorithm, Bellman-Ford Algorithm
2020-02-20	DATA STRUCTURES AND ALGORITHMS	Graphs: Shortest Paths	Shortest Paths for DAGs, All Pairs shortest paths: Matrix Operations, Floyd-Warshall Algorithm, Solved Problem GATE 2013, Solved Problem GATE 2006, Solved Problem GATE 2004, Solved Problem GATE 2008, Solved Problem GATE 2007, Solved Problem GATE 2012, Solved Problem GATE 2009, Solved Problem GATE 2005, Solved Problem GATE 2016 - 1, Solved Problem GATE 2016 - 2,Revision Graphs: Shortest Paths
2020-02-21	DATA STRUCTURES AND ALGORITHMS	Dynamic Programming	Introduction: Fibonacci numbers, Longest Common Subsequence (LCS), LCS: Example, 0/1 Knapsack, 0/1 Knapsack: example, Matrix Chain Multiplication, Subset-sum problem, Traveling Salesman problem
2020-02-22	DATA STRUCTURES AND ALGORITHMS	Dynamic Programming	Bellman Ford Algorithm as Dynamic Programming, Floyd Warshall Algorithm as Dynamic Programming, Solved Problem GATE 2016, Solved Problem GATE 2015, Solved Problem GATE 2011, Solved Problem GATE 2008,Revision Dynamic Programming

2020-02-23	DATA STRUCTURES AND ALGORITHMS	Greedy Algorithms	Greedy Algorithms: Fractional Knapsack, Solved Problem: GATE [2018], Huffman Coding for Data Compression, Solved Problem: GATE 2017, Solved Problem: GATE 2007, Solved Problem: GATE 2006, Job Sequencing with deadlines, Solved Problem [GATE 2005], Optimal Merge Pattern, Solved Problem: GATE 1999, Solved Problem: GATE 2014, Minimum Spanning Trees: Prim's algorithm, Minimum Spanning Trees: Greedy Kruskal's Algorithm, Greedy Algorithm: Dijkstra's algorithm,Revision Greedy Algorithms

2020-02-24	DATA STRUCTURES AND ALGORITHMS	Previous year GATE Questions (2018)	Previous year GATE Questions (2015), Previous year GATE Questions (2016), Previous year GATE Questions (2016), Previous year GATE Questions (2016), Previous year GATE Questions (2016), Previous year GATE Questions (2016), Previous year GATE Questions (2016), Previous year GATE Questions (2016), Previous year GATE Questions (2016), Previous year GATE Questions (2016)

2020-02-25	DATA STRUCTURES AND ALGORITHMS	Previous year GATE Questions (2018)	Previous year GATE Questions (2016), Previous year GATE Questions (2016), Previous year GATE Questions (2016), Previous year GATE Questions (2016), Previous year GATE Questions (2016), Previous year GATE Questions (2016), Previous year GATE Questions (2016), Previous year GATE Questions (2016), Previous year GATE Questions (2016), Previous year GATE Questions (2017), Previous year GATE Questions (2017), Previous year GATE Questions (2017), Previous year GATE Questions (2017), Previous year GATE Questions (2017), Previous year GATE Questions (2017), Previous year GATE Questions (2017), Previous year GATE Questions (2017), Previous year GATE Questions (2017), Previous year GATE Questions (2017), Previous year GATE Questions (2018),Revision Previous year GATE Questions (2018)
2020-02-26	Theory of computation	An Applied Introduction	Why Study Theory of Computation (TOC)?, Mathematical foundations (recap), Alphabets, Strings, Languages & Grammars,Revision An Applied Introduction
2020-02-27	Theory of computation	Finite Automata	Operators on Alphabets and Languages, Finite Automata: introduction with examples, Language of a FA with examples, Construction of a FA for finite languages, Construction of FA for non-finite languages-I, Construction of FA for non-finite languages-II, Solved problems: Constructing DFA -III
2020-02-28	Theory of computation	Finite Automata	Solved Problems: Constructing DFA-IV, DFAs on binary, trinary and decimal strings, Complement, Union and Intersection of FA, Counting DFAs, Non-deterministic Finite Automata (NFA) + solved problems, Conversion from NFA to DFA

2020-02-29	Theory of computation	Finite Automata	epsilon-NFA + conversion to NFA and DFA, Properties and Equality of FA, DFA MInimization, Moore Machine + Solved problems, Meelay Machine + solved problems, Conversions: Moore <----> Meelay Machines,Revision Finite Automata
2020-03-01	Theory of computation	Regular Languages	Regular Languages: examples and properties, Regular Expressions - introduction + examples, Regular Expressions: Solved problems, Constructing Regular Expressions + Solved problems, FA --> RE (using Arden's Lemma), FA--> RE (Elimination Method), RE ----> FA, Algebraic properties of RE
2020-03-02	Theory of computation	Regular Languages	Pumping Lemma for Regular Languages,Revision Regular Languages
2020-03-03	Theory of computation	Grammars & Languages	Grammars: an introduction, Solved example/problems, Designing grammars for languages -I, Designing grammars for languages -II, Chomsky's hierarchy of Grammars and Languages
2020-03-04	Theory of computation	Grammars & Languages	Regular Grammars and RLG--> eNFA, Equivalences: RLG <---> LLG <---> FA,Revision Grammars & Languages
2020-03-05	Theory of computation	Context Free Grammars and PDAs	CFG: introduction and optimization, Normal Forms: CNF and GNF, Decision properties of CFG: Emptiness, finiteness, Membership & CYK algorithm, Push Down Automata: introduction + examples, PDA: more examples, CFG ---> PDA
2020-03-06	Theory of computation	Context Free Grammars and PDAs	Pumping Lemma for CFLs, Closure properties of CFLs, NOTE for GATE: Closure properties,Revision Context Free Grammars and PDAs

2020-03-07	Theory of computation	Turing Machines	Turing Machine: an introduction, More Examples of TMs, Properties and types of TMs, Languages of TM and closure properties., More Closure properties of REC and REL, Linear Bounded Automata & Context Sensitive Langauges.,Revision Turing Machines
2020-03-08	Theory of computation	Undecidability & Computational Classes	Introduction + Encoding a TM as a binary string, Non-REL Language: Diagnolization language, Universal Turing Machine (UTM), REL but not REC languages + Reductions, Halting Problem + Problems ~ Languages, L_e and L_ne, Note for GATE, Rice theorem + applications + common mistakes, Post's Correspondence Problem (PCP), Decision Problems about Languages (relevant to decidability), Decidability of Problems about Languages, Solved problems on Undeciedability, Computational classes: P and NP, NP complete & NP hard problems
2020-03-09	Theory of computation	Undecidability & Computational Classes	Examples of problems in P, NPC, NPH,Revision Undecidability & Computational Classes
2020-03-10	Compiler Design	Syntax Analysis/Parser	Compilers: A high level overview., Phases of a compiler: example using C programming, Symbol Table and Error Handler, Lexical Analysis : a deep-dive, More Solved problems, CFG: a recap, Recursive Grammars and Conversions., Ambiguous Grammars & Properties

2020-03-11	Compiler Design	Syntax Analysis/Parser	Left factoring + Deterministic CFGs, Dangling -else ambiguity + CFG for C programming, Over view of parsers+Types + Brute-Force + RDP, LL(1) Parser: First, LL(1) Parser: Follow(A), LL(1) Parser: Parse Table+ Algorithm, LL(1) Grammars & Properties, Bottom-up-Parsers: Introduction
2020-03-12	Compiler Design	Syntax Analysis/Parser	LR(0) Parsing, LR(0) Parser: more examples, LR(0) Grammars and Conflicts, SLR(1), CLR(1) & LALR(1), CLR(1) and LALR(1) Grammars and examples, Operator Precedence Parser
2020-03-13	Compiler Design	Syntax Analysis/Parser	Revision Syntax Analysis/Parser
2020-03-14	Compiler Design	Intermediate Code Generation	Syntax Directed Translation (SDT), Constructing SDT with examples, Types of SDTs, ICG + 3-address codes,Revision Intermediate Code Generation
2020-03-15	DIGITAL LOGIC DESIGN	Introduction & Applications of Digital Logic Design	Introduction to Digital Logic Design , Head light warning system , Door locking Alert System , Railway Signaling System ,Revision Introduction & Applications of Digital Logic Design
2020-03-16	DIGITAL LOGIC DESIGN	Number System	Number System Introduction , Number System : Inter Conversion , Number system : Binary to decimal , Previous year Gate Questions 2004 , Previous year Gate Questions 2008 , Previous year Gate questions 2014 , Previous year Gate Questions 2014 , Solved Problems , Sample question , Number Systems-II (Grey Codes, Self Complement codes, r's and r-1's Complement) , Float representaion and imitation of normalized mantissa , Floating point representation Part-2 , Floating point representation Practice Questions , Booth_Algorithm_need , Booth_Algorithm_booths_notation , Booth_Algorithms_example

2020-03-17	DIGITAL LOGIC DESIGN	Number System	Booth_Algorithm gate_questions ,Revision Number System
2020-03-18	DIGITAL LOGIC DESIGN	Boolean expressions	Basics of boolean expressions , Canonical form & standard form , Example Problems on minterms and maxterms , Characterstics of Boolean expression , Boolean expression characterstics: Duality , Boolean expression characterstic: Self Duality , Boolean expression characterstic: Complementation-Demorgon Laws , Representation of boolean expression , Example Problems on boolean representation , Example Problems on Generalized boolean Functions & representation , Boolean laws Overview, Identity law , Boolean laws -Commutative, Associative, Distributive laws , Compensation law , Shanon's Expansion Theorem , Solved problems
2020-03-19	DIGITAL LOGIC DESIGN	Boolean expressions	Solved problems , Gate questions on Boolean Expressions , Logic system introduction , Demorganlaws and Gateproblems ,Revision Boolean expressions
2020-03-20	DIGITAL LOGIC DESIGN	Logic Gates	Logic gates : AND, OR and NOT , Universal Gates: NAND, NOR , NAND-NAND, NOR-NOR Realizations , Other gates EXOR & EXNOR , EXOR Properties , Proof For EX-OR problems-1 (Optional) , Proof For EX-OR Problem-2 (Optional) , Inter conversion of logic systems ,Revision Logic Gates
2020-03-21	DIGITAL LOGIC DESIGN	K-MAPS	K-MAPS Basics , K-MAPS Part-1 , K-MAPS Part-2 , Previous year gate questions , Incompletely specified k-maps, FUNCTIONAL K-MAPS , 5-Variable k-map , VEM K-maps ,Revision K-MAPS

2020-03-22	DIGITAL LOGIC DESIGN	Combinational Circuits	Combinational circuits : Half Adder, Full Adder, Half Subtractor, Full Subtractor , Combination circuits: Parallel Adder/Subtractor, BCD Adder , Previous year Gate Questions : Adders, Subtractor , Comparator , Introduction to MSI Circuits : Multiplexer, Demultiplexer, Decoder & Encoder , Functional realization using Multiplexer , Multiplexer Expansion , Gate Questions on Multiplexer-1 , Gate Questions on Multiplexer-2 , Demultiplexer & Decoder , Decoder Applications , Encoder , ROM, PAL & PLA ,Revision Combinational Circuits
2020-03-23	DIGITAL LOGIC DESIGN	Sequential Circuits	Sequential Circuits , Introduction to Flipflops : SR Flipflop , SR Flip Flop : Characteristic Expression, Excitation Table, State Table and State diagram , SR-FlipFlop part-3 , JK-Flipflop , D-Flipflop , T-Flipflop , FF-Interconversion , Design a new AB Flip Flop using JK Flip flop , FF inter conversion GATE Questions , FF Clocks Terminology
2020-03-24	DIGITAL LOGIC DESIGN	Sequential Circuits	Memory Construction , Memory Expansion ,Revision Sequential Circuits
2020-03-25	DIGITAL LOGIC DESIGN	Counters	Basics of Counters , Synchronous Counters- Design Issues and Simplified versions (Shift Counter, Ring Counter, Johnson Counter) , Synchronous Counters : Design procedure , Asynchronous counters : Ripple Counter , Gatequestions on Counters , Sequence Detector , Synthesis of Serial Adder ,Revision Counters
2020-03-26	ENGINEERING & DISCRETE MATHEMATICS	Linear Algebra	Linear Algebra: Why and how, How to learn Mathematics, Vectors-1, Vectors 2, Matrices: linear transformations/functions, Matrix-Matrix Multiplication and Addition, Transpose & Dot product, Types of matrices

2020-03-27	ENGINEERING & DISCRETE MATHEMATICS	Linear Algebra	Determinant of a matrix, Minor, Cofactor, Adjoint, Inverse of a matrix, Solved Problems & Elementary row and column operations, Special types of Matrices and properties, Trace of a Matrix, Rank of a matrix, System of Linear Equations-1
2020-03-28	ENGINEERING & DISCRETE MATHEMATICS	Linear Algebra	System of Linear Equations-2, Solved Problems: GATE 2017, 2014, 2015, 2005, 2004, Eigen Values and Eigen Vectors, Cayley-Hamilton Theorem & Diagonalization, LU Decomposition,Revision Linear Algebra
2020-03-29	ENGINEERING & DISCRETE MATHEMATICS	Calculus	Why learn Calculus?, LIMITS: an introduction, LIMITS: Properties of Limits & Indeterminate forms, LIMITS: Solving Limits-1, LIMITS: Solving limits-2, LIMITS: L-Hopital Rule, LIMITS: Standard limits, LIMITS: Solved Problems, Continuity: an introduction, Discontinuities, Continuity: Solved problems, Differentiability, Differentiability: Solved Problems, Mean value theorem [MVT], MVT: Real world Application to speeding cars and fines, MVT: Solved problems, Maxima and Minima: an introduction
2020-03-30	ENGINEERING & DISCRETE MATHEMATICS	Calculus	Finding maxima and minima, Application of Maxima and Minima to Machine Learning, Maxima and Minima: Solved Problems, Integration: an introduction, Integration by Substitution, Integration by parts:, Integration by partial fractions, Properties of definite integrals, Integration: Solved Problems,Revision Calculus
2020-03-31	ENGINEERING & DISCRETE MATHEMATICS	Sets, Relations, Functions, Lattices and Groups	Sets: an introduction, Operations on Sets, Properties of Sets, Cartesian Product and Multi-Sets, Relations: an introduction, Reflexive and irreflexive relations, Symmetric, Antisymmetric, Asymmetric relations

2020-04-01	ENGINEERING & DISCRETE MATHEMATICS	Sets, Relations, Functions, Lattices and Groups	Transitive and Equivalence realtions, Partial order relation & Hasse diagrams, Functions: an introduction, Types of fucntions, Number of functions, Inverse & Composition of functions, Algebra of functions and Special Functions, POSET & TOSET: an introduction
2020-04-02	ENGINEERING & DISCRETE MATHEMATICS	Sets, Relations, Functions, Lattices and Groups	Hasse diagrams & POSET properties., Lattice: an introduction, Properties and Types of Lattices, Group theory: an introduction, Group Theory-II
2020-04-03	ENGINEERING & DISCRETE MATHEMATICS	Sets, Relations, Functions, Lattices and Groups	Cyclic groups and Sub-Groups,Revision Sets, Relations, Functions, Lattices and Groups
2020-04-04	ENGINEERING & DISCRETE MATHEMATICS	Logic: Propositional and Predicate	Why study Logic?, Prepositional Logic-I, Propositional Logic-II, Tautology, Contradiction, Contingency & Commutative and Associative Operators, Functionally Complete Set, Normal Forms (PDNF, PCNF), Arguments and Rules of Inference, Some more Translations from English to logical Statements, Predicate Logic: an introduction, Properties of Predicate Logic
2020-04-05	ENGINEERING & DISCRETE MATHEMATICS	Logic: Propositional and Predicate	Translation from English to Predicate Logic and vice-versa., More Translations and examples,Revision Logic: Propositional and Predicate
2020-04-06	ENGINEERING & DISCRETE MATHEMATICS	Counting and Combinatorics	Why study Combinatorics?, Permutations and Combinations: an introduction, Solved Problems-1, Solved Problems-2, Recap: Sum Rule, Product Rule, Principle of Inclusion-Exclusion, Solved Problems-3
2020-04-07	ENGINEERING & DISCRETE MATHEMATICS	Counting and Combinatorics	Derangements, Pigeon hole principle, Binomial Coefficients-1, Binomial Coefficients-2, Recurrence Relations: an introduction, Solving Recurrence relations-1, Solving Recurrence relations-2

2020-04-08	ENGINEERING & DISCRETE MATHEMATICS	Counting and Combinatorics	Generating functions for counting, Generating functions: more examples,Revision Counting and Combinatorics
2020-04-09	ENGINEERING & DISCRETE MATHEMATICS	Probability	Why study Probability?, Introduction, Axioms of Probability, Properties and Examples, Conditional Probability & Examples, Multiplication theorem, Independent events, Law of total Probability, Baye's Theorem
2020-04-10	ENGINEERING & DISCRETE MATHEMATICS	Probability	Solved problems, Random variables: an introduction, PMF, CDF and PDF of random variables, Expectation, Probability Distributions: Bernoulli and Binomial, Poisson Distribution, Uniform (continuous) distribution
2020-04-11	ENGINEERING & DISCRETE MATHEMATICS	Probability	Exponential Distribution, Normal Distribution, Mean, Median and Mode, Previous Year GATE Questions with answers,Revision Probability
2020-04-12	ENGINEERING & DISCRETE MATHEMATICS	Graph Theory	Why study Graph Theory?, Types of Graphs , terminology and Handshaking theorem, Havell-Hakimi Theorem & Average Degree Theorem, More special Graphs, Sub-graphs and other and path-related concepts, Solved Problems-1, Bi-partite Graph's Properties, Representation of Graphs, Set operations on Graphs, Graph Isomorphism, Connectivity of Graphs
2020-04-13	ENGINEERING & DISCRETE MATHEMATICS	Graph Theory	Connectivity-II, Eulerian and Hamilton Graphs, Planar Graphs, Trees, Graph Counting, Graph Coloring, Independence Sets and Dominating Sets.
2020-04-14	ENGINEERING & DISCRETE MATHEMATICS	Graph Theory	Matchings and Coverings, Solutions to Practice Test-1 of Graph Theory, Previous year GATE questions (no answers), Previous year GATE questions (with solutions),Revision Graph Theory

2020-04-15	APTITUDE	Numbers system	Number introduction, Number Fractions, Rational & Irrational Numbers, Factors & Multiples, Numbers divisibility rules, Properties on Divisibility, Numbers Remainder theorm
2020-04-16	APTITUDE	Numbers system	Numbers Unit digit, Base system, Indices and surds Part-1, Indices and surds Part-2, Progressions, Previous year GATE Questions 2010, Previous year GATE Questions 2014
2020-04-17	APTITUDE	Numbers system	Previous year GATE Questions 2018, Previous year GATE Questions 2018, Previous year GATE Questions 2013,Revision Numbers system
2020-04-18	APTITUDE	LCM and HCF	Lcm & Hcf Introduction, Problems on LCM, Problems on HCF, LCM & HCF of decimals,Revision LCM and HCF
2020-04-19	APTITUDE	Ratio & Proportion	Ratio Introduction, Introduction of Proportion, Introduction of Variation, Solved problems 1 -10, Solved problems 11-13, Previous year Gate Questions, Solved Problems 14 -15, Previous year Gate Questions,Revision Ratio & Proportion
2020-04-20	APTITUDE	Averages	Averages introduction Part-1, Averages introduction Part-2, Averages introduction Part-3, Averages introduction Part-4, Solved problems, Solved problems Part-2, Previous year gate questions on averages,Revision Averages
2020-04-21	APTITUDE	Partnership	Partnership, Partnership problems,Revision Partnership
2020-04-22	APTITUDE	Percentages	Percentages introduction, Percentages solved problems, Problems on succesive percentage, Previous year GATE questions,Revision Percentages
2020-04-23	APTITUDE	Profit and loss	Profit and loss introduction, Problems on profit & loss, Problems on profit & loss, Previous year gate questions of Profit &Loss,Revision Profit and loss

2020-04-24	APTITUDE	simple interest & compound interest	simple interest introduction, Solved Problems, Solved Problems, Compound interest, Installments in Compound interest, GATE Previous questions on simple interest & compound interest,Revision simple interest & compound interest
2020-04-25	APTITUDE	Alligation	Concept of alligations, Problems on alligation, Problems on Alligation & mixture, Replacement or removal problems, Previous year gate exam questions on alligations, Previous year gate exam questions on alligations,Revision Alligation
2020-04-26	APTITUDE	time and work	Speed time & distance introduction, Speed time & distance problems, Speed time and distance problems, trains concept & problems, boats & streams concept & problems, Gate previous year questions, time and work introduction, Solved problems on time & work, Solved problems on time & work, Gate Previous year questions time & work
2020-04-27	APTITUDE	time and work	Pipes & cistern, Pipes & cistern problems,Revision time and work
2020-04-28	APTITUDE	Number series	Number series, Number series problems, Number series gate Previous year questions,Revision Number series
2020-04-29	APTITUDE	Geometry	Geometry basics, Types of angles, Basic problems on geometry, Triangles, Important terms in triangle, Important theorems in triangles, Similarity of triangles, Useful results on triangles, Solved problems triangles, Solved problems triangles, Quadilaterals, Important concepts on quadilateral, Problems on quadilateral, Circles, Circles part 2, Circles part-3, Circles problems, Circles problems Part-2
2020-04-30	APTITUDE	Geometry	Previous year gate questions,Revision Geometry

2020-05-01	APTITUDE	Mensuration 3D	Introduction, Circles, Quadilaterals, Polygons, Combinations, Pathways, Example Problems, Example Problems, Example Problems, Mensuration 3D - Solid figures, Solved problems on Mensuration 3D
2020-05-02	APTITUDE	Mensuration 3D	Revision Mensuration 3D
2020-05-03	APTITUDE	Data interpretation	Introduction to Data interpretation, Problems on Data interpretation, Problems on bar graph, Problems on line graph, Problems on pie chart, Previous Gate questions on Data interpretation, Previous Gate questions on Data interpretation(Part-2),Revision Data interpretation
2020-05-04	DATABASE MANAGEMENT SYSTEMS	Introduction to Relational models	Applied Overview, Why not simply use files: Files vs DBMS , Tables and Keys, Integrity Constraints, Solved Problems, Introduction to ER diagrams, Cardinality of relationships and constructing minimal tables
2020-05-05	DATABASE MANAGEMENT SYSTEMS	Introduction to Relational models	Weak and Strong Entities, Self-refernrtial Relationships and constructing Tables , Solved Problems, Mathematical model of Tables , ER-Relational Model, Constraints and Keys (recap) , Solved Problems,Revision Introduction to Relational models
2020-05-06	DATABASE MANAGEMENT SYSTEMS	Tuple Relational Calculus	Introduction to Relational Algebra and Basic Operators , Joins and Division Operators , Solved Problems, Tuple Relational Calculus-I , Safe queries & Domain Relational Calculus , Solved Problems,Revision Tuple Relational Calculus

2020-05-07	DATABASE MANAGEMENT SYSTEMS	SQL: more examples and solved problems	[Optional] Overview of Databases for learning SQL., Why Learn SQL?, Execution of an SQL statement, IMDB Dataset, [Optional] Installing MySQL, Load IMDB data, USE, DESCRIBE, SHOW TABLES, SELECT, LIMIT, OFFSET, ORDER BY, DISTINCT, WHERE, Comparison operators, NULL, Logical Operators, Aggregate Functions: COUNT, MIN, MAX, AVG, SUM, GROUP BY , HAVING, Order of Keywords
2020-05-08	DATABASE MANAGEMENT SYSTEMS	SQL: more examples and solved problems	Join and Natural Join, Inner, Left, Right and Outer joins. , Sub Queries/Nested Queries/Inner Queries , INSERT, UPDATE, DELETE, CREATE TABLE , ALTER: ADD, MODIFY, DROP , DROP TABLE, TRUNCATE, DELETE , Data Control Language: GRANT, REVOKE, Learning resources, Solved Problems - 1, Solved Problems - 2, Solved Problems - 3,Revision SQL: more examples and solved problems
2020-05-09	DATABASE MANAGEMENT SYSTEMS	Functional Dependencies and Decomposition	Designing tables in a DB , Functional Dependencies , Attribute Closure, Keys and Solved problems , Functional Dependency Sets and Properties + Solved examples , Minimal/ Canonical Covers of FDs + solved problems , Decompositions with solved problems , Dependency preserving decomposition + solved examples ,Revision Functional Dependencies and Decomposition
2020-05-10	DATABASE MANAGEMENT SYSTEMS	Normalization	Introduction to Normalisation + 1NF and 2NF +examples , 3NF and BCNF , Solved problems + Properties of Normal Forms , Multi-Valued Dependencies and 4NF ,Revision Normalization

2020-05-11	DATABASE MANAGEMENT SYSTEMS	Transactions and concurrency control	Model of a computer for transactions & concurrency , ACID properties & Concurrency , Problems due to Concurrency , Recoverability of Schedules , Serializability of Schedules - Conflict Serializability
2020-05-12	DATABASE MANAGEMENT SYSTEMS	Transactions and concurrency control	View Serializability , Lock based concurrency control , Time stamp based protocols + Deadlock and Starvation prevention, Thomas Write Rule ,Revision Transactions and concurrency control
2020-05-13	DATABASE MANAGEMENT SYSTEMS	File structures (sequential files, indexing, B and B+ trees)	Files and Indexing: introduction , Trees and B+ Trees with examples , More Solved Problems , Terminology related to Indexes ,Revision File structures (sequential files, indexing, B and B+ trees)
2020-05-14	OPERAING SYSTEMS	An Applied Overview	OS: what does it do? , John von Neumann Architecture + History of Operating Systems , Modes of CPU execution + FORK () , Solved Problems ,Revision An Applied Overview
2020-05-15	OPERAING SYSTEMS	Process Management--- Basics + Scheduling algos	What is a Process? , Process States & Queues & Schedulers , CPU Scheduling (STS) timings , Scheduling Algorithms: FCFS , Scheduling Algorithms: SJF & SRTF , LRTF, HRRN & Priority based Scheduling
2020-05-16	OPERAING SYSTEMS	Process Management--- Basics + Scheduling algos	Round Robin and Multi-level-Queuing Algorithm , Solved Problems-1 , Solved Problems-II ,Revision Process Management--- Basics + Scheduling algos

2020-05-17	OPERAING SYSTEMS	Process Management --- Inter-Process-Communication	IPC+Synchronisation: an introduction , Producer-Consumer Problem: Challenges , Synchronisation Mechanisms -I , Detailed explanation about Disabling interrupt , Peterson Solution & TSL based synchonization , Sleep & Wakeup based synchornization , Semaphores , Producer-Consumer with Semaphores , Reader-Writer problem + Semaphores , Solved Problems-1 , Dining Philosopher's problem + Semaphores , Concurrent Programming: parbegin-parend Model
2020-05-18	OPERAING SYSTEMS	Process Management --- Inter-Process-Communication	Fork and Join Model of Concurrency ,Revision Process Management ---Inter-Process-Communication
2020-05-19	OPERAING SYSTEMS	Memory Management	Deadlocks: an introduction , Deadlock handling Methods , Avoidance: Banker's Algorithm , More Solved Problems-1 , Detection & Recovery , Multi-Threading: an introduction , Kernel and User level Threads
2020-05-20	OPERAING SYSTEMS	Memory Management	More Solved Problems-2 , Memory: an Hardware Overview - I , Memory: an Hardware Overview - II , Program linking and loading , Memory Management: the big picture + Overlays , Partitioning -Fixed , Partitioning-Variable
2020-05-21	OPERAING SYSTEMS	Memory Management	Non-Contiguous Memory Management + Simple Paging , Simple Paging-II , Multi-level-paging , Multi-Level-Paging -TLB & Hash-based Paging , Segmentation , Virtual-Memory + Demand Paging
2020-05-22	OPERAING SYSTEMS	Memory Management	Page replacement Strategies , Page replacement Strategies - II , Thrashing , More Solved Problems-I , More Solved Problems-II ,Revision Memory Management

2020-05-23	OPERAING SYSTEMS	File Systems and Disk Management	Files and Disks: hardware internals , Logical structure of a disk : Paritions, Files and Directories , File System Implementation , Unix and DOS Implementations , Disk Free-Space Management , Disk/Device Scheduling , More Solved problems ,Revision File Systems and Disk Management
2020-05-24	COMPUTER ORGANIZATION	An Applied Introduction	Why study COA?, Basics of Memory organisation, Memory Addressability, CPU-Memory interfacing, System Bus Configurations, Instruction Cycle: Fetch & Execute, CPU Organization: Stack CPU, CPU Organization: Accumulator CPU, CPU Organization: General Register CPU, CPU Org: Register-Register Reference CPU, Program Status Word (PSW) -I
2020-05-25	COMPUTER ORGANIZATION	An Applied Introduction	Program Status Word (PSW) -II, More Solved problems,Revision An Applied Introduction
2020-05-26	COMPUTER ORGANIZATION	Addressing modes	Addressing Modes-Introduction, Indirect, Indexed & AutoIndexed Modes, More Solved Problems, Transfer of control AM: Based & Relative, More Solved problems,Revision Addressing modes
2020-05-27	COMPUTER ORGANIZATION	Instruction Set	Instruction Set: Introduction, Transfer-of-control Intsructions, Instruction-Cycle with Interrupts + problems, Types of interrupts, RISC, More solved problems,Revision Instruction Set
2020-05-28	COMPUTER ORGANIZATION	Performance of a CPU	Components: micro-operations, Control-Unit - Hardwired, Control-unit: microprogrammed, More Solved Problems, Performance evaluation: Introduction + Amdhal's Law, Calculation of CPU time, CPU classification-SISD, SIMD, MISD, MIMD, Pipelining

2020-05-29	COMPUTER ORGANIZATION	Performance of a CPU	Types of Pipelines + Solved Problems, RISC Pipelining, Pipeline Dependencies/Hazards - I, Pipeline Dependencies/Hazards - II, More Solved problems-I, More Solved Problems-II,Revision Performance of a CPU
2020-05-30	COMPUTER ORGANIZATION	Memory Organization	Sequential and Hierarchical Memory access, Cache-Memory Organization, Mapping Techniques: Direct, Mapping Techniques: Associative & Set Associative, Replacement Methods, Updation Techniques, Multi-level-Cache, More Solved Problems-I, More Solved Problems-II,Revision Memory Organization
2020-05-31	COMPUTER ORGANIZATION	I/O Organization	I/O: Introduction, DMA, Solved Problem: GATE 2016,Revision I/O Organization
2020-06-01	COMPUTER NETWORKS	An Applied Introduction	Computer Networks: Why learn it?, OSI Model- I, OSI Model-II, TCP/IP Model, Physical Layer: Encoding of bits, Transmission Media and Modes, Network-types & Topologies: Terminology,Revision An Applied Introduction
2020-06-02	COMPUTER NETWORKS	Data Link Layer	Introduction to DLL, Flow control: Stop and Wait ARQ- I, Flow control: Stop and Wait ARQ-II, Sliding-Window-Protocols, Go-Back-N ARQ, Selective-Repeat ARQ, Multiple/Media Access Protocols: FDMA, TDMA and CDMA, Polling, Reservation , Token Passing
2020-06-03	COMPUTER NETWORKS	Data Link Layer	Token Passing efficiency, Aloha: Pure & Slotted, CSMA Protocols, CSMA/CD analysis & efficiency, Exponential-Backoff-Algorithm, More Solved problems from GATE, Error Control in MAC Layer
2020-06-04	COMPUTER NETWORKS	Data Link Layer	Framing,Revision Data Link Layer

2020-06-05	COMPUTER NETWORKS	LAN Protocols & Network Devices	Ethernet [IEEE 802.3], Token Ring Protocol [IEEE 802.5], IEEE 802.11 (Wireless LAN), Solved problems from GATE, Network Devices: Repeater, Hub, bridge, router & brouter, Collision-domain and Broadcast-domain, Spanning Tree Protocol, Solved Problem: GATE 2019,Revision LAN Protocols & Network Devices
2020-06-06	COMPUTER NETWORKS	Network Layer	An overview, IP address : Classfull addressing, Unicasting and Broadcasting, Subnetting -I, Subnetting-II, CIDR, Solved Problems -1, Supernetting, IPV4: Packet Format, IPV4: Fragmentation, Solved Problems -2, IPV4: Broadcasting, Localhost, ARP & RARP, BOOTP, DHCP & Private and Public IP addresses, ICMP
2020-06-07	COMPUTER NETWORKS	Network Layer	Routing Algorithms: Adaptive vs Non-adaptive, Distance-Vector-Algorithms, Link State Routing, Solved Problems-3, IP V6: addressing, IP V6: Packet Format,Revision Network Layer

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