

Summary of the Courses

3rd Year 1st Semester

Sl. No.	Course No.	Course Title	Theory hrs/week	Sessional hrs/week	Credits
1.	CSE-3511	Algorithm Design & Analysis	3	0	3.00
2.	CSE-3512	Algorithm Design & Analysis Sessional	0	3	1.50
3	CSE-3311	Database Systems	3	0	3.00
4.	CSE-3312	Database Systems Sessional	0	3/2	0.75
5.	Math-3411	Mathematics-V	4	0	4.00
6.	CSE-3211	Theory of Computation	3	0	3.00
7.	CSE-3811	Microprocessor and Assembly Language	3	0	3.00
8.	CSE-3812	Microprocessors and Assembly Language Sessional	0	3/2	0.75
9.	CSE-3110	Internet Programming Sessional	0	3	1.50
Total			16	9	20.50

Contact Hours: 16T +9S = 25 hrs/week

Total credits: 20.50

No. of Theory Courses: 5

No. of Lab / Sessional courses: 4

Detailed Syllabus

CSE-3511 Algorithm Design and Analysis

3 Hours/week

3.00 Credits

Techniques for analysis of algorithms, methods of designing efficient algorithms: divide and conquer, greedy method, dynamics programming, backtracking, branch and bound, basic search and traversal techniques, graph algorithms, algebraic simplification and transformations, lower bound theory, NP-hard and NP-complete problems.

CSE-3512 Algorithm Design and Analysis Sessional

3 Hours/week

1.50 Credits

Sessional based on Algorithm Design and Analysis (CSE-3511).

CSE-3311 Database Systems

3 Hours/week

3.00 Credits

Database concepts: files & database management System, entity-relationship model, relational algebra, SQL, integrity constraints, functional dependency, normalization, 1NF, 2NF, 3NF, BCNF, 4th normal form. Indexing & hashing, transaction processing & concurrency control, recovery system, distributed database & client server model, security & authorization.

CSE-3312 Database Systems Sessional

3/2 Hours/week

0.75 Credits

Sessional based on Database Systems (CSE – 3311).

Math-3411 Mathematics – V

4 Hours/week

4.00 Credits

Complex variables: Partial differential equation, boundary value problem, infinite series, special functions, complex number system, general functions

of a complex variable, limits and continuity of a function of complex variable and related theorems, complex differentiation and the Cauchy-Riemann equations. Line integral of a complex function, Cauchy integral formula, Liouville's theorem, Taylor's and Laurent's theorem. Contour integration; Singular points. Residue, Cauchy's residue theorem.

Infinite series: Sequences and series, convergence of series, uniform convergence. Absolute convergence and divergence.

Partial differential equation: Elimination of arbitrary constant and arbitrary function. Solution of differential equation by the method based on the factorization of the operator. Solution of the linear and non-linear partial differential equations by various methods. Homogeneous P.D.E. of higher order with constant co-efficient. Non-homogeneous linear equations with constant co-efficient. Non-homogeneous linear P.D.E. with variable co-efficient. Wave equations, particular solutions with boundary and initial conditions.

CSE-3211 Theory of Computation

3 Hours/week

3.00 Credits

Concepts of strings, languages, prefix, suffix, concatenation, recognition and generation of languages. Expressing languages, recursive definition of languages. Regular languages, regular expressions, finite automata (FA). Distinguishability of strings, unions, intersection and compliments of languages and their FAs. Non determinism in FA without Lamda transition. Non determinism in FA with Lamda transition, closure. Kleene's theorem, combining FAs. Regular languages Vs nonregular languages. Pumping lemma for regular language and its applications. Decision problems for regular languages. Context-free grammar (CFG)s and language (CFL)s. Context-free grammar (CFG)s and language (CFL)s. Unions, concatenations and kleene's stars of CFL's. Unions, concatenations and kleene stars of CFLs. Derivation trees. Ambiguity and unambiguity in derivation trees, and their causes. Normal form, Backus-Naur form, chomsky normal form. Push-Down Automata (PDA), deterministic PDA. PDA and CFG. Parsing: Top-down/Bottom-up. CFL and non-CFL languages; Pumping lemma for CFL. Intersection and complements of CFLs, decision problems. turning Machine

(TM)s. Combining TMs. Computing partial functions with TMs. Halting problem, undecidability and computability, recursion function theory, Chomsky hierarchy, deterministic context free languages, closure properties of families of languages, computational complexity theory, intractable problems, applications in parsing, pattern matching and the design of efficient algorithms.

CSE-3811 Microprocessor and Assembly Language

3 Hours/week

3.00 Credits

Microprocessor and microcomputers, Intel 8086 microprocessor: Internal architecture, register structure, addressing modes, interrupts, instruction set, assembly language programming. Evaluation of microprocessors applications, coprocessor. An overview of Intel 80186, 80286, 80386, 80486 and Pentium microprocessors, RISC and SISC processors.

CSE-3812 Microprocessor and Assembly Languages Sessional

3/2 Hours/week

0.75 Credits

Sessional based on Microprocessor and Assembly Language (CSE – 3811).

CSE-3110 Internet Programming Sessional

3 Hours/week

1.50 Credits

Internet and World Wide Web application HTML, SGML, XML, CGI programming, E-commerce, internet DBASE, Java script, VB script.