**Lesson Plan of the 5th semester for session 2021-22**

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| **Name of the faculty:** | Ms. Neha Malik |
| **Designation:** | Assistant Professor |
| **Discipline:** | Computer Science and Engg. |
| **Semester:** | 5th |
| **Subject:** | **FL&A ( PCC-CSE-305G)** |
| **Lesson Plan duration:** | 15 weeks |
| **Work Load per week in hours:** | Lectures- 03 |

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| **Week** | **Lecture**  **day** | **Topic (Including Assignment/Test)** |
| **UNIT – I** | | |
| 1 | 1 | Fundamentals, Introduction to Finite Automata |
| 2 | Finite automaton model |
| 3 | Acceptance of strings, and languages |
| 2 | 4 | Deterministic finite automaton |
| 5 | Non deterministic finite automaton, transition diagrams |
| 6 | NFA with ϵ-transitions - Significance, acceptance of languages |
| 3 | 7 | Conversions and Equivalence: Equivalence between NFA with and without ϵtransitions |
| 8 | NFA to DFA conversion |
| 9 | Minimization of FSM |
| 4 | 10 | Equivalence between two FSM’s |
| 11 | Properties and limitation of Finite automata |
| 12 | Finite Automata with output- Moore and Melay machines. |
| 5 | 13 | Conversion of mealy to moore machine |
|  | 14 | Conversion of moore to mealy machine |
|  | 15 | Revision of Finite automata |
| **UNIT – II** | | |
| 6 | 16 | Arden’s method |
| 17 | Regular Languages: Regular sets, Regular expressions, identity rules |
| 18 | Recursive definition of regular expression |
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| 7. | 19 | Regular expression conversion to Finite automata |
| 20 | Finite automata to regular expression |
| 21 | Introduction to regular language |
| 8. | 22 | Pumping lemma for regular language |
| 23 | Application of regular languages |
| 24 | Revision of regular languages |
| **UNIT III** | | |
| 9. | 25 | The Chomsky hierarchy: Regular grammars, unrestricted grammars |
|  | 26 | Relation between different Grammars |
|  | 27 | Introduction to CFG |
| 11. | 28 | Derivation trees, Right most and leftmost derivation of strings |
|  | 29 | Ambiguity in context free grammars. |
|  | 30 | Ambiguity in context free grammars.( Continued) |
| 12. | 31 | Minimization of Context Free Grammars. |
|  | 32 | Chomsky normal form |
|  | 33 | Greiback normal form,. |
| 13. | 34 | Push Down Automata: Push down automata, definition, model |
|  | 35 | Deterministic and non-deterministic PDA |
|  | 36 | Desigining of PDA |
| 14. | 37 | Equivalence of PDA to CFG |
|  | 38 | Revision of PDA |
|  | 39 | Revision of CNF and GNF |
|  |  | **UNIT – IV** |
| 15. | 40 | Turing Machine: Turing Machine, definition, model . |
| 41 | Design of TM, Computable functions, Construction Undesirability |
| 42 | Variants of TM, Halting problem of TM, PCP Problem of TM |
| 16. | 43 | Linear Bounded automata, Tm as Enumerators |
| 44 | Chruch-Turing thesis, universal TM, reduction between languages |
| 45 | Rice’s Theorem, undecidable problem |