**Post Graduate Government College for Girls, Sector-42, Chandigarh**

**Teaching Plan for Bachelors (Third and Fifth Semester) and Post Graduate (Third Semester)**

**Session (2020-2021)**

**Class: M.Sc 3rd Sem**   **Name of the Teacher: Dr.Monika Gogna**

**Subject: Theory of Computation Paper: MS-69**

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| **S. No** | **Dates** | **Topics to be Covered** |
| Week 1 | 03/08/2020 – 08/08/2020 | Definition, Description of Automata, Transition Systems, Language, Grammar, Deterministic & Non-Deterministic Finite State Machines, |
| Week 2 | 10/08/2020 – 14/08/2020 | Equivalence of DFA and NDFA, Finite State Machine with output (Moore Machine and Meally Machine), |
| Week 3 | 17/08/2020 – 22/08/2020 | Conversion of Moore Machine to Meally Machine & vice-versa, Minimization of Finite Automata. |
| Week 4 | 24/08/2020 – 29/08/2020 | Chomsky Classification of Languages, Languages and their Relations, Languages and Automata. |
| Week 5 | 31/08/2020- 05/09/2020 | Regular Expressions, Finite Automata and Regular Expressions, Conversion of NDFA to DFA, Arden’s Theorem, |
| Week 6 | 07/09/2020- 12/09/2020 | Construction of FA equivalent to Regular Expression, Equivalence of two Finite Automata, Equivalence of two Regular Expressions, |
| Week 7 | 14/09/2020- 19/09/2020 | Pumping lemma for Regular Sets and applications, Closure Properties of Regular Sets, |
| Week 8 | 21/09/2020- 26/09/2020 | Construction of Regular Grammar generating Transition System for a DFA, Construction of Transition System accepting Language for a Regular Grammar , limitations of finite state machine. |
| Week 9 | 28/09/2020- 03/10/2020 | Assignments |
| Week 10 | 05/10/2020- 10/10/2020 | Assignments |
| Week 11 | 12/10/2020- 16/10/2020 | Seminar |
| Week 12 | 19/10/2020- 24/10/2020 | Seminar |
| Week 13 | 27/10/2020- 30/10/2020 | Context free grammar, Simplification of Context Free Grammars, Normal Forms for Context Free Grammers: Chomsky Normal Form, |
| Week 14 | 03/11/2020- 07/11/2020 | Greibach Normal Form, Pumping Lemma, CYK algorithm. |
| Week 15 | 09/11/2020- 12/11/2020 | Push down stack machine, Design of deterministic and non-deterministic push-down stack, Parser design |
| Week 16 | 16/11/2020- 21/11/2020 | Properties of LR(K) Grammar, Closure properties of Languages. Turing Machine: Turing machine definition and design of Turing Machine, Church-Turing Thesis, |
| Week 17 | 23/11/2020- 28/11/2020 | Variations of Turing Machines, combining Turing machine, Universal Turing Machine, Post Machine, Chomsky Hierarchy, Halting problem, Post Correspondence problem. |