LECTURE PLAN

FACULTY NAME: Shanu Gupta   **Year -2nd**   **Semester : 46th**   **Branch- CS**
SUBJECT: Theory of Automata and Formal Languages   **CODE:BCS402**

LECT No.	UNIT	MATTERS TO COVER	Date	AUTHOR
L1	1	Introduction of Subject		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L2		Introduction of Theory of Automata and Formal Languages		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L3		Introduction to Theory of Computation- Automata, Computability and Complexity, Alphabet, Symbol, String		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L4		Introduction: Formal Languages		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L5		Deterministic Finite Automaton (DFA)- Definition, Representation, Acceptability of a String and Language		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L6		Example of DFA		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L7		Non Deterministic Finite Automaton (NFA):Definition, Representation, Acceptability of a String and Language		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L8		Example of NFA		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
		Example of NFA		
L9		NFA with ε-Transition		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L10		Equivalence of NFA's with and without ε-Transition		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L11		Equivalence of DFA and NFA/Conversion of NFA to DFA		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
		Equivalence of DFA and NFA/Conversion of NFA to DFA		
L12		Example		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L13		Moore Machine		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L14		Mealy Machine		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L15		Equivalence of Moore and Mealy Machine,		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L16		Example		
L17		Example		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L18		Myhill-Nerode Theorem and Simulation of DFA and NFA		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L19		Revision		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill

L20		CLASS TEST ON UNIT 1 and Assignment		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L20	2	Regular Expressions and Languages		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L21		Kleen's Theorem		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L22		Adaptiv- Arden's theorem, Algebraic Method Using Arden's Theorem		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L23		Numerical questions		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L24		Closure properties of Regular Languages		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L25		Pumping Lemma, Application of Pumping Lemma		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L26		Pigeonhole Principle		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L27		Revision		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L28		Finite Automata and Regular Languages		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L29		Numerical questions		
L30		Numerical questions		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L31		Simulation of Transition Graph and Regular language		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L32		Revision of unit		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L33		CLASS TEST ON UNIT 2 and Assignment		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L33	3	Introduction:Regular and Non-Regular Grammars		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L34		Context Free Grammar(CFG)-Definition, Derivations,Languages		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L35		Derivation Trees and Ambiguity		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L36		Example-Numerical questions		
L37		Example-Numerical questions		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L38		Regular Grammars-Right Linear and Left Linear grammars		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L39		Conversion of FA into CFG		
L40		Conversion of FA into CFG		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L41		Example:Numerical questions		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill

L42		Conversion of Regular grammar into FA		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L43		Example:Numerical questions		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L44		Simplification of CFG		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L45		Normal Forms- Chomsky Normal Form(CNF), Greibach Normal Form (GNF), Chomsky Hierarchy		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L46		Example:Numerical questions		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L47		Programming problems based on the properties of CFGs.		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L48		CLASS TEST ON UNIT 3 and Assignment		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L47	4	Introduction:Push Down Automata		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L48		Nondeterministic Pushdown Automata (NPDA)- Definition, Moves,Language Accepted by NPDA		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L49		Example		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L50		Example		
L51		Deterministic Pushdown Automata (DPDA)- Definition, Moves,Language Accepted by NPDA		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L52		Example		
L53		Example		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L54		Deterministic Context free Languages(DCFL)		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L55		Pushdown Automata for Context Free Languages		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L56		Example		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L57		Revision		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L58		Pushdown Automata for Context Free Languages		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L59		Two stack Pushdown Automata		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L60		Example		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L61		Pumping Lemma for CFL		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L62		Pumping Lemma for CFL		
L63		Closure properties of CFL		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L64		Decision Problems of CFL, Programming problems based on the properties of CFLs		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill

L65		Revision		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L66		CLASS TEST ON UNIT 4 and Assignment		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L64	5	Introduction:Turing Machines		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L65		Basic Turing Machine Model		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L66		Representation and Language Acceptability of Turing Machines		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L67		Example		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L68		Techniques for Turing Machine Construction		
L69		Techniques for Turing Machine Construction		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L70		Modifications of Turing Machine and Modifications of Turing Machine		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L71		Recursive and Recursively Enumerable language		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L72		Halting Problem, Post's Correspondance Problem		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L73		Revision		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill
L74		CLASS TEST ON UNIT 5 and Assignment		J.E.Hopcraft, R.Motwani, and Ullman and Tata McGraw Hill