Lecture Plan 1

FACULTY: Ms Priyanka Mahani **SEMESTER: - VI** **CLASS: - ECS**

SUBJECT: Theory of Automata Computation **UNIT: - A**

COURSE CODE: CSE-206-F

S. No.	Topic :- Finite State System	Time Allotted:-
1.	Introduction Finite automata are a mathematical model of a system, with discrete inputs and output. Which takes some string as input and produce yes or no as output.	10 min
2	Division of the Topic 1. Basic definition of Finite state system 2. Block Diagram 3. Transition Table 4. Transition Diagram 5. Types of Finite Automata (i) NFA (ii) DFA	30 min
3.	Conclusion Topics are covered up to NFA .and DFA will be discussed in next Lecture	
4	Question / Answer 1. What is purpose of studying Theory of computation 2. What is Finite Automata? 3. What are uses of FA.	10 min

Assignment to be given:-NIL

Reference Readings:-Introduction to finite automata and languages by John H. Hopcroft
Introduction to automata theory by E.V.Krishnamurthy
Introduction to computer science by K.L.P.Mishra.

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Lecture Plan 2

FACULTY: Ms Priyanka Mahani **SEMESTER: - VI** **CLASS: - ECS**

SUBJECT: Theory of Automata Computation **UNIT: - A**

COURSE CODE: CSE-206-F

S. No.	Topic :- Deterministic Finite Automata	Time Allotted:-
1.	Introduction Deterministic finite automata consist of five tupples (i) input symbol (ii) transition function (iii) no. of states (iv) initial state (v) final state	10 min
2	Division of the Topic 1. Definition of DFA 2. Transition diagram 3. Equivalence of NFA and DFA 4. E – moves in NFA	30 min
3.	Conclusion All Topics are covered with examples	
4	Question / Answer 1 What is DFA? 2 What is the difference between NFA and DFA 3 What is E-moves in NFA and how u can remove them	10 min

Assignment to be given:- NIL

Reference Readings:- Introduction to finite automata and languages by John H. Hopcroft
Introduction to automata theory by E.V.Krishnamurthy
Introduction to computer science by K.L.P.Mishra.

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Lecture Plan 3

FACULTY: Ms Priyanka Mahani **SEMESTER: - VI** **CLASS: - ECS**

SUBJECT: Theory of Automata Computation **UNIT: - A**

COURSE CODE: CSE-206-F

S. No.	Topic :- Regular Expression	Time Allotted:-
1.	Introduction The string which are accepted by a finite automata are called regular exp.	10 min
2	Division of the Topic 1. Definition of regular expression 2. Operation performed on regular exp. (i) concatenation (ii) union (iii) closure(simple and positive closure)	30 min
3.	Conclusion Regular exp. are used in generating compiler. So this topic is very important for the subject compiler. Here I have given brief introduction for it.	
4	Question / Answer Write regular exp for the following 1. The set of all string with at most one pair of consecutive 0's and at most one pair of consecutive 1's. 2. The set of all string in which every pair of adjacent 0's appear before any pair of adjacent 1's. 3. set of all string not containing 101 as substring	10 min

Assignment to be given:-NIL

Reference Readings:- Introduction to finite automata and languages by John H. Hopcroft
Introduction to automata theory by E.V.Krishnamurthy
Introduction to computer science by K.L.P.Mishra.

Lecture Plan 4

FACULTY: Ms Priyanka Mahani **SEMESTER: - VI** **CLASS: - ECS**

SUBJECT: Theory of Automata Computation **UNIT: - A**

COURSE CODE: CSE-206-F

S. No.	Topic :-Equivalence of Finite automata and Regular Exp.	Time Allotted:-
1.	Introduction The finite automata is an mathematical model of a problem . and we can write easily regular exp for a given problem. By using the method of conversion we can easily generate machine.	10 min
2	Division of the Topic 1. Conversion of regular expression to finite automata 2. Conversion of finite automata to regular exp. 3. Examples	30 min
3.	Conclusion The steps for conversion from regular exp to finite automata are covered with example. The conversion of automata to regular expression will be continuing in next lecture.	
4	Question / Answer Construct finite automata equivalent to the following regular exp a) 10 + (0+11)0*1 b) 01[((10)*+111)* +0] c) ((0+1)(0+1))*+ ((0+1)(0+1)(0+1))* d)	10 min

Assignment to be given:-NIL

Reference Readings:- Introduction to finite automata and languages by John H. Hopcroft
Introduction to automata theory by E.V.Krishnamurthy
Introduction to computer science by K.L.P.Mishra.

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Lecture Plan 5

FACULTY: Ms Priyanka Mahani **SEMESTER: - VI** **CLASS: - ECS**

SUBJECT: Theory of Automata Computation **UNIT: - A**

COURSE CODE: CSE-206-F

S. No.	Topic :- Finite automate to Regular experession	Time Allotted:-
1.	Introduction If there is a given finite automata then we can easily convert it into regular expression with the help of Arden theorm.	10 min
2	Division of the Topic 1 Arden theorem 2 Examples	30 min
3.	Conclusion The Ist unit Finite Automata and Regular Exp of theory of computation is completed here	
4	Question / Answer Explain Arden theorem with the help of examples	10 min

Assignment to be given:-NIL

Reference Readings:- Introduction to finite automata and languages by John H. Hopcroft
Introduction to automata theory by E.V.Krishnamurthy
Introduction to computer science by K.L.P.Mishra.

Lecture Plan 6

FACULTY: Ms Priyanka Mahani **SEMESTER: - VI** **CLASS: - ECS**

SUBJECT: Theory of Automata Computation **UNIT: - A**

COURSE CODE: CSE-206-F

S. No.	Topic :- Properties and Limitation of FSM	Time Allotted:-
1.	Introduction There are no of limitation of finite state machine which are given below. To recover these we have generated new tools TM and Push Down Automata which are covered later in next chapter.	10 min
2	Division of the Topic 1. Periodicity 2. Equivalence class of sequence 3. state determination 4. impossibility of multiplication 5. impossibility of palindrome recognition 6. parenthesis, tree representation 7. well formedness of parenthesis	30 min
3.	Conclusion All topics were covered with details	
4	Question / Answer Consider the sequence of parenthesis ((((()))))(()) Check whether they are well formed or not.	10 min

Assignment to be given:-NIL

Reference Readings:- Introduction to finite automata and languages by John H. Hopcroft
Introduction to automata theory by E.V.Krishnamurthy
Introduction to computer science by K.L.P.Mishra.

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Lecture Plan 7

FACULTY: Ms Priyanka Mahani **SEMESTER: - VI** **CLASS: - ECS**

SUBJECT: Theory of Automata Computation **UNIT: - A**

COURSE CODE: CSE-206-F

S. No.	Topic :- Finite Automata with Output	Time Allotted:-
1.	Introduction In finite automata there is output in the form as "accept / don't accept". Models in which the out put is chosen from some other alphabet are considered in finite automata with output.	10 min
2	Division of the Topic 1. Moore Machines 2. Mealy Machine 3. Equivalence of Moore and Mealy machine	30 min
3.	Conclusion The topics moore and mealy machine are covered with definition ,transition table , and their transition diagram. Equivalence of them will be covered in next lecture.	
4	Question / Answer 1. What is moore machine. Explain it with diagram. 2. What is melay machine. Explain its transition table.	10 min

Assignment to be given:-NIL

Reference Readings:- Introduction to finite automata and languages by John H. Hopcroft
Introduction to automata theory by E.V.Krishnamurthy
Introduction to computer science by K.L.P.Mishra.

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Lecture Plan 8

FACULTY: Ms Priyanka Mahani **SEMESTER: - VI** **CLASS: - ECS**

SUBJECT: Theory of Automata Computation **UNIT: - A**

COURSE CODE: CSE-206-F

S. No.	Topic :-Equivalence of moore and mealy machine	Time Allotted:-
1.	Introduction We can convert a moore machine to mealay and vice versa. There are methods for their conversion. We discussed that here.	10 min
2	Division of the Topic 1. Algorithm for conversion from moore to mealy machine 2. Algorithm for conversion from mealy to moore machine.	30 min
3.	Conclusion Both the conversion method are covered with example.	
4	Question / Answer Give moore and mealy machine for the following processes: a) For input from (0+1)* , if the input ends in 101, output A ; if the input ends in 110, output B; otherwise output C. b) For input from (0+1+2)* print the residue modulo 5 of the input treated as a ternary(base 3, with digits 0,1,2) number.	10 min

Assignment to be given:- NIL

Reference Readings:- Introduction to finite automata and languages by John H. Hopcroft
Introduction to automata theory by E.V.Krishnamurthy
Introduction to computer science by K.L.P.Mishra.

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Lecture Plan 9

FACULTY: Ms Priyanka Mahani **SEMESTER: - VI** **CLASS: - ECS**

SUBJECT: Theory of Automata Computation **UNIT: - A**

COURSE CODE: CSE-206-F

S. No.	Topic :-Finite state machine Equivalence	Time Althelotted:-
1.	Introduction Two machines are said to be equivalent if they can recognize the same set inputs and produce the same output.	10 min
2	Division of the Topic 1. Algorithm for equivalence of finite state machine 2. Example	30 min
3.	Conclusion The topic is covered successfully with example	
4	Question / Answer Explain minimization algorithm of a finite automata.	10 min

Assignment to be given:- 1. Define finite state system.

3. Makes FA with E –moves. Write methods for removing the E moves from NFA
4. Write method for conversion of NFA into DFA
5. Explain Moore and Mealy machine
6. Explain FSM Equivalence algorithm

Reference Readings:- Introduction to finite automata and languages by John H. Hopcroft
Introduction to automata theory by E.V.Krishnamurthy
Introduction to computer science by K.L.P.Mishra.

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Lecture Plan 10

FACULTY: Ms Priyanka Mahani **SEMESTER: - VI** **CLASS: - ECS**

SUBJECT: Theory of Automata Computation **UNIT: - B**

COURSE CODE: CSE-206-F

S. No.	Topic :- Pumping Lemma	Time Allotted:-
1.	Introduction The pumping lemma for regular sets states that every sufficiently long string in a regular set contains a short substring that can be pumped. That is, inserting as many copies of the substring as we like always yields a string in the regular set.	10 min
2	Division of the Topic 1. Definition of pumping lemma 2. Proof of lemma 3. Application of pumping lemma	30 min
3.	Conclusion The topic pumping lemma is covered with example. It is very helpful to check whether a given language is regular or not.	
4	Question / Answer 1. What is pumping lemma? 2. Where we use this lemma.	10 min

Assignment to be given:-NIL

Reference Readings:- Introduction to finite automata and languages by John H. Hopcroft
Introduction to automata theory by E.V.Krishnamurthy

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Lecture Plan 11

FACULTY: Ms Priyanka Mahani **SEMESTER: - VI** **CLASS: - ECS**

SUBJECT: Theory of Automata Computation **UNIT: - B**

COURSE CODE: CSE-206-F

S. No.	Topic :-Closure properties of regular sets	Time Allotted:-
1.	Introduction There are many operations on language that preserve regular sets, in the sense that the operation applied to regular set result in regular sets. If a class of language is closed under a particular operation, we call that fact a closure property of the class of language.	10 min
2	Division of the Topic 1. What is closure properties. 2. Types of these (i) union (ii) concatenation (iii) complement (iv) closure of a set (v) intersection	30 min
3.	Conclusion Closure properties of regular sets are covered with examples.	
4	Question / Answer 1. If L1 and L2 are regular sets then prove these two sets are closed under the intersection. 2. If L1 is regular set then prove its complement is also regular.	10 min

Assignment to be given:-NIL

Reference Readings:- Introduction to finite automata and languages by John H. Hopcroft
Introduction to automata theory by E.V.Krishnamurthy

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Lecture Plan 12

FACULTY: Ms Priyanka Mahani **SEMESTER: - VI** **CLASS: - ECS**

SUBJECT: Theory of Automata Computation **UNIT: - B**

COURSE CODE: CSE-206-F

S. No.	Topic :-Minimization of Finite automata	Time Allotted:-
1.	Introduction In this topic we try to make a finite automate with min. no. of states from a given finite automata. For this we use Myhill Nerode theorm.	10 min
2	Division of the Topic 1. Myhill- Nerode theorem 2. proof of theorem 3. Minimization Algorithm 4. Example	30 min
3.	Conclusion By using Myhill Nerode Theorm we can make a finite automata with min no states.	
4	Question / Answer 1 what are the equivalence classes of Rl in the Myhill Nerode theorm for L = {0^n 1^n / n>1}? 2 Use ans of Que 1 to show { 0^n 1^n | n>= 1} not regular.	10 min

Assignment to be given:-NIL

Reference Readings:- Introduction to finite automata and languages by John H. Hopcroft
Introduction to automata theory by E.V.Krishnamurthy
Introduction to computer science by K.L.P.Mishra.

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Lecture Plan 13

FACULTY: Ms Priyanka Mahani **SEMESTER: - VI** **CLASS: - ECS**

SUBJECT: Theory of Automata Computation **UNIT: - B**

COURSE CODE: CSE-206-F

S. No.	Topic :- Context free Grammar	Time Allotted:-
1.	Introduction A context free grammar consist of five tupples denoted as G = (V,T,P,S) where V is set of Nonterminal symbols T is set of Terminals symbols P is set of production S is starting nonterminal	10 min
2	Division of the Topic 1 . Grammar (Definition) 2. Context free grammar 3. Representation of context free grammar 4. Ambiguity of CFG 5. Parse Tree 6. Left and Right Derivation of a CFL	30 min
3.	Conclusion All topics are covered with examples.	
4	Question / Answer Conisder the grammer G = ({S,A},{a,b},P,S), where P consists of S → aAS| a A → SbA | SS | ba For the string aaabbb (i) Define parse tree (ii) Check whether it is ambigious or not. (iii) Derive Left and Right Derivation	10 min

Assignment to be given:-NIL

Reference Readings:- Introduction to finite automata and languages by John H. Hopcroft
Introduction to automata theory by E.V.Krishnamurthy
Introduction to computer science by K.L.P.Mishra.

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Lecture Plan 14

FACULTY: Ms Priyanka Mahani **SEMESTER: - VI** **CLASS: - ECS**

SUBJECT: Theory of Automata Computation **UNIT: - B**

COURSE CODE: CSE-206-F

S. No.	Topic :- Simplification of context free grammar	Time Allotted:-
1.	Introduction Generally in grammar there are some useless symbols(Like repetition of Non terminal symbol) and unit productions(like A→ B) . In simplification we removes these useless symbols and productions.	10 min
2	Division of the Topic 1. Useless Symbols 2. Procedure for removals of these useless symbols 3. Unit productions 4. Procedure for removal of Unit production 5. Null Production 6. Removals of Null production	30 min
3.	Conclusion In today lecture we have studied about how we can remove the useless symbols form a grammar. It is helpful to reduce the complexity of the grammar.	
4	Question / Answer Find a context free grammar with no useless symbols equivalent to S→ AB | CA B→ BC | AB A→ a C→ aB | b	10 min

Assignment to be given:-NIL

Reference Readings:- Introduction to finite automata and languages by John H. Hopcroft
Introduction to automata theory by E.V.Krishnamurthy
Introduction to computer science by K.L.P.Mishra

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Lecture Plan 15

FACULTY: Ms Priyanka Mahani **SEMESTER: - VI** **CLASS: - ECS**

SUBJECT: Theory of Automata Computation **UNIT: - B**

COURSE CODE: CSE-206-F

S. No.	Topic :- Convert CFG into CNF and GNF	Time Allotted:-
1.	Introduction **CNF :-** A CFG having all the production in the form of A→BC or A→ a is called CNF where A,B&C are nonterminal symbols and "a" is terminal symbol. G**NF** :- A CFG having all the production in the form of A→aB* is called GNF where A,B are nonterminal symbols and "a" is terminal symbol	10 min
2	Division of the Topic 1. CNF(Definition) 2. Method for converting CFG to CNF with example 3. GNF(Definition) 4. Method for converting CFG to GNF with example	30 min
3.	Conclusion Here students gotten how they can convert a context free grammar into more easier form like CNF and GNF	
4	Question / Answer Let us consider the grammar ({S,A,B},{a,b}, P,S) that has the production: S→ bA|aB A→ bAA| aS| a B→ Abb| bS| b And find an equivalent in CNF.	10 min

Assignment to be given:-1 What is pumping lemma and its application?

2 . Explain Myhill Nerode Theorm

3. Write minisation algorithum for FA.
4. Explain CNF and GNF.
5. Explain CFG and CSG.

Reference Readings:- :- Introduction to finite automata and languages by John H. Hopcroft
Introduction to automata theory by E.V.Krishnamurthy
Introduction to computer science by K.L.P.Mishra

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Lecture Plan 16

FACULTY: Ms Priyanka Mahani **SEMESTER: - VI** **CLASS: - ECS**

SUBJECT: Theory of Automata Computation **UNIT: - C**

COURSE CODE: CSE-206-F

S. No.	Topic :-Introduction to PDA	Time Al lotted:-
1.	Introduction A pushdown automaton M is a system (Q, Σ, Ґ, ∂, q, Z, F), where 1) Q is a finite set of states ; 2) Σ is an alphabet called the input alphabet ; 3) Ґ is an alphabet called the stack alphabet ; 4) q in Q is the initial state ; 5) Z in Ґ is a particular stack symbol called the start symbol ; 6) F Q is the set of final states ; 7) ∂ is a mapping from Q × (Σ U {E}) × Ґ to finite subsets of Q × Ґ*	10 min
2	Division of the Topic 1) Definition of PDA 2) Block diagram of PDA 3) Working of PDA 4) Transition diagram of PDA	30 min
3.	Conclusion All topics are covered with detail.	
4	Question / Answer 1) Show that L is N (M) for some DPDA M if and only if L is L (M') for some DPDA M', and L has the prefix property.	10 min

Assignment to be given:-NIL

Reference Readings:- Introduction to finite automata and languages by John H. Hopcroft

Introduction to automata theory by E.V.Krishnamurthy

Lecture Plan 17

FACULTY: Ms Priyanka Mahani **SEMESTER: - VI** **CLASS: - ECS**

SUBJECT: Theory of Automata Computation **UNIT: - C**

COURSE CODE: CSE-206-F

S. No.	Topic :- Application of PDA	Time Allotted:-
1.	Introduction 1) Pushdown automata to context free languages 2) Context free languages to pushdown automata	10 min
2	Division of the Topic 1) Application of pushdown automata 2) Procedure for converting pushdown automata to context free languages with examples. 3) Procedure for converting context free language to pushdown automata with examples.	30 min
3.	Conclusion After this lecture we can easily convert PDA to context free grammar and vice-versa.	
4	Question / Answer Construct a PDA equivalent to the following grammar. $S \rightarrow aAA, \quad A \rightarrow aS\|bS\|a$	10 min

Assignment to be given:-NIL

Reference Readings:- Introduction to finite automata and languages by John H. Hopcroft
Introduction to automata theory by E.V.Krishnamurthy
Introduction to computer science by K.L.P.Mishra

Lecture Plan 18

FACULTY: Ms Priyanka Mahani **SEMESTER: - VI** **CLASS: - ECS**

SUBJECT: Theory of Automata Computation **UNIT: - C**

COURSE CODE: CSE-206-F

S. No.	Topic :- Turing machine	Time Allotted:-
1.	Introduction 1) Turing machine (TM) is denoted M= (Q, Σ, Ґ, ∂, q, B, F), Where 2) Q is the finite set of states, 3) Ґ is the finite set of allowable tape symbol, 4) B, a symbol of Ґ, is the blank, 5) Σ , a subset of Ґ not including B, is the set of input symbols, 6) ∂ is the next move function, a mapping from Q × Ґ to Q × Ґ ×{L,R}(∂ may, however, be undefined for some arguments), 7) q in Q is the start state, 8) F Q is the set of final states.	10 min
2	Division of the Topic 1. Basic definition of TM 2. Block diagram 3. Non deterministic TM 4. Deterministic TM	30 min
3.	Conclusion TM is a better tool compared to FSM. Its best advantage is that it can remember the history.	
4	Question / Answer Design a turing machine to recognize the following language A) { 0^n 1^n 0^n | n>=1} B) { w w^r | w is in (0+1)*}. C) The set of strings with an equal no. of 0's and 1's	10 min

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Lecture Plan 19

FACULTY: Ms Priyanka Mahani **SEMESTER: - VI** **CLASS: - ECS**

SUBJECT: Theory of Automata Computation **UNIT: - C**

COURSE CODE: CSE-206-F

S. No.	Topic :-Turing Machine	Time Allotted:-
1.	Introduction Turing machine (TM) is denoted M= (Q, Σ, Ґ, ∂, q, B, F), Where 1 Q is the finite set of states, 2 Ґ is the finite set of allowable tape symbol, 3 B, a symbol of Ґ, is the blank, 4 Σ , a subset of Ґ not including B, is the set of input symbols, 5 ∂ is the next move function, a mapping from Q × Ґ to Q × Ґ ×{L,R}(∂ may, however, be undefined for some arguments), 6 q in Q is the start state, 7 F Q is the set of final states.	10 min
2	Division of the Topic 1. Example of TM 2. Power of TM over FSM 3. Composite TM 4. Universal TM	30 min
3.	Conclusion The universal Turing machine can be designed with the help of other Turing machine. But after generating it we can use it any where.	
4	Question / Answer 1. How TM are better than the finite state machine? 2. what is composite and iterated TM? 3. What is universal TM?	10 min

Assignment to be given:-NIL

Reference Readings:- Introduction to finite automata and languages by John H. Hopcroft
Introduction to automata theory by E.V.Krishnamurthy

Lecture Plan 20

FACULTY: Ms Priyanka Mahani **SEMESTER: - VI** **CLASS: - ECS**

SUBJECT: Theory of Automata Computation **UNIT: - C**

COURSE CODE: CSE-206-F

S. No.	Topic :-Undecidability	Time Allotted:-
1.	Introduction If the language of a problem is recursive then it is called a decidable problem otherwise it is undecidable.	10 min
2	Division of the Topic 1. Introduction to Different problems 2. Decidable and Undecidable 3. Universal Turing machine and Undecidable Problem 4. Post correspondence problem.	30 min
3.	Conclusion There are some problems for which we can not decide whether it will stop at a particular state with a particular output. Like problem of Halting Turing Machine. BY comparing these problem with the decidable or undecidable problems we can check whether they are decidable or not.	
4	Question / Answer Show that it is undecidable whether a TM halts on all inputs.	10 min

Assignment to be given:-

Reference Readings:- Introduction to finite automata and languages by John H. Hopcroft
Introduction to automata theory by E.V.Krishnamurthy
Introduction to computer science by K.L.P.Mishra

Lecture Plan 21

FACULTY: Ms Priyanka Mahani **SEMESTER: - VI** **CLASS: - ECS**

SUBJECT: Theory of Automata Computation **UNIT: - D**

COURSE CODE: CSE-206-F

S. No.	Topic :-Chomsky Hierarchy	Time Allotted:-
1.	Introduction In Chomsky hierarchy we divide a grammar into four types. These are 1. type 0 or unrestricted grammar 2. type 1 or context free grammar 3. type 2 or context sensitive grammar 4. type 3 or regular grammar	10 min
2	Division of the Topic 1 Regular Grammer 2 Equivalence of regular grammar and finite automata 3 Left linerar and Right linear Grammar 4 Method for converting left linear to right linear and vice-versa	30 min
3.	Conclusion Out of the four types of grammar we have covered here only one Regular grammar. Context sensitive and context free was covered in unit context free grammar.	
4	Question / Answer 1. Construct a finite automata from the grammar S → 0A A → 10 A | e 2. Write the left linear and right linear grammar for the Language 0(10)* .	10 min

Assignment to be given:-

Reference Readings:- Introduction to finite automata and languages by John H. Hopcroft
Introduction to automata theory by E.V.Krishnamurthy
Introduction to computer science by K.L.P.Mishra

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Lecture Plan 22

FACULTY: Ms Priyanka Mahani **SEMESTER: - VI** **CLASS: - ECS**

SUBJECT: Theory of Automata Computation **UNIT: - D**

COURSE CODE: CSE-206-F

S. No.	Topic :-Unrestricted Grammer	Time Allotted:-
1.	Introduction The no. of grammars permits production of the form $\alpha \rightarrow \beta$, where α and β are arbitrary string of grammar symbol . These grammar are known as semi thue , type 0, phrase structure or unrestricted grammars.	10 min
2	Division of the Topic 1. Unrestricted grammars 2. Equivalence of type 0 grammar and Turing machine 3. Context sensitive Grammar	30 min
3.	Conclusion All the topics are in this unit are covered with example. Now we can easily differentiate the different type of grammar.	
4	Question / Answer 1. Write a grammar for { a^i | I is a positive power of 2}. 2. Give unrestricted grammar for a) {ww | w is in (0+1)*} b) {0^i | i is not prime} c) {0^I 1^I 2 ^ I | I >= 1}	10 min

Assignment to be given:-

Reference Readings:- Introduction to finite automata and languages by John H. Hopcroft
Introduction to automata theory by E.V.Krishnamurthy
Introduction to computer science by K.L.P.Mishra

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Lecture Plan 23

FACULTY: Ms Priyanka Mahani **SEMESTER: - VI** **CLASS: - ECS**

SUBJECT: Theory of Automata Computation **UNIT: - D**

COURSE CODE: CSE-206-F

S. No.	Topic :-Primitive Recursive Function	Time Allotted:-
1.	Introduction If a function is derived from initial functions using finite no of recursions and compositions, then it is called primitive recursive function.	10 min
2	Division of the Topic 1. Definition of initial functions. 2. Definition of composition and recursion. 3. Solve some examples.	30 min
3.	Conclusion: Computable functions are partial recursive functions.	
4	Question / Answer Show that f(x,y) = x+y is primitive recursive.	10 min

Assignment to be given:-
1 . Explain PDA and their application.
2. Define composite Turing machine
3 Define Deterministic and Nondeterministic Turing machine
4. Explain Chomsky hierarchies
5. Explain context sensitive languag

Reference Readings:- Introduction to finite automata and languages by John H. Hopcroft
Introduction to automata theory by E.V.Krishnamurthy
Introduction to computer science by K.L.P.Mishra