

Course Code	CSE322
Course Name	Theory of Computation
Credits	4
Course Offered to	UG
Course Description	The course gives an overview over basic formal grammars and abstract machine models used in Computer Science. In particular, finite automata, pushdown automata, context-free grammars and Turing machines are studied with respect to their properties and limits. Based on Turing machines the concepts of decidability and recursive enumerability are introduced.

Pre-requisites		
Pre-requisite (Mandatory)	Pre-requisite (Desirable)	Pre-requisite (other)
Discrete Mathematics		
*Please insert more rows if required		

Post Conditions*(For suggestions on verbs please refer the second sheet)				
CO1	CO2	CO3	CO4	CO5
The student is able to describe the basic computational models FAs, PDAs, grammars and Turing machines.	The student is able to formally model a given computational problem and prove its correctness.	The student can explain the concepts of undecidability and recursive enumerability and is able to give examples of respective problems.		

Weekly Lecture Plan			
Week Number	Lecture Topic	COs Met	Assignment/Labs/Tutorial
1	Review of Discrete mathematics and machine models	CO1	Written exercises
2	DFA and NFA	CO1, CO2	
3	DFA and NFA	CO1, CO2	
4	Regular expressions	CO1, CO2	
5	PDA and CFG	CO1, CO2	
6	PDA and CFG	CO1, CO2	
7	Turing Machine	CO1, CO2	
8	TM Languages	CO2	
9	Decidability and Enumerability	CO3	
10	Reductions	CO3	
11	Complexity classes	CO2, CO3	
12	Other topics		
13	Other topics		
*Please insert more rows if required			

Weekly Lab Plan			
Week Number	Laboratory Exercise	COs Met	Platform (Hardware/Software)
*Please insert more rows if required			

Assessment Plan	
Type of Evaluation	% Contribution in Grade
Homework	10-15%
Quizzes	15-20%
Mid-sem	30.00%
Final	40.00%
*Please insert more row for other type of Evaluation	

Resource Material	
Type	Title
Textbook	Theory of Computation by Michael Sipser, 3 rd (Indian print edition)
Reference book	Hopcroft/Motwani/Ullman: Introduction to Automata Theory, Languages, and Computation (Pearson Education 2009)