

**COURSE MODULE OF THE SUBJECT TAUGHT FOR THE SESSION 2024-2025
(ODDSEMESTER)**

Course Syllabi with CO's



Module 5:(10 Hours of Pedagogy)

Introduction to Turing Machines: Problems That Computer Cannot Solve. The Turing Machine, Programming Techniques for Turing Machines, Extensions to the Basic Turing Machine, Undecidability: A Language That Is Not Recursively Enumerable.

TEXT BOOK: Sections 8.1,8.2, 8.3,8.4, 9.1, 9.2

List of Text Books

Textbooks:

1. John E Hopcroft, Rajeev Motwani, Jeffrey D. Ullman, "Introduction to Automata Theory, Languages and Computation", Second Edition, Pearson.

Reference Books:

- Elain Rich, "Automata,Computability and complexity", 1st Edition, Pearson Education,2018.
- K.L.P Mishra, N Chandrashekaran , 3rd Edition , 'Theory of Computer Science",PHI,2012.
- Peter Linz, "An introduction to Formal Languages and Automata ", 3rd Edition, Narosa Publishers,1998.
- Michael Sipser : Introduction to the Theory of Computation, 3rd edition, Cengage learning,2013.
- John C Martin, Introduction to Languages and The Theory of Computation, 3rd Edition, Tata McGraw –Hill Publishing Company Limited, 2013.

CourseOutcomes	The student will be able to:
	<ol style="list-style-type: none"> Apply the fundamentals of automata theory to write DFA, NFA, Epsilon-NFA and conversion between them. Prove the properties of regular languages using regular expressions. Design context-free grammars (CFGs) and pushdown automata (PDAs) for formal languages. Design Turing machines to solve the computational problems. Explain the concepts of decidability and undecidability.

TheCorrelationofCourseOutcomes(CO's)andProgramOutcomes(PO's)

Course Code: BCS503	ProgramOutcomes											Total
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	
CO-1	3	3	3	2	-						2	13
CO-2	3	3	3	-	-						-	9
CO-3	3	3	3	2	-						2	13
CO-4	3	3	3	-	-						-	9
CO-5	3	3	3	2	-						2	13
Total	15	15	15	6	0	0	0	0	0	0	6	

Note: 3=Strong Contribution 2 =Average Contribution 1=Weak Contribution 0 =No Contribution

The Correlation of Course Outcomes (CO's) and Program Outcomes (PSO's)

SubjectCode:BCS503		Course Title: Theory of Computation	
List of Course Outcomes	Program Specific Outcomes		Total
	PSO-1	PSO-2	
CO-1	-	2	2
CO-2	-	1	1
CO-3	-	2	2
CO-4	-	2	2
CO-5	-	1	1
Total	-	8	8

Note: 3=Strong Contribution 2 =Average Contribution 1=Weak Contribution 0 =No Contribution

HOD