

TECNIA INSTITUTE OF ADVANCED STUDIES

Grade 'A' Institute

Department of Information, Communication & Technology

Master Of Computer Applications (MCA)

Scheme and Syllabus (w.e.f. Academic Session 2020-21 onwards)

Course Code: MCA- 118

Course Name: Theory of Computations

L T C

3 1 4

LEARNING OBJECTIVES:

In this course, the learners will be able to develop expertise related to the following: -

1. Expressing problems as testing membership in a language.
2. Designing a capable mathematical model of computation to decide/recognize a Language.
3. Distinguishing the relative capabilities of different models of computation
4. Understanding what is decidable and what is not.
5. Classifying the languages based on space-complexity and time-complexity of the model

PRE-REQUISITES:

1. Discrete Structures.
2. Knowledge of writing formal mathematical proofs.

COURSE OUTCOMES (COs):

After completion of this course, the learners will be able to:

CO#	Detailed Statement of the CO	BT Level	Mapping to PO #
CO1	Relate to the basics of Finite State Machines	BTL1	PO1, PO2
CO2	Explain grammar and establish equivalence between grammar, languages and pushdown automata	BTL3	PO1, PO2, PO3
CO3	Solve the computational model for a given language	BTL4	PO1, PO2, PO3, PO4
CO4	Analyze Finite Automata for different regular expressions and languages	BTL5	PO1, PO2, PO3, PO4
CO5	Estimate the optimal computing time of the given , problem	BTL6	PO1, PO2, PO3, PO4, PO7
CO6	Analyse and evaluate the decidability of the various computational problems using Skills		PO1, PO2, PO3, PO4, PO5