YEAR – II	**FUNDAMENTALS OF ALGORITHMS**	**CS306S**
SEMESTER - III		**HRS/WK-4**
CORE – 6		**CREDIT - 3**

Objective:

To enable the students learn the basic concepts of Algorithms.

UNIT-I **[12Hrs]**

Divide and Conquer: Introduction to Algorithm- Complexity analysis- Divide and Conquer - Strassen's Matrix Multiplication-Quick sort-Merge sort- Binary Search-Finding Max and Min.

UNIT-II **[12Hrs]**

Dynamic Programming : General method-multistage graph-Traveling salesman problem

UNIT-III **[12Hrs]**

Basic Traversal and Search Technique : -Depth first search- Breadth first search- Back Tracking- Graph colouring.

UNIT-IV **[12Hrs]**

Greedy method: General Method - Shortest path- 0/1 Knapsack problem

UNIT-V **[12Hrs]**

Np Hard and Np Complete Problem: Basic concepts of Np-Hard and Np-Complete.

Text Books:

1. E.Horowitz.S.Sahni and S.Rajasekaran- *Computer Alogrithms*- Glgotia Pub, Pvt.Ltd.,-1998.
2. Design and Analysis of Computer Algorithms by Alfred V. Aho

3. Introduction to Algorithms, Third Edition by Thomas H. Cormen

Reference Books:

1. G.Brassard and Brately -Fundamentals of Algorithm- PHI-1997.
2. Data Structures and Algorithm Analysis in C++ by Mark Allen Weiss, Pearson Education, Second Edition

Question Pattern

B. Sc. Computer Science

Time: 3 Hrs Max. Marks: 75

Section – A (5 x 5 = 25)

Answer ANY FIVE out of eight.

One question from each unit and three questions from important topics with problems and programs

Section – B (5 x 10 = 50)

Answer ANY FIVE out of EIGHT.

One question from each unit and three questions from important topics with problems and programs