ECSE212P: Competitive Programming

Course Type:	Core

L	T	P	Credits
0	1	4	3

Pre-requisites: NA

Course Learning Outcomes:

CLO1: Take a participation in National and International level coding competitions.
CLO2: Find optimal solution by applying different (most suitable) algorithm
CLO3: Expected to win minimum one coding competition by each individuals or team.

Module 1 (Contact hours: 56)

This course having multiple problems statements from the following topics in each lab. Coding Exercise and Mathematics; Basic Data Structures (Array); LinkedList, Stack and Queue; Greedy and Dynamic Programming (DP); Tree algorithms; Combinatorial Games; Basic Graph Algorithms; Shortest Path Algorithms and Network Flow Problems; String Algorithms.

Suggested Textbooks:

1) *Antti Laaksonen , Competitive Programmer's Handbook (1st Edition), Springer, 2018. ISBN-13: 978-3319725468.*
2) *Tips to be Competitive, by Steven & Felix, NUS.*

References:

1) *Cormen, Leiserson, Rivest, and Stein, Introduction to Algorithms (3rd Edition), MIT Press, 2009. ISBN-13: 978-0262533058.*
2) *Jon Kleinberg and Eva Tardos, Algorithm Design (1st Edition), Pearson, 2014. ISBN: 9789332518643, 9332518645.*
3) *Aho A.V., J.E. Hop croft and J.D. Ullman, Data Structures and algorithms, (Addison Wesley), Pearson, ISBN-13: 978-0201000238.*

Evaluation Components

Components of Course Evaluation	Percentage
Lab Continuous Evaluation	50
Lab Examination	30
End Term Lab Examination	20