Course Code: MH1402  
Course Title: Algorithms and Computing II  
Pre-requisites: MH1401 Algorithms and Computing I  
Contact Hours: 13 Hours of Lecture / 12 Hours of Tutorial / 8 Hours of Lab

Course Aim:  
This course aims to give a systematic introduction to data structures and algorithms for constructing efficient computer programs. Emphasis is on data abstraction issues in program development process, and on the design of efficient algorithms. Simple algorithmic paradigms such as greedy algorithms, divide-and-conquer algorithms and dynamic programming will be introduced. Elementary analyses of algorithmic complexities will also be taught.

Intended Learning Outcomes:  
1. Implement data structures in Python.  
2. Analyze the complexity of algorithms.  
3. Design and implement efficient algorithms for given applications.  
4. Solve large problems systematically and effectively.  
5. Work as a team and collaborate to manage larger programming projects.

Course Content:  
1. Algorithm Analysis  
2. Data Structures  
3. Sort  
4. Greedy Methods  
5. Divide-and-Conquer  
6. Dynamic Programming  
7. Graph

Reading and References:  
Textbook  

Reference  
Huang Guangbin and Ng Jim Mee, Data structures and algorithms, Pearson Education South Asia, 2007 (9789810679149)