Data Structures

- **Course number and name:**
  CC 215 – Data Structures

- **Credits and contact hours**
  Credits Hours: 3Hrs
  Contact Hours: In Lecture 2Hrs, and In Tutorial 2Hrs

- **Instructor's or course coordinator's name**
  Coordinator Name: Dr. Sherif Fadel

- **Text book, title, author, and year**
  - Mark Weiss and Benjamen Cummings, "Data structures and algorithm analysis".

- **Specific course information**
  - **a. Catalog description**
    The course tackles the difference between static data type and dynamic data types. The concept of pointers & dynamic memory allocation is discussed allowing students to experience practical programming using dynamic structures.
  - **b. prerequisites or co-requisites**
    Prerequisites: CC213
  - **c. Type of the course (required, elective, or selected elective course) in the program**
    Required Course

- **Specific goals for the course**
  - **a. Specific outcomes of instruction**
    After the completion of this course the students will be able to:

	Course Learning Outcomes	SO
1	Understand the data types and static data structures pointers, dynamic data structures: stack queues linked lists, trees and graphs.	E,K
2	Define the difference between static data type and dynamic data types and introduce the concept of pointers & dynamic memory allocation.	E,K
3	Acquire programming experiences using dynamic structures.	E,K

Topics to be covered

- Introduction to static Vs dynamic data structures
- Stack data type
- Implementation of stack in different applications
- Queue data type
- Introduction to dynamic programming using pointers
- Linked lists
- Double & circular linked lists
- Introduction to tree structures
- Tree traversals
- Threaded tree
- Graphs representation and traversals
- Graphs minimum spanning tree & shortest path