**GC211 Data Structure**

Fall Semester 1438/1439

**College of Applied Studies and Community Service**

**Department of Natural & Engineering Sciences**

Instructor: Sara Alhajjam

**COURSE SYLLABUS**

|  |  |
| --- | --- |
| **OFFICE:** |  Room 2 |
| **OFFICE HOURS:** | 10-11 TUE; 10-11 THR |
| **E-MAIL ADDRESS:** | salhajjam@ksu.edu.sa |
| **WEB PAGE:** | http://fac.ksu.edu.sa/salhajjam |
| **CLASS HOURS:** | 8-10 TUE & WED |
| **Credit Hours:**  | 3 |
|  |  |

**Course Description:**

Students are introduced to: Fundamental concepts of data structures. Performance measurement of algorithms. Implementation and use of lists, stacks, queues, priority queues, trees, heaps and graphs. Students will do programming assignments.

**Course Objectives:**

To be able to:

1. Describe and use fundamental data structures such as lists, stacks, queues and trees.
2. Determine time and space complexity of data structures and associated algorithms.
3. Design appropriate data structures for a problem i.e. be able to analyze a given problem, identify and specify data elements, structure and operations appropriate to it.
4. Implement a specified data structure i.e. be able to choose a storage structure for the data elements and algorithms for the operations.
5. Compare alternative data structures for a problem (e.g. based on their time and space complexity) and be able to choose the most appropriate one for the given problem.
6. Understand recursion and be able to write recursive algorithms for problems.

**Course References:**

Course materials.

 **Methods of Assessment:**

|  |  |  |
| --- | --- | --- |
| **Mark** | Day Due | Assessment Instruments |
| 20 | 4/2 | Midterm Examination 1 |
| 20 | 3/3 | Midterm Examination 2 |
| 20 | Random | Assignments  |
| 40 | Last Week | Final Examination |
| **100** |  | **Total** |

**Course Policies:**

1. No late homework will be accepted.
2. Homework assignments are considered individual efforts. However, students are encouraged to share thoughts with others. Absolutely no copying and no plagiarism. Copyright should be respected. Academic dishonesty cases will be dealt with severely.
3. All exams are closed book.
4. The final exam will be comprehensive.