KINGDOM OF SAUDI ARABIA

THE NATIONAL COMMISSION FOR ACADEMIC ACCREDITATION & ASSESSMENT

COURSE SPECIFICATION

HASEB 243

Revised March 2007

Course Specification

Almajmaah University
College : Al Majmaah Community College **Department :** Computer Sciences

A. Course Identification and General Information

1. Course title and code: Data Structures - **HASEB 243**
2. Credit hours: 3 Hours (*Lecture:* 2 Hours/week *Lab:* 2 Hours/week)
3. Program in which the course is offered: Computer science (Career Program)
4. Name of faculty member responsible for the course : Mr. Ahmad Almasri
5. Level at which this course is offered : Fourth level
6. Pre-requisites for this course: HASEB 231 – Computer Programming(2)
7. Co-requisites for this course (if any) : None
8. Location: Main campus **Room No: (**A2..3),(A2..9) **Lab No:** A1..8

B - Objectives

Upon successful completion of this course, students should be able to:

1. Distinguish the difference between different static and dynamic data structures
2. Create algorithms and programs to manipulate different data structures.

C. Course Description

Topics to be Covered		
Contents	**Nb of Weeks**	**Contact hours**
Arrays and sorting methods	3	12
Pointers	1	4
Structures	1	4
Classes and Objects	2	8
Linked Lists	2	8
Stacks	1	4
Queues	1	4
Recursion	2	8
Trees	2	8

2. Course components (Total contact hours per semester)			
Lecture	**Tutorial**	**Labs**	**Other**
60 hrs	30 hrs	30 hrs	

3. Additional learning hours expected for students per week

The student must work at least for 4 hours per week which is equivalent to 60 hours per semester.

4. Development of learning outcomes in the domains or areas of learning

a. Knowledge
(i) Knowledge to be acquired : - Knowing how to create and manipulate arrays - Knowing the basics of Object Oriented Programming - Knowing how to create and manipulate dynamic Data Structures (Linked Lists, Stacks, Queues, etc.) - Knowing how to create and manipulate Binary Search Trees.
(ii) Teaching strategies to be used to develop that knowledge : - Lectures - Exercises - Labs.
(iii) Methods of assessment of knowledge acquired : - Exams - Labs evaluation.
b. Cognitive Skills
(i) Cognitive skills to be developed : - Ability of analysis - Ability of programming - Ability of deduction and inference
(ii) Teaching strategies to be used to develop these cognitive skills : - Exercises - Labs.
(iii) Methods of assessment of students cognitive skills - Exams

- Labs evaluation.

c. Information Technology and Numerical Skills
(i) IT skills to be developed : - Using windows operating system efficiently - Ability of programming in C++ using the Object Oriented Approach - Using office applications (word, Power Point ,...) to write reports, design presentations, ... etc.
(ii) Teaching strategies to be used to develop these IT skills : - Assign to students a little programming project - Assign to students to make research on a specific subject related to Data Structures.
(iii) Methods of assessment of students cognitive skills - Exams - Labs evaluation - Project evaluation and discussion of researches.

5. Schedule of Assessment Tasks for Students During the Semester

Assessment	Assessment task	Week due	Proportion of Final Assessment
1	Attendance, Participation and Labs evaluation	Each week	10
2	First month exam	6^{th} week	20
3	Second month exam	10^{th} week	20
4	Research (a little programming	12^{th} week	10

	project)		
4	Final exam	According to the exams schedule	40

D. Student Support

1. Arrangements for availability of faculty for individual student consultations

- Office hours : 2 hours a week

D a y	**8-9**	**9-10**	**10-11**	**11-12**		**1-2**	**2-3**	**3-4**
Sunday								
Saturday								
Monday								
Tuesday		Office Hours						
Wednesday								

E. Learning Resources

1. Required Textbooks

1. M. A. Weiss, "Data structures And problem solving in C++", Addison Wesley, 2003

2. Recommended Book(s)

Deitel & Deitel, C++: How to program, Prentice Hall, 2004 (or latest).

3. Electronic Materials, Web Sites, etc.

www.cplusplus.com

http://msdn.microsoft.com

F. Facilities Required

1- A Lecture room appropriate for 30 students with a personal computer, a data show and a smart board.

2- A Computer Lab equipped with 30 PCs with a C++ compiler (latest version).

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching:

- Students have to evaluate the teacher rendering before obtaining results through the university web portal ***edugate.***

2. Processes for Improvement of Teaching :

- Periodical review of contents in the department to increase the effectiveness of the subject.

- Comparison of the course content with similar courses offered in others colleges

- Updating of the learning resources according to later developments in the domain of data structures.

- Using modern technologies in teaching and providing additional support to students.