



هيئة تقويم التعليم

Education Evaluation Commission

المركز الوطني للتقويم والاعتماد الأكاديمي

National Center for Academic Accreditation and Evaluation

# **COURSE REPORT (CR)**

Najran University  
College of Computer Science and Information Systems  
Department of Computer Science

Course Name: Data Structures  
Course Code: 212CSS-3

June 2017

A separate Course Report (CR) should be submitted for every course and for each section or campus location where the course is taught, even if the course is taught by the same person. Each CR is to be completed by the course instructor at the end of each course and given to the program coordinator

A combined, comprehensive CR should be prepared by the course coordinator and the separate location reports are to be attached.

## Course Report

<b>Institution:</b> Najran University	<b>Date of Course Report:</b> June 1, 2017
<b>College/ Department:</b> College of Computer Science & Information Systems Department of Computer Sciences	

### A. Course Identification and General Information

1. <b>Course title:</b> Data Structures		<b>Code #</b> 212CSS-3		<b>Section #</b> 165		
2. <b>Name of course instructor :</b> Soad Mohammed				<b>Location:</b> Female Campus		
3. <b>Year and semester to which this report applies:</b> Second Semester 2016/2017 (1437/1438)						
4. Number of students starting the course?		10		Students completing the course?		6
5. Course components (actual total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	30	6	N/A	30		<b>66</b>
Credit	2			1		<b>3</b>

### B. - Course Delivery

1. Coverage of Planned Program			
Topics Covered	Planned Contact Hours	Actual Contact Hours	Reason for Variations if there is a difference of more than 25% of the hours planned
Introduction to data structures and algorithms analysis	4	4	N/A
Algorithms Analysis (cont.)	5	5	
Stacks and Queues	10	10	
Single and Node (double linked) Lists	5	5	
Trees	5	5	
Binary Search Trees, AVL Tree	5	1	
Priority Queues and Heaps	5	5	

Sorting & Searching	5	5	
Maps and Hashes	5	5	
Hashes and Dictionaries	9	9	Did not finish these topics because students' did not come in first week of start of semester, so it effects the whole plan, also we always loose one to two weeks of the course due to the midterm exams.
Graphs	4	4	

## 2. Consequences of Non Coverage of Topics

For any topics where the topic was not taught or practically delivered, comment on how significant you believe the lack of coverage is for the course learning outcomes or for later courses in the program. Suggest possible compensating action.

Topics (if any) not Fully Covered	Effectuated Learning Outcomes	Possible Compensating Action

## 3. Course learning outcome assessment.

	List course learning outcomes	List methods of assessment	Percentage of Achievements (a student achieves a CLO if he achieves 65% of it)	Summary analysis of assessment results
1	Describe basic ADTs (stack, queue, array, list, node list, priority queue, tree, map and dictionary) and their related data structure implementations (array, single linked structure, double linked structure, heap, hash table, binary search tree, AVL tree).	Quizzes, Mid Term Exams, Mid Term Exam-II and Final Theory Exam	92.86%	<ul style="list-style-type: none"> <li>Programming skills of students are very weak.</li> <li>It is observed that some students did not seem interested towards study they just want to pass</li> </ul>
2	Distinguish between Abstract Data Types (ADTs), data structures and algorithms.	Quiz# 01, Mid Term Exam-I and Final Exam	85.71%	
3	Calculate the costs (space/time) of data structures and their related algorithms, both source code and pseudo-code, using	Mid Term Exam-I and Final Theory Exam.	85.71%	

	the asymptotic notation ( $O()$ ).			
4	Recognize basic concepts and techniques (recursive, sorting, searching, graph) used in design of basic algorithms.	Final Theory Exam	78.57%	<ul style="list-style-type: none"> <li>Students have difficulties in the English languages.</li> <li>Most of the students have the memorization skills but not problem solving skills.</li> <li>Not active during lecture.</li> </ul>
5	Implement basic algorithms and ADTs using different data structures strategies.	Mid Term Exam-II and Lab Exam	71.43%	
6	Decide which type of data structures and algorithms best suits the problem they are solving.	Final Theory Exam	92.86%	

Summarize any actions you recommend for improving teaching strategies as a result of evaluations in table 3 above.

- Motivating students to be active during class by asking questions regularly during lecture.
- Let student's to give short presentation (i.e. 3 to 5 min) at the end of every lecture to briefly explain what learn in today's lecture.
- Group Discussion.
- It is difficult to cover all the course contents in lecture time, so course instructor tries to utilize the tutorial time to solve exercise problems.

4. Effectiveness of Planned Teaching Strategies for Intended Learning Outcomes set out in the Course Specification. (Refer to planned teaching strategies in Course Specification and description of Domains of Learning Outcomes in the National Qualifications Framework)

List Teaching Methods set out in Course Specification	Were these Effective?		Difficulties Experienced (if any) in Using the Strategy and Suggested Action to Deal with Those Difficulties.
	No	Yes	
<p><i>Lectures, active learning, collaborative and cooperative learning and independent study assignments are used as teaching strategies.</i></p> <ul style="list-style-type: none"> <li>Showing and delivering PPT presentation in the class.</li> <li>Using white board to explain important points in more detail.</li> <li>Motivating students to be active during class by asking questions regularly during lecture.</li> <li>Motivating students to work in home, to search from internet, to read related reference books by giving them assignments related to analysis of algorithm and data structures.</li> <li>Let students to solve the problems related to complexity of different algorithms in small groups and giving correction on their solution during class.</li> <li>Motivating students to be active during class by asking questions regularly.</li> <li>Giving students' tutorials related to importance of data structures, arrays, stack, queues, trees, linked list etc.</li> </ul>		√	<ul style="list-style-type: none"> <li>Student's participation is very important during lecture but most of the time students did not participate actively in different class activities (e.g. asking questions, solving problems during tutorial session, etc.). So it is desirable that every teacher must motivate them for participation and engage them during lecture by asking questions.</li> </ul>

<ul style="list-style-type: none"> <li>• Calculating the cost of data structures and related algorithms on white board for students to make them more familiar with various scheduling algorithms.</li> <li>• Let students to present their work after group discussion session.</li> <li>• Giving students' tutorials related to importance of data structures, arrays, stack, queues, trees, linked list etc.</li> <li>• Motivating students to work in home, to search from internet, to read related reference books by giving them assignments.</li> <li>• Use of C/C++ language to implement the different data structures during lab session.</li> </ul>		√	<ul style="list-style-type: none"> <li>• Normally students only rely on class notes, need to motivate them to read books, search related data from internet.</li> <li>• Some students feel shy when ask them to come and explain answer using white board, so course instructor must encourage them to come front and use white board to explain your answer. It will improve the students confidence.</li> </ul>
<ul style="list-style-type: none"> <li>• Introductory class to make the students alert and be conscious about the class attendance, timing, discipline during the contact hours.</li> <li>• Student presentation to present their finding on assigned problems.</li> <li>• Two individual assignments which require investigation using provided reading material, library resources as a means of developing the self-study.</li> <li>• Explanation and examples given in class lectures.</li> <li>• Let students prepare their Lab reports in the Class using MS WORD and other software tools</li> <li>• Giving correction in Lab activity.</li> </ul>		√	

**Note:** In order to analyze the assessment of student achievement for each course learning outcome, student performance results can be measured and assessed using a KPI, a rubric, or some grading system that aligns student work, exam scores, or other demonstration of successful learning.

## C. Results

### 1. Distribution of Grades

Letter Grade	Number of Students	Student Percentage	Explanation of Distribution of Grades
A	2	20%	
B	2	20%	
C	1	10%	
D	1	10%	
F	0	0%	
Denied Entry	0		
In Progress			
Incomplete			
Pass	6	60%	
Fail	0	0.00%	
Withdrawn	4	40%	

### 2. Analyze special factors (if any) affecting the results

In this course only one student got A and others got C, D or F. Result is not very good, still there is room for improvement. Main reason for this is that some students did not study in home on regular bases; normally they study only during exam days, also students just rely on lecture slides/notes. To get higher grade it is important to read books and related material from internet.

### 3. Variations from planned student assessment processes (if any) (see Course Specifications).

#### a. Variations (if any) from planned assessment schedule (see Course Specification)

Variation	Reason
N/A	

b. Variations (if any) from planned assessment processes in Domains of Learning (see Course Specification)	
Variation	Reason
<i>No variation from planned assessment process in domain of learning. It is same as it was defined in course specification document.</i>	

4. Student Grade Achievement Verification (eg. cross-check of grade validity by independent evaluator).	
Method(s) of Verification	Conclusion
<ul style="list-style-type: none"> <li>Students' grades and marks are accurately checked and reviewed by the reviewers in all the midterm exams, quizzes and final theory and lab exams</li> </ul>	<ul style="list-style-type: none"> <li>Verification of marks is assured in this way.</li> </ul>
<ul style="list-style-type: none"> <li>The question paper for all the assessment methods are reviewed and checked by course coordinator, so that all the questions satisfy the course learning outcomes.</li> </ul>	<ul style="list-style-type: none"> <li>Checking of the question papers are done by the course coordinator according to the ABET standards.</li> </ul>
<ul style="list-style-type: none"> <li>At the end of the every semester, the curriculum committee reviews all courses and approves actions to be taken in the subsequent semester.</li> </ul>	<ul style="list-style-type: none"> <li>The curriculum committee will review the final report of the course and will approve a list of actions to improve the quality of the course.</li> </ul>

#### D. Resources and Facilities

1. Difficulties in access to resources or facilities (if any)  <i>All the recourses or facilities that are required to complete this course were available.</i>	2. Consequences of any difficulties experienced for student learning in the course.
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#### E. Administrative Issues

1 Organizational or administrative difficulties encountered (if any)  N/A	2. Consequences of any difficulties experienced for student learning in the course.
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#### F Course Evaluation

1 Student evaluation of the course (Attach survey results report)  Total 6 students participated in this evaluation and it is available in binder 7 of course file.
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a. List the most important recommendations for improvement and strengths
Most of the students are happy with course contents, course delivery, way of teaching etc. online course survey is available in binder 7.
b. Response of instructor or course team to this evaluation
This evaluation will help me to overcome my weak point and it will improve my strengths in coming semesters.
2. Other Evaluation (e.g. by head of department, peer observations, accreditation review, other stakeholders)
N/A
a. List the most important recommendations for improvement and strengths
N/a
b. Response of instructor or course team to this evaluation

### G. Planning for Improvement

1. Progress on actions proposed for improving the course in previous course reports (if any).				
Actions recommended from the most recent course report(s)	Actions Taken	Results	Analysis	
<input type="checkbox"/> Devote more time to solve more problems related to calculate the cost of data structure <input type="checkbox"/> Introduce more problem and example in complexity	YES	This recommendation was considered in this semester and I spend more time to explain the basic concepts complexity of algorithms and to calculate the cost of different data structures. Also tutorial time was utilized to calculate the time complexity.		
2. List what actions have been taken to improve the course (based on previous CR, surveys, independent opinion, or course evaluation).				
<ul style="list-style-type: none"> <li>• Every course has course coordinator; both the course instructor and course coordinator have regular consultation with each other to improve the course.</li> <li>• Course contents revision is continues process in CS &amp; IS College.</li> <li>• New equipment's are installed in class rooms like smart-board and wireless projectors.</li> </ul>				
3. Action Plan for Improvement for Next Semester/Year				
Actions Recommended	Intended Action Points and Process	Start Date	Completion Date	Person Responsible



✓ <i>It will be very good if make the attendance compulsory for students. It is noted that students miss classes because they know to miss classes will not make them Harman.</i>		<i>Starting from second semester 2016/2017</i>		<i>University Administration</i>
✓ <i>It is seen during the theory and lab session that students did not actively participate during lecture. It is very important for course instructor regularly motivate the students. This can be achieved by asking related questions, taking short quiz during lecture, group discussion etc.</i>		<i>Next time when course offered</i>		<i>Course Instructor and college coordinator</i>
✓ <i>It is difficult to cover all the course contents in lecture time, so course instructor tries to utilize the tutorial time to solve exercise problems.</i>		<i>Same as above</i>		<i>Course instructor</i>
✓ <i>CLOs must be explained to students in first introductory lecture.</i>		<i>Same as above</i>		<i>Course instructor</i>
✓ <i>In start of each lecture relate the lecture topic with CLOs.</i> ✓		<i>Same as above</i>		<i>Course instructor</i>
✓ <i>Students should know the expectations in the assessment methods. So I recommend giving the marking scheme (e.g. Rubric, etc.) to students before assessment methods.</i>		<i>Same as above</i>		<i>Course instructor</i>

**Name of Course Instructor:** Soad Mohammed m

**Signature:** \_\_\_\_\_ **Date Report Completed:** June 1, 2017

**Program Coordinator:** : Dr. Abdulrahman Saad Althaqfan

**Signature:**  **Date Received:** \_\_\_\_\_