

Ministry of Higher Education and Scientific Research

Supervision and Scientific Evaluation Body

Quality Assurance and Academic Accreditation Office

Course Description Sample

Subject: Data Structures

This course description provides a brief survey of the most important characteristics, expected learning output, showing whether students have made full use of the learning opportunities. These characteristics have to be matched with the description of the program.

1. Educational Institution	Shatt Al-Arab University College
2. Department / Center	Computer Science Department
3. Course Title /Code	Data Structures
4. Lecturer Name	Dr. Ali K. Mattar
5. Type of Teaching	Attendance
6. Academic Year /Term	2022-2023
7. Total No. of Teaching Hours	60 Hours
8. Date of Preparing this Course Description	18.10.2022

9. Course Objectives

a. Providing students with the most important principles and basics of Data Structures.
b. Teaching students how to apply Data Structures.
c. Providing graduates with the necessary knowledge on Data Structures job in organizations.
d. Improving the administrative skills in the field of Data Structures.
e. Providing graduates with the skills of education and creative learning.

10. Course Output, Methodology and Evaluation

(A) Cognitive Objectives

a. Enabling students to acquire knowledge and the art of Data Structures.
b. Acquainting students with how to promote their personal knowledge.
c. Helping students to acquire knowledge in the art of Data Structures.
d. Enabling students to sharpen their skills in the dynamic work environment.
e. Enabling students to invest their scientific abilities in their working place in the scope of Data Structures.
f. Helping students to get the necessary knowledge to solve problems Data Structures.

(B) Skill Objectives Related to the Program:

a. Scientific Skills in the field of Data Structures.
b. Leadership Skills in the field of Data Structures.
c. Skills Related to Administrative Work Challenges of Data Structures.

Methods of Teaching and Learning

a. Using already- prepared lectures.
b. Using up-to-date data shows.
c. Homework
d. Adopting group discussions.

Methods of Evaluation

a. Oral tests
b. Monthly tests
c. Daily quizzes
d. Students' Regular Attendance

(C) Sentimental and Value Objectives

a. Realizing ethical objectives.
b. Commitment to university traditions.
c. Compliance with the University Instructions and the Ministry Regulations.
d. Promoting students' personal abilities in educational scopes and how to behave well with others.

Methods of Teaching and Learning

a. Lectures on university instructions.
b. Educational guidance lectures.
c. Continuous directing.
d. Visiting State and private institutions.
e. Showing practical cases.

Methods of Evaluation

a. Daily quizzes.
b. Classroom discussions and commitment to ethics and sublime values.
c. Special marks for class activities.
d. Monthly and quarterly evaluation.

D) General and Qualitative Skills (other skills related to the ability of employment and personal development)

a. Enabling students to acquire the skill and art of Data Structures.
b. Enabling students to apply creative thinking in Data Structures.
c. Enabling students to use modern methods of analysis and conclusions.
d. Enabling students to Data Structures.

11. Course Structure

Week	No of Hours	Required Learning Output	Title of Subject	Teaching Method	Evaluation
1	2	understanding the material	*Introduction to python programming language/ 1	- lectures - case study -discussions	- oral tests -questions
2	2	understanding the material	*Introduction to python programming language/ 2	- lectures - case study -discussions	- oral tests -questions
3	2	understanding the material	*Introduction to Data Structure / 1	- lectures - case study -discussions	- oral tests -questions
4	2	understanding the material	*Introduction to Data Structure / 2	- lectures - case study -discussions	- lectures - case study -discussions
5	2	understanding the material	*Stack as a Data Structure in python	- lectures - case study -discussions	- lectures - case study -discussions
6	2	understanding the material	* Main Stack operations : Push, Pop and Peak	- lectures - case study -discussions	- lectures - case study -discussions
7	2	understanding the material	*Usage of Stack Data Structure in Computer (Procedures & Function)	- lectures - case study -discussions	- lectures - case study -discussions
8	2	understanding the material	*Usage of Stack Data Structure in Computer (Arithmetic Expression Notation)	- lectures - case study -discussions	- lectures - case study -discussions
9	2	understanding the material	*Converting From Infix Notation to RPN Notation	- lectures - case study -discussions	- lectures - case study -discussions
10	2	understanding the material	*Queue as a Data Structure in python	- lectures - case study -discussions	- lectures - case study -discussions

11	2	understanding the material	* Main Queue operations : EnQueue and DeQueue	- lectures - case study -discussions	- lectures - case study -discussions
12	2	understanding the material	* Circular Queue as a Data Structure in python	- lectures - case study -discussions	- lectures - case study -discussions
13	2	understanding the material	* Main Circular Queue operations : AddCq and DeleteCq	- lectures - case study -discussions	- lectures - case study -discussions
14	2	understanding the material	* Deference between Queue and Circular Queue	- lectures - case study -discussions	- lectures - case study -discussions
15	2	understanding the material	* Linked List as a Data Structure in python	- lectures - case study -discussions	- lectures - case study -discussions
16	2	understanding the material	* Main Linked List operations / 1	- lectures - case study -discussions	- lectures - case study -discussions
17	2	understanding the material	* Main Linked List operations / 2	- lectures - case study -discussions	- lectures - case study -discussions
18	2	understanding the material	* Data Set as a Data Structure in python	- lectures - case study -discussions	- lectures - case study -discussions
19	2	understanding the material	* Main Data Set operations	- lectures - case study -discussions	- lectures - case study -discussions
20	2	understanding the material	* Tree as a Data Structure in python	- lectures - case study -discussions	- lectures - case study -discussions
21	2	understanding the material	* Main Tree operations	- lectures - case study -discussions	- lectures - case study -discussions
22	2	understanding the material	* Graph as a Data Structure in python	- lectures - case study -discussions	- lectures - case study -discussions

23	2	understanding the material	* Main Graph operations	- lectures - case study -discussions	- lectures - case study -discussions
24	2	understanding the material	*Heap as a Data Structure in python	- lectures - case study -discussions	- lectures - case study -discussions
25	2	understanding the material	* Main Heap operations	- lectures - case study -discussions	- lectures - case study -discussions
26	2	understanding the material	*Dictionary as a Data Structure in python	- lectures - case study -discussions	- lectures - case study -discussions
27	2	understanding the material	* Main Dictionary operations	- lectures - case study -discussions	- lectures - case study -discussions
28	2	understanding the material	*Tuples as a Data Structure in python	- lectures - case study -discussions	- lectures - case study -discussions
29	2	understanding the material	* Main Tuples operations	- lectures - case study -discussions	- lectures - case study -discussions
30	2	understanding the material	*Data searching Algorithms / 1	- lectures - case study -discussions	- lectures - case study -discussions

12.Infrastructure

a. Textbooks	None
b. References	1- Basant Agarwal , Benjamin Baka , “Hands-On Data Structures and Algorithms with Python Second Edition”, Packt Publishing Ltd., October 2018.
c. Recommended books and periodicals (journals, reports, etc.)	Learn the basics of Python for beginners
d. Electronic references, internet websites, etc	https://docs.python.org/3/tutorial/datastructures.html

13. The Plan of Improving the Course

a. Studying labor market needs.

b. Be informed of the experiences of other countries in the field of Data Structures.

c. Be informed of research work published in national and international journals in the field of Data Structures.
