

University of Pretoria Yearbook 2017

Data structures and algorithms 212 (COS 212)

Qualification	Undergraduate
Faculty	Faculty of Engineering, Built Environment and Information Technology
Module credits	16.00
Programmes	BEng Computer Engineering BEng Computer Engineering ENGAGE BIS Multimedia BIT Information Technology BSc Computer Science BSc Information and Knowledge Systems
Service modules	Faculty of Engineering, Built Environment and Information Technology
Prerequisites	COS 110
Contact time	1 practical per week, 4 lectures per week
Language of tuition	Module is presented in English
Academic organisation	Computer Science
Period of presentation	Semester 1

Module content

Data abstraction is a fundamental concept in the design and implementation of correct and efficient software. In prior modules, students are introduced to the basic data structures of lists, stacks and queues. This module continues with advanced data structures such as trees, hash tables, heaps and graphs, and goes into depth with the algorithms needed to manipulate them efficiently. Classical algorithms for sorting, searching, traversing, packing and game playing are included, with an emphasis on comparative implementations and efficiency. At the end of this module, students will be able to identify and recognise all the classical data structures; implement them in different ways; know how to measure the efficiency of implementations and algorithms; and have further developed their programming skills, especially with recursion and polymorphism.

The information published here is subject to change and may be amended after the publication of this information. The [General Regulations \(G Regulations\)](#) apply to all faculties of the University of Pretoria. It is expected of students to familiarise themselves well with these regulations as well as with the information contained in the [General Rules](#) section. Ignorance concerning these regulations and rules will not be accepted as an excuse for any transgression.