

# University of Pretoria Yearbook 2016

## Data structures and algorithms 212 (COS 212)

<b>Qualification</b>	Undergraduate
<b>Faculty</b>	<a href="#">Faculty of Engineering, Built Environment and Information Technology</a>
<b>Module credits</b>	16.00
<b>Programmes</b>	<a href="#">BEng Computer Engineering</a> <a href="#">BEng Computer Engineering Engage</a> <a href="#">BIS Multimedia</a> <a href="#">BIT Information Technology</a> <a href="#">BSc Information Technology Information and Knowledge Systems</a> <a href="#">BSc(Computer Science) Computer Science</a>
<b>Service modules</b>	Faculty of Engineering, Built Environment and Information Technology
<b>Prerequisites</b>	COS 110
<b>Contact time</b>	1 practical per week, 4 lectures per week
<b>Language of tuition</b>	English
<b>Academic organisation</b>	Computer Science
<b>Period of presentation</b>	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.

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