

Course Title	<b>DATA STRUCTURES</b>
Course Code	<b>CSC 211</b>
Course Purpose and Objectives	In this course students will get fundamental knowledge on algorithms complexity, data structures (Lists, Stacks, Queues) and algorithms (Sorting and Searching). They will understand and verify what an algorithm is. The course analyses the complexity of an algorithm. Students will recognize an inefficient algorithm and apply all the required changes for improvement. They will also learn what a data structure is and implement lists, stacks and queues. Through the course students will learn the linear and binary sorting algorithm and be able to implement them. They will also learn the elementary (e.g. Bubble sort) searching algorithms. Students will compare algorithms and find solutions to improve the complexity of an algorithm using specific software (Cygwin).
Learning Outcomes	<ol style="list-style-type: none"> <li>1. Define what time complexity is and calculate the complexity of given algorithms.</li> <li>2. Implement searching and sorting algorithms using a programming language.</li> <li>3. Implement and manage data structures such as lists, stack and queues using a programming language.</li> <li>4. Compare the execution time of algorithms and apply modifications for improvement.</li> </ol>
Course Content	<ul style="list-style-type: none"> <li>• Algorithm and complexity analysis</li> <li>• Revision in c++</li> <li>• Lists, stacks, and queues</li> <li>• Searching</li> <li>• Sorting algorithms</li> <li>• Real time executions</li> </ul>