

# AMITY GLOBAL INSTITUTE

## MODULE SYLLABUS

Course	Bachelor of Science Honours in Computer Science (Games Development) (University of London)
Module Title	Algorithms and Data Structures I
Module Syllabus No. (if any)	CM1035
Syllabus / Content / Learning Outcomes	This module aims to help you to develop your analytical and problem-solving skills, particularly concerning thinking algorithmically. The module will encourage you to start thinking about how to use computers to solve problems. You will develop skills in thinking algorithmically and learn the central concepts of algorithms and data structures. You will learn about linear data structures such as arrays, vectors and lists, and a unifying framework for considering such data structures as collections. You will learn how algorithms can be expressed as flowcharts and pseudocode, and how to convert these expressions into running programs. You will learn specific algorithms used for sorting and searching, and how to express repetition as iteration and recursion. You will learn a simple model for execution of computation, and how to describe computational problems and their solutions. The model will allow you to compare algorithms regarding their correctness and regarding their efficiency.
No. of Teaching Hours	Contact Hours – Lectures, Seminars & online activity (22 x 3) = 66 Independent Preparation, pre-reading and analysis = 84 TOTAL = 150
Teaching Methods	Lectures, tutorials, case-studies analysis, research journals and group discussion.
Assessment Methods and Weightages	One two hour unseen written examination and coursework Coursework 50% and Written examination 50% At least 35% in each element of summative assessment and a combined weighted average of at least 40%, subject to the application of rules for compensation.
Skills for Maximising Learning Outcomes	Reading and research
Dates of Examinations, Major Assessments and Assignments	Please refer to <a href="http://www.london.ac.uk">www.london.ac.uk</a> exam tables If your effective date of registration is: <ul style="list-style-type: none"> <li>• 1 October, you will take your first examination(s) in March of the following year,</li> <li>• 1 April, you will take your first examination(s) in September of the same year.</li> </ul>
Topics covered	<ul style="list-style-type: none"> <li>• Introduction to algorithms, flowcharts and pseudocode</li> <li>• Computations using flowcharts and pseudocode</li> <li>• Pairs, vectors and dynamic arrays</li> <li>• Basic searching</li> <li>• Linked lists</li> <li>• Basic sorting</li> <li>• Advanced searching and introduction to complexity</li> <li>• Recursive algorithms</li> <li>• Advanced sorting</li> <li>• Linear collections</li> </ul>

Note: All Information provided to Amity will be kept strictly confidential except for those required under statutory requirements and by government authorities and relevant university partners and accreditation bodies as part of the regulatory or course requirements.