

3.2.9 Bachelor of Computing in Computer Science

Overview

The **Bachelor of Computing (Honours) in Computer Science programme** aims to equip graduates with strong and broad technical knowledge in computer science and technology. It also provides the flexibility for students to specialise in various fields of computer science. The programme emphasises the four pillars in computer science, *viz. programming languages, computer systems, modelling and algorithms, and human-computer interaction.*

The programme is structured around the U.S. Association of Computing Machinery and the IEEE Computer Society's *Computing Curriculum 2001* recommendations. Students pursuing a degree in Bachelor of Computing (Honours) in Computer Science will also pick up knowledge in science, including life sciences, mathematics, and physics. The programme inculcates in students an awareness of information technology application across multiple disciplines. It also provides the opportunity for students to receive inter-disciplinary education.

Graduates in the Bachelor of Computing (Honours) in Computer Science degree can position themselves in a large number of exciting fields of work, including project management, knowledge engineering, software architecture, web design, digital media, and security consultancy.

Degree Requirements

The Computer Science programme degree requires at least 160 MCs. Modules are classified as follows (note that every module can only be counted towards satisfying exactly one requirement):

(ii) **PROGRAMME REQUIREMENTS (Total of 110 MCs)**

Common Essentials

CS1101 or CS1101S	Programming Methodology
CS1102 or CS1102S	Data Structures and Algorithms
CS1104	Computer Organisation
CS2102S	Database Systems
CS2105	Introduction to Computer Networks

Major Requirements

Computing Related

CS1231	Discrete Structures
CS2103	Software Engineering
CS2106	Operating Systems
CS3212	Programming Languages
CS3215	Software Engineering Project
CS3230	Design and Analysis of Algorithms

Minimum of 8 MCs from the following list of five modules (or modules approved by the Department of Computer Science):

CS3211	Parallel and Concurrent Programming
CS3220	Computer Architectures
CS3231	Theory of Computation
CS3234	Logic and Formal Systems
CS3243	Foundations of Artificial Intelligence

Either

CS4101 Honours Project
Complete 16 MCs by taking modules, at level-4000 or above, in elective areas A1 to A4, or modules approved by the Department of Computer Science (CS Elective list).

or

Complete 28 MCs by taking modules, at level-4000 or above, in elective areas A1 to A4, or modules approved by the Department of Computer Science (CS Elective list).

Table 9: Summary of degree requirements for Bachelor of Computing (Computer Science)

Modules	MCs	Subtotals
UNIVERSITY LEVEL REQUIREMENTS		28
PROGRAMME REQUIREMENTS		111
<i>Common Essentials</i>		
CS1101/S Programming Methodology	5	
CS1102/S Data Structures and Algorithms	5	
CS1104 Computer Organisation	4	
CS2102S Database Systems	5	
CS2105 Introduction to Computer Networks	4	
<i>Major Requirements</i>		
<i>Computer Science Related</i>		
CS1231 Discrete Structures	4	
CS2103 Software Engineering	4	
CS2106 Operating Systems	4	
CS3212 Programming Languages	4	
CS3215 Software Engineering Project	8	
CS3230 Design and Analysis of Algorithms	4	
8 MCs from CS Recommended Course list	8	
Either:		
CS4101 Honours Project	12	
Modules in CS elective areas at level-4000 or above ¹³	16	
Or		
Modules in CS elective areas at level-4000 or above ¹³	28	
<i>Science Related</i>		
MA1505 Mathematics I	4	
MA1101R Linear Algebra or MA1506 Mathematics II	4	
ST2131 Probability	4	
Life Science Module	4	
Physics Module	4	
<i>Others</i>		
CS2301 Business and Technical Communication	4	
UNRESTRICTED ELECTIVES		21
Grand Total		160

¹³ With conditions attached; please check the detailed programme requirements.