# Bachelor of Computer Science (C2001) – 2023
# Advanced computer science specialisation

**Year 1 (48 credit points)**

| | | | | |
|---|---|---|---|---|
| **First Semester** | **FIT1045** Introduction to programming | **FIT1047** Introduction to computer systems, networks and security | **MAT1830** Discrete mathematics for computer science | **Elective** |
| **Second Semester** | **FIT1008** Introduction to computer science [FIT1045] | **FIT1049** IT professional practice [12 pts FIT study] | **MAT1841** Continuous mathematics for computer science | **Elective** |

**Year 2 (48 credit points)**

| | | | | |
|---|---|---|---|---|
| **First Semester** | **FIT2004** Algorithms and data structures [FIT1008 & 6 pts L1 Maths] | **FIT2099** Object-oriented design and implementation [One of FIT1045, FIT1048, FIT1051, FIT1008] | **Elective** | **Elective** |
| **Second Semester** | **FIT2014** Theory of computation [FIT1045 & MAT1830] | **FIT2102** Programming paradigms [FIT1008] | **Elective** | **Elective** |

**Year 3 (48 credit points)**

| | | | | |
|---|---|---|---|---|
| **First Semester** | **FIT3161** Computer science project 1 [FIT2004] | **FIT3171** Databases [One of FIT1045, FIT1048, FIT1051 or ENG1003] | **Level 3** Computer Science Approved Elective* | **Elective** |
| **Second Semester** | **FIT3162** Computer science project 2 [FIT3161] | **FIT3155** Advanced data structures and algorithms [FIT2004] | **FIT3143** Parallel computing [FIT2004] | **Elective** |

## * Approved Computer Science Electives

FIT3031 Network security
FIT3077 Software engineering: architecture and design
FIT3080 Artificial intelligence
FIT3081 Image processing
FIT3088 Computer graphics
FIT3094 Artificial life, artificial intelligence and virtual environments
FIT3139 Computational modelling and simulation
FIT3142 Distributed computing
FIT3146 Maker lab
FIT3152 Data analytics
FIT3159 Computer architecture
FIT3165 Computer networks
FIT3173 Software security
FIT3175 Usability
FIT3181 Deep learning
FIT3182 Big data management and processing
FIT3183 Malicious AI and dark side security
MTH3170 Network mathematics
MTH3175 Network mathematics (Advanced)

**Note that not all units will be taught in every year and some will be offered only in alternate years.**

## Industry Based Learning (IBL)

- Students accepted into the IBL program will replace FIT3161, FIT3162 and the Level 3 Computer Science Approved Elective with FIT3045 Industry based learning (18 points).
- IBL placements will normally be completed in semester 1 of third year for BCS Advanced Computer Science students.
- Students completing an IBL placement must overload in one semester OR complete a summer unit in order to complete the course in 3 years.

**Notes**

| | |
|---|---|
| **Credit points** | Unless specified, all units are worth 6 credit points<br>Bachelor of Computer Science 24 units x 6 credit points = Total of 144 credit points |
| **Year Level Requirements** | 1) Normally 48 points, and a maximum of 60 points, of first year level units will be counted;<br>2) At least 36 points must be completed at third year level. |
| **Unit requisites** | All pre-requisite and co-requisite requirements must be undertaken in order to be able to enrol into a specific unit |
| **Duration of degree** | 3 years full-time, 6 years part-time |
| **Time limit** | Time limit = 8 years. Students have eight years in which to complete this award from the time they commence first year. Periods of intermission are counted as part of the eight years. |
| **Monash University handbook** | Students should follow the course requirements for the year the course was commenced<br>https://handbook.monash.edu/browse/By%20Faculty/FacultyofInformationTechnology |