

**National School of Business Management**

**Faculty of Computing**

**UNDERGRADUATE  
PROGRAMME SPECIFICATION**

**Programme Title:** Bachelor of Science in Computer Science (year 1 & 2)

**Awards:** BSc (Hon) in Computer Science (year 1 & 2)

**Mode of Study:** Full-Time

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## 1. Educational Aims of the Programme

Computer Science is the discipline of study, design, development and evaluation of computer systems, software and algorithms. Students learn how to develop algorithms to process information and solve computational problems.

The aims of the programme in Computer Science are:

- to develop proficiency in problem solving techniques using the computer
- to develop lone learning aptitude to acquire new knowledge required for an assignment which associated with novel concepts and principles;
- to develop proficiency in the analysis of complex problems and the synthesis of solutions to those problems by applying breadth and depth of knowledge in the discipline of computer science
- to admire intellectual works of others and to abide by industry norms and ethics stipulated by professional bodies;
- to communicate effectively and efficiently with clients and with peers both verbally and in writing;
- to collaborate in groups to achieve common goals;

The BSc(Hons) graduates will be able to demonstrate thorough understanding of the core Computer Science principles and their practical significance. Honors graduates will also be exposed to a wider specialized subject content required for diverse industries and knowledge on contemporary developments of the field.

## 2. Programme Learning Outcomes

At the end of the study programme students should be able to:

**Knowledge & Understanding:** Demonstrate a systematic understanding of computing concepts and principles. Build solid foundation knowledge and skills and of the professional standards necessary to continue studies in computer science.

**Learning:** Develop lines of argument and evaluate possible approaches, tools, techniques, platforms and solutions based on knowledge of Computer Science principles and practices, and demonstrate understanding of the uncertainty, ambiguity and limitations of this knowledge.

**Enquiry:** Initiate and carry out Computer Science projects. Ethically gather information pertaining to computing problems, possible solutions, and the success of these solutions, from existing or potential users and/or organisations using established Computer Science practices. Find, critically evaluate, manage, apply, and understand information from a range of sources, acknowledging the cultural, ethical, economic, legal, and social issues surrounding the use of such information.

**Analysis:** Critically discuss current research in Computer Science, and evaluate arguments, assumptions, abstract concepts and data (that may be incomplete) to draw conclusions.

**Problem Solving:** Design appropriate solutions in one or more application domains using Computer Science approaches that integrate ethical, social, legal, and economic concerns. Reconcile conflicting project objectives, finding acceptable compromises within the limitations of cost, time, knowledge, existing systems, and organizations.

**Communication:** Communicate ideas, problems and solutions to both specialist and non-specialist audiences in a variety of forms, including, but not limited to: written academic reports; verbal presentations; documentation in support of the development of software; project management documentation.

**Application:** Demonstrate an understanding of and apply appropriate theories, models, and techniques that provide a basis for problem identification and analysis, software design, development, implementation, verification, and documentation.

**Reflection:** Critically evaluate your performance as an academic and a professional Computer Scientist, considering both process and product. Plan how to make your performance (process and product) more relevant and more effective.

**Professional Practice:** Work both individually and as part of a team to develop and deliver quality software artefacts. Demonstrate an understanding and appreciation of the importance of negotiation, effective work habits, leadership, and good communication with stakeholders in a typical software development environment. Demonstrate positive attitudes and social responsibility. Exercise initiative, personal responsibility and accountability and undertake further training and develop additional skills as required by the industry.

### 3. Programme Structure, Modules and Credits

The Computer science year 1 & 2 programme consists of 13, Level 1 modules and 13 Level 3 modules.

#### 3.1 Year 1 /Level 1

In Year 1, students follow a curricula consisting of five Computer Science core modules and five foundation (elective) modules from wider discipline of computing science and mathematics. Table 1 below, specifies the subject modules students follow at this level. This level of study lays a strong computing and software engineering foundation to the students on which they develop more specialised learning related to Computer Science and systems and application specialties.

**Table 1** – Level 1 modules for all Computer Science awards.

Module Code	Module Name	Credit Value
CS101.3	Introduction to Computer Science	3
MA101.3	Mathematics for Computing 1	3
CS102.3	Programming in C	3
CS103.3	Professional Development	3
CS104.3	Database Management Systems	3
CN101.3	Computer Technology	3
CS105.3	Operating Systems	3
CS106.3	Object Oriented Programming with C++	3
CS107.3	Mathematics for Computing 2	3
SE101.3	Systems Analysis and Design	3
SE102.3	Web Based Application Development	3
CS108.3	Programming in Java	3
	Project	

Note: Please refer module descriptors for module learning outcomes (and mappings to programme learning outcomes), detailed subject content and teaching & assessment strategies.

### 3.2 Year 2 /Level 2

In Year 2, students continue to acquire core Computer Science body of knowledge by following more core modules. Students also continue leaning few computing elective modules that provides them a strong foundation of enterprise application development technologies. Table 2 below specifies the modules for level 2. The waiting of each module is still 3 credits and the students take 12 modules at this level during the 3 terms of the fixed academic calendar of NSBM, with a consistent student workload across the academic year.

**Table 2** – Level 2 modules for all Computer Science awards.

Module Code	Module Name	Credit Value
CS201.3	Data Structures and Algorithms	3
SE202.3	Introduction to Cryptography	3
MA201.3	Digital Image Processing	3
SE201.3	Object Oriented Programming with Java	3
MT221.3	Management Practices	3
CS203.3	Advanced Database Management Systems	3
SE203.3	Object Oriented Programming with C#	3
SE204.3	Computer Networks	3
SE205.3	Agile Software Development	3
SE206.3	Data Warehouse and Data mining	3
SE207.3	Distributed Processing	3
MA202.3	Mathematics for Computing 3	3

Note: Please refer module descriptors for further module details.

## 4. Admission Criteria

Three Passes in Physical Science, Biological Science or Technology streams in a single sitting, at one of the following examinations or equivalent foreign qualifications is the minimum entry requirement. Equivalent foreign qualification is defined as the minimum requirement for admission to the first year of a UGC recognized university in that country.

- G.C.E. Advanced Level examination conducted by the Department of Examinations, Sri Lanka
- G.C.E Advanced Level examination conducted by Pearson Edexcel, UK (London A/L)
- International Advanced Level examination conducted by Pearson Edexcel, UK
- G.S.E Advanced Level examination conducted by Cambridge International Examinations, UK

OR

Successful completion of the foundation program conduct by the NSBM.

OR

Sat for G.C.E. Advanced Level examination conducted by the Department of Examinations, Sri Lanka or an equivalent foreign examination and “Certificate Program for Bachelor’s Degree” conducted by NSBM.

OR

Two passes from G.C.E. Advanced Level examination conducted by the Department of Examinations, Sri Lanka or an equivalent foreign examination and complete four modules from “Certificate Program for Bachelor’s Degree” conducted by NSBM.

## 5. Module Grading, Progression and Graduation

### 5.1 Module Grading Scheme

The Grading System for study modules of this program is given in Table 5.

**Table 5 – Module Grading Scheme (Source: UGC Circular 901)**

Range of Marks	Grade	Grade Point (GP)	Classification
85-100	A+	4.2	First Class
70-84	A	4.0	
65-69	A-	3.7	
60-64	B+	3.3	Second Upper
55-59	B	3.0	Second Lower
50-54	B-	2.7	Pass
45-49	C+	2.3	
40-44	C	2.0	
35-39	C-	1.7	NA
30-34	D+	1.3	
25-29	D	1.0	
00-24	F	0	

### 5.2 Module Completion

A student requires obtaining a minimum of 40 marks (C Grade/GP 2.0) for a module to be considered as having passed (completed) that module. Students not fulfilling this requirement for a module should retake the failed assessment components or the complete module with attendance as determined by the Module Examination Board. For the referred attempts the module marks are capped at 40 (C grade/GP 2.0). A completed module contributes the full credit allocation of that module towards the total credit requirement of the award.

A marginally failed module with a grade point not less than 1.3 could be compensated and award a pass (grade C/GPA 2.0), on discretion of the award board. However, maximum of two modules will be compensated over the programme.

### 5.3 Progression

Students should pass all the required modules of a level to fulfill the credit requirement for that level. However, students can progress to study in Level 2 while having maximum of 2 outstanding modules (failed modules) in Level 1.

### 5.4 Programme Completion

To complete the programme and be able to register for the stage 2 of the UCD Computer Science Degree, students should complete all the modules and gain 80 credits in total.

## **6. Support and Guidance**

### **6.1 Academic Support and Guidance**

Throughout your course you will meet the Module Lecturers at the taught sessions. If you require additional advice and guidance, please do not hesitate to contact the Module Lecturers, Programme Director or the Programme Administrator.

Please contact your lecturer if you have any concerns about assessments or any other aspect of your course. Generic support with studying, assignments and assessments can be found on the NSBM intranet.

### **6.2 General Support and Guidance**

If you have concerns about your ability to complete your course for any reason, you are strongly encouraged to speak to your Programme Director, Programme Administrator or any Lecturer that you are comfortable with.

## **7. How do I hand in assignments?**

You will normally be required to hand in written assignments relating to the School of Computing modules either to the Programme Administrator or to the LMS (Learning Management System). Instructions for the submission of practical assignments will be included in the LMS or on assessments briefs. It is your responsibility to ensure that you submit assignments on time and at the appropriate place.

PLEASE NOTE – we would strongly recommend that it is always better to submit your assignment on time even if you feel that you could have done better or might have needed a ‘few more hours to finish it off’. Work which is submitted late will get a zero-grade.

Module lecturers will normally give out assignment details with plenty of time before submission to allow you to manage your time and develop your assessment. It is always advisable to start early on assignments, create early drafts, so that if just before submission something adverse happens you do have draft to hand-in.

Finally, of course, it is good practice to keep a hard or (backed-up) electronic copy of draft assignments just in case computers crash. Similarly keep a copy of all submitted assignments just in case it gets lost, then you will have the receipt to prove that you handed it in, and a copy to replace what has been lost.