

Cambridge International Advanced Subsidiary & Advanced Levels - Computer Science (9608)

Cambridge International A Level

Cambridge International Advanced Level is one of the most recognised qualifications around the world. For over 50 years, A Levels have been accepted as proof of academic ability for entry to universities and institutes of higher education. A Levels are also important to employers who frequently demand A Levels as a condition of job entry.

Computer science is the study of the foundational principles and practices of computation and computational thinking and their application in the design and development of computer systems. This syllabus aims to encourage the development of computational thinking, that is thinking about what can be computed and how by the use of abstraction and decomposition.

Futurekids Computer Learning Center (Sch Reg No: 29075, 29076)
Registered Cambridge International School
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Introduction

This syllabus provides a general understanding and perspective of the development of computer technology and systems, which will inform their decisions and support their participation in an increasingly technologically dependent society; It also provides the necessary skills and knowledge to seek employment in areas that use computer science; Students' knowledge and understanding of computer science can be developed through entry to higher education, where this qualification will provide a useful foundation for further study of computer science or more specialist aspects of computer science.

Scheme of Assessment

Candidates may choose to:

- ◇ take Papers 1, 2, 3 and 4 in the same examination series, leading to the full Cambridge International A Level.
- ◇ follow a staged assessment route by taking Papers 1 and 2 (for the AS Level qualification) in one series, then Papers 3 and 4 (for the full Cambridge International A Level) in a later series.
- ◇ take Papers 1 and 2 only (for the AS Level qualification).

ADVANCED SUBSIDIARY LEVEL (AS Level)

Paper	Type	Duration	Maximum Mark	Weight
1	Theory Fundamentals	1 hr 30 mins	75	25%
2	Fundamental Problem-solving & Programming Skills	2 hrs	75	25%

ADVANCED LEVEL (A Level)

In addition to Papers 1 and 2.

Paper	Type	Duration	Maximum Mark	Weight
3	Advanced Theory	1 hr 30 mins	75	25%
4	Further Problem-solving and Programming Skills	2 hrs	75	25%

All 4 papers will take place at FUTUREKIDS Computer Learning Center, by means of a CIE-set assessments, under controlled examination conditions. The documentation and printouts produced in the assessment will be externally marked by CIE.

Examinations Schedule

International A and AS Level examination sessions occur twice a year, in June and November, with results issued in August and January respectively.

Grading System

Subjects are graded A through to E. Grade A* is awarded for the highest level of achievement, grade E for the lowest.*

Recognition

International A Level and AS Level have widespread international recognition as educational qualifications. This recognition is because:

- ◇ *International A and AS Level qualifications are recognised by universities as equivalent in value to UK A and AS Levels*
- ◇ *Good grades at A and AS Level can result in one full year of advanced standing or credit at universities in the USA and Canada*
- ◇ *Good A and AS Level grades are vital for admission to all the world's major English-speaking universities and many non-English-speaking universities*

Curriculum Content

The curriculum content is set out in twenty two interrelated sections. These sections should be read as an integrated whole and not as a progression. The sections are as follows:

At AS Level (Theoretical)

1. Information representation
2. Communication and Internet technologies
3. Hardware
4. Processor fundamentals
5. System software
6. Security, privacy and data integrity
7. Ethics and ownership
8. Database and data modelling

At AS Level (Programming Skills)

9. Algorithm design and problem-solving
10. Data representation I
11. Programming
12. Software development

At A2 Level (Theoretical)

13. Data representation II
14. Communication and Internet technologies
15. Hardware
16. System software
17. Security
18. Monitoring and control systems

At A2 Level (Programming Skills)

19. Computational thinking and problem-solving
20. Algorithm design methods
21. Further programming
22. Software development

Course Outline

Module	Section(s) Covered	Study Hours
AS Level		
Module 1: Programming Basics	9, 10, 11	24 (12 Lessons)
Module 2: Algorithm Design & Problem-solving	11, 12	24 (12 Lessons)
Module 3: Computer Systems & Organisations	1, 3, 4, 5	20 (10 Lessons)
Module 4: Databases & Communication Technologies	2, 6, 7, 8	28 (14 Lessons)
A2 Level (A Level)		
Module 5: Advanced Problem Solving Methods	13, 20, 21	32 (16 Lessons)
Module 6: Computational Thinking	19, 21, 22	20 (10 Lessons)
Module 7: Advanced Communication Technologies	13, 14	20 (10 Lessons)
Module 8: System Software & Network Security	15, 16, 17	24 (12 Lessons)

Prerequisite

Applicants should:

- ◇ Either, have grade B or above in Information Communication Technology at IGCSE;
- ◇ Or, have grade C or above in Computer Science at IGCSE;
- ◇ Or, have 4 point or above in Information Communication Technology (Software module) at HKDSE;
- ◇ Or, pass a written and practical entry test.

Further Enquiries

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Schedule

The course is scheduled on every Saturday from 10:30 - 12:30pm and 03:30 - 5:30pm.

Module	Date				Fee
Module 1: Programming Basics (I)	Saturday:	2019	May Jun	04, 11, 18, 25, 01, 08	6 lessons \$5,160
Programming Basics (II)	Saturday:	2019	Jun Jul	15, 22, 29, 06, 13, 20	6 lessons \$5,160
Module 2: Algorithm Design & Problem-solving (I)	Saturday:	2019	Jul Aug	27, 03, 10, 17, 24, 31	6 lessons \$5,160
Algorithm Design & Problem-solving (II)	Saturday:	2019	Sep Oct	07, 14, 21, 28, 05, 12	6 lessons \$5,160
Module 1 & Module 2 Practical & Written Test	09 Nov 2019, Time to be confirmed				\$500
Module 3: Computer Systems & Organisations	Saturday:	2019	Oct Nov Dec	19, 26, 02, 09, 16, 23, 30, 07, 14, 21	10 lessons \$8,600
Module 4: Databases & Communication Technologies (I)	Saturday:	2019 2020	Dec Jan Feb	28, 04, 11, 18, 25, 01, 08	7 lessons \$6,020
Databases & Communication Technologies (II)	Saturday:	2020	Feb Mar	15, 22, 29, 07, 14, 21, 28	7 lessons \$6,020
Module 3 & Module 4 Written Test	25 Apr 2020, Time to be confirmed				\$500
Module 5: Advanced Problem Solving Methods (I)	Saturday:	2020	Apr May	04, 11, 18, 25, 02, 09, 16, 23	8 lessons \$6,880
Advanced Problem Solving Methods (II)	Saturday:	2020	May Jun Jul	30, 06, 13, 20, 27, 04, 11, 18	8 lessons \$6,880
Module 6: Computational Thinking	Saturday:	2020	Jul Aug Sep	25, 01, 08, 15, 22, 29, 05, 12, 19, 26	10 lessons \$8,600
Module 5 & Module 6 Practical & Written Test	24 Oct 2020, Time to be confirmed				\$500
Module 7: Advanced Communication Technologies	Saturday:	2020	Oct Nov Dec	03, 10, 17, 24, 31, 07, 14, 21, 28, 05	10 lessons \$8,600
Module 8: System Software & Network Security (I)	Saturday:	2020 2021	Dec Jan	12, 19, 26 , 02, 09, 16	6 lessons \$5,160
System Software & Network Security (II)	Saturday:	2021	Jan Feb	23, 30, 06, 13, 20, 27	6 lessons \$5,160
Module 7 & Module 8 Written Test	27 Mar 2021, Time to be confirmed				\$500
AS Examination For the student who has completed module 1 - module 4	Oct - Nov 2021 (details will be announced later)				
A2 Examination For the student who has completed module 1 - module 8	Oct - Nov 2021 (Details will be announced later)				

1. Full payment should be made one week before the commencement date of each module.
2. Any make up class other than the scheduled time will require \$180 administration fee.
3. No class on public holiday, make-up class will be arranged.
4. A course book will be chosen for student to study, student can buy the book through Futurekids or from other online bookshop.
5. Enhancement courses and mock examinations will be held before the examination for students to re-enforce their knowledge in each module covered and familiarise the examination patterns. Details of schedule will be announced later.
6. Price are subject to change in due course, details will be announced one month before the module begins.