A Level Computer Science – Yr12 to Yr13 SIL
(Summer Independent Learning)

Deadline: First lesson back after Summer 2026

Compulsory – must do!

Part 1 – Complete your Project Design section.

You will complete the remainder of your project design section ready for hand in by the end of the summer holiday. Only when you have completed the design for all sprints, will you be able to make a start on the development. The design section has been explained to you in lessons, and resources for support are available on our course page.

	Design (maximum 15 marks)			
	1–4 marks	5–8 marks	9–12 marks	13–15 marks
	The candidate will have:			
Decompose Problem		Broken the problem down systematically into a series of smaller problems suitable for computational solutions describing the process.	Broken the problem down systematically into a series of smaller problems suitable for computational solutions explaining the process.	Broken the problem down systematically into a series of smaller problems suitable for computational solutions, explaining and justifying the process and decisions made.
Define Structure		Defined the structure of the solution to be developed.	Explain and justify in detail the structure of the solution to be developed.	
Algorithms	Described elements of the solution using algorithms.	Described the solution fully using appropriate and accurate algorithms.	Described the solution fully using appropriate and accurate algorithms explaining how these algorithms form a complete solution to the problem.	Described the parts of the solution fully using appropriate and accurate algorithms justifying how these algorithms form a complete solution to the problem.
Usability Features	Described some usability features to be included in the solution.	Described the usability features to be included in the solution.	Described, explaining choices made, the usability features to be included in the solution.	Described, justifying choices made, the usability features to be included in the solution.
Variables / Data Structures / Validation	Identified the key variables / data structures / classes (as appropriate to the proposed solution).	Identified the key variables / data structures / classes (as appropriate to the proposed solution) and any necessary validation.	Identified and justified the key variables / data structures / classes (as appropriate to the proposed solution) explaining any necessary validation.	Identified and justified the key variables / data structures / classes (as appropriate to the proposed solution) justifying choices and explaining any necessary validation.
Iterative Test Data	Identified some test data to be used during the iterative or post development phase of the process.	Identified the test data to be used during the iterative development of the solution.	Identified and justified the test data to be used during the iterative development and post development phases of the solution and justify choice of test data	
Post Development Test Data		Identified any further data to be used in the post development phase.	Identified and justified any further data to be used in the post development phase	

Compulsory – must do!

Part 2 – Revision Carousels

It is vital that you continue to access and retrieve your theory knowledge throughout the Summer. All of the course content has been taught in Y12 and Y13 will serve as a year of revision and focused practise.

Aim to achieve >= 80% in all Carousels. You have unlimited attempts. The links to access can be found on your Teams assignment.

1.1.1 Structure & Function of the Processor
1.1.2 Types of processor
1.1.3 Input, output & storage
1.2.1 Systems Software
1.2.2 Applications Generation
1.2.3 Software Development
1.2.4 Types of Programming Language
1.3.1 Compression, Encryption and Hashing
1.3.2 Databases
1.3.3 Networks
1.3.4 Web Technologies
1.4.1 Data Types
1.4.2 Data Structures
1.4.3 Boolean Algebra
1.5.1 Computing Related Legislation
1.5.2 Moral and Ethical Issues
2.1 Elements of computational thinking
2.2.1 Programming techniques
2.2.2 Computational methods
2.3.1 Algorithms

Optional Activities

Ed Stout – IT Support Services Manager at Leeds Beckett University. Talks about his journey from college to current managerial position. Tips on how to gain experience, routes into the industry and what he looks for when recruiting.

IT Work Experience Talk

Here are a collection of interesting talks and interviews that will expand your understanding of the world of IT and Computing:

Joe Rogan Experience #1368 - Edward Snowden

YouTube CEO Susan Wojcicki | Full interview | Code 2019

How I used to rob banks! by FC (aka Freaky Clown)

GOTO 2018 • The Future of the Web • Sir Tim Berners-Lee

The mind behind Linux | Linus Torvalds

There are a series of good YouTube channels that regularly post interesting videos about the world of IT and Computing:

Linus Tech Tips

Computerphile

Techquickie

Crash course computing

Explaining computers

Another great exercise is to regularly read news articles and stories. These will keep you up to date with all of the latest happenings in technology:

BBC

Sky

The Guardian

Computer World

CNET