

College and University

Data Scientist

Cyber Security Analyst

Artificial Intelligence Engineer

Robotics Engineer

LHA Computer Science CURRICULUM



Term 3:
Paper 1 & 2
Revision and Exam
Technique

Term 2 - Paper 1

- Bitmap Images
- Sound
- Compression
- AI & machine learning
- Personal Data
- Data protection and Laws

Term 2 - Programming:

- Exam Practice and Technique

Term 1 - Paper 1

- Embedded Systems
- The internet
- Packet Switching
- TCP/IP Model
- Environmental Issues
- High- and Low-Level Languages
- Translators
- Intellectual Property

Term 1 - Programming:

- Subprograms
- Local and global variables
- Libraries
- Trace Tables
- Errors
- Sorting and Searching

YEAR 11

Term 2 - Paper 1

- Types of networks
- Network Speeds
- Connectivity
- Network Transmission
- Topologies
- Malware

Term 3 - Programming:

- Working with files
- Processing strings
- Authentication
- Python Turtle

9.4 Advanced Computer Systems:

- System Hardware
- The Operating System
- Utility Software
- Components of the CPU
- Secondary Storage

YEAR 10

Term 1 - Programming:

- Decomposition & Abstraction
- Variable
- Data Types
- Flowcharts
- Selection
- Repetition (While)

Term 1 - Paper 1

- Signed and unsigned integers
- Binary addition
- Two's Complement
- Binary Shifts
- Hexadecimal
- ASCII

Term 2 - Programming:

- Lists / Arrays
- Iteration (For)
- Subprograms
- Formatting Strings
- Validation
- Linear search

Term 2 - Paper 1

- Stored Program (FDE)
- Secondary Storage
- Operating System
- Utility Software

9.3 Artificial Intelligence:

- What is AI?
- What is machine learning?
- Biased Data
- Making decisions

9.2 Python Programming:

- Inputs and Outputs
- Selection
- Maths
- Loops
- Python Turtle

9.1 Cybersecurity:

- Data and Information
- Social Engineering
- Hacking
- Malware
- Protecting against cyberattacks

YEAR 9

8.4 GUIs

- What is a UI?
- Design principles
- Planning a GUI
- Building a GUI

8.3 Control & Monitoring:

- Control Systems
- Introduction to flowcharts
- Testing computer systems using Flowol

YEAR 8

7.5 Spreadsheets:

- What is a spreadsheet?
- Basic Formulas
- Simple Functions
- Graphs and Charts
- Building a functional spreadsheet

8.1 Online Safety:

- Digital Footprints
- Phishing
- Smartphone Addiction
- Protecting myself online

8.2.1 Computer Systems:

- What is a computer?
- Von Neumann Model
- Fetch-Decode-Execute Cycle

8.2.2 Data Representation:

- Binary Conversions
- File Sizes
- Binary Maths
- Boolean Logic

7.4 Computer Networks:

- What is a network?
- Network Hardware
- Network Topologies
- Data Transmission

7.3 Image Editing:

- PhotoPea Workshops
- Image File Types
- Appropriation Photography
- Editing images
- Presenting images

7.2 Hardware:

- External Hardware – input & output devices
- Internal Hardware

7.1 Online Safety:

- Being Cybersafe
- Cyberbullying
- Email Etiquette
- Screen time and its impacts
- Selfies & body image

YEAR 7

Welcome to Computer Science:

- Introduction to Google Classroom
- Introduction to 1-1 devices
- Building digital skills including typing