YEAR 10 COMPUTER SCIENCE

SRI KDU International School SUBANG JAYA

PROGRAMME OF STUDY - TERM 2

DATA TRANSMISSION AND ENCRYPTION

- **Understanding Data Packets:** Learn about the structure of data packets and their role in data transmission.
- **Data Transmission Methods:** Understand various methods of data transmission, such as serial, parallel, simplex, half-duplex, and full-duplex.
- **Universal Serial Bus (USB):** Explore the benefits and drawbacks of using USB interfaces.
- **Error Detection Techniques:** Learn about different methods of error detection, including parity checks, echo checks, and checksums, with ISBNs as an example of check digit use.
- **Encryption Methods:** Understand the principles of asymmetric and symmetric encryption.

COMPUTER ARCHITECTURE AND STORAGE

- **CPU Architecture:** Understand the structure of the Central Processing Unit (CPU), including the Arithmetic Logic Unit (ALU), Control Unit, and key registers like the Program Counter (PC), Memory Address Register (MAR), Memory Data Register (MDR), Current Instruction Register (CIR), and accumulator.
- **CPU Performance Factors:** Learn about the various factors that affect CPU performance.
- **Embedded Systems and Instruction Sets:** Explore the concepts of embedded systems and different types of instruction sets.
- **Memory Types:** Gain knowledge about different types of memory, including virtual memory.
- **Secondary Storage Technologies:** Understand the workings of key secondary storage technologies, such as magnetic storage (platters, tracks, sectors, electromagnets), optical storage (pits and lands), and solid-state storage (NAND/NOR gates).
- **Cloud Storage:** Learn about cloud storage, including its advantages and disadvantages compared to local storage.

INPUT AND OUTPUT DEVICES

- **Understanding Key Input Devices:** Learn about various input devices, including specialized technologies like 2D and 3D scanners.
- **Exploring Output Devices:** Gain knowledge of different output devices, focusing on less commonly known technologies.

- Technologies and Sensors: Explore a range of sensors such as accelerometers, infrared sensors, and proximity sensors, understanding their functions and the types of data they capture.
- Identification and Application: Develop skills to identify the type of data captured by each sensor and understand their practical applications.

NETWORKS AND THE INTERNET

- **Network Hardware Essentials:** Understand the necessary network hardware and the concepts of MAC and IP addresses.
- **Internet and World Wide Web:** Learn how the internet and the World Wide Web function, including the role of web browsers and technologies such as URLs, HTTP/S, and HTML.
- **Web Technologies:** Explore the function and importance of cookies, DNS, and web servers.
- **Cyber Security:** Gain a thorough understanding of cyber security, including common types of cyber attacks and the preventive measures used to combat them.
- **Digital Currencies and Blockchain:** Learn about the concepts of digital currencies and blockchain technology.