The City School

Computer Science (2210)

O Level

Syllabus Break up 2018-19

Class 10

Term	No. of weeks	No. of lessons/week	Topic/Unit	Objectives	Resources
1	1-5	3	**Logic Gates**	• Show understanding of logic gates • Use of logic gates to create electronic circuits • Understanding the functions of AND,OR NOT,NAND,NOR,XOR gates. • Show the understanding of truth table • Create a logic gate from truth table • Symbol of logic gates • Problem solving techniques	
1	6-7	3	**Communication and internet**	• show understanding of what is meant by transmission of data	

			technologies	• distinguish between serial and parallel data transmission • distinguish between simplex, duplex and half-duplex data transmission • show understanding of the reasons for choosing serial or parallel data transmission • show understanding of the need to check for errors • explain how parity bits are used for error detection • show understanding of the use of serial and parallel data transmission, in Universal Serial Bus (USB) and Integrated Circuit (IC)	
1	8-9	3	**Internet Principles of Operation**	• Show understanding of the use of browser. • Describe the role of ISP • Protocols: HTTP vs HTTPS, transfer layer protocol • HTML its structure and presentation • MAC Addresses, IP Addresses, URL and cookies	
1	10-12	3	**High- and low-level languages**	• show understanding of the need for both high-level and low-level languages • show understanding of the need for compilers when translating programs written in a high-level language • show understanding of the use of interpreters with high-level language programs • show understanding of the need for assemblers when translating	

				programs written in assembly language	
13-14				**Revision**	
2	1 -4	3	**Problem-solving and design**	• show understanding that every computer system is made up of sub-systems, which in turn are made up of further sub-systems • use top-down design, structure diagrams, flowcharts, pseudocode, library routines and subroutines • work out the purpose of a given algorithm explain standard methods of solution suggest and apply suitable test data understand the need for validation and verification checks to be made on input data use trace tables to find the value of variables at each step in an algorithm identify errors in given algorithms and suggest ways of removing these errors produce an algorithm for a given problem (either in the form of pseudocode or flowchart) comment on the effectiveness of a given solution	
2	5-8	3	**Problem-solving and design**	• Using trace tables (continue) • Identifying and correcting errors • Producing algorithms *[For-Next Control Statement]*	

2	9-11	3	**Pseudocode and flowcharts**	• understand and use pseudocode for assignment, using ← • understand and use pseudocode, using the following conditional statements: • IF … THEN … ELSE … ENDIF CASE … OF … OTHERWISE … ENDCASE • understand and use pseudocode, using the following loop structures: • FOR … TO … NEXT REPEAT … UNTIL WHILE … DO … ENDWHILE • understand and use pseudocode, using the following commands and statements: • INPUT and OUTPUT (e.g. READ and PRINT) totaling (e.g. Sum ← Sum + Number)counting (e.g. Count ← Count + 1) • understand and use standard flowchart symbols to represent the above statements, commands and structures	
2	12-14	3	**Security and Ethics**	• show understanding of the need to keep data safe from accidental damage, including corruption and human errors	

				• show understanding of the need to keep data safe from malicious actions, including unauthorized viewing, deleting, copying and corruption • show understanding of how data are kept safe when stored and transmitted, including: • use of passwords, both entered at • keyboard and biometric • use of firewalls, both software and • hardware, including proxy servers • use of security protocols such as • Secure Socket Layer (SSL) and • Transport Layer Security (TLS) • use of symmetric encryption (plain • text, cypher text and use of a key) • showing understanding that • increasing the length of a key • increases the strength of the • encryption • Show understanding of the need to keep online systems safe from attacks including denial of service attacks, phishing, pharming • Show understanding of computer ethics, including copyright issues and plagiarism • Distinguish between free software, freeware and shareware • Show understanding of the ethical issues raised by the spread of electronic communication and Computer systems, including hacking, cracking and production of malware	
15-16				**Revision**	