

Wah Yan College Kowloon
F.6 ICT Scheme of Work (2015-2016)

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| Textbook | 1. NSS Information and Communication Technology Book 2 (Longman) 2. NSS Information and Communication Technology Book 3 (Longman) 3. NSS Information and Communication Technology Elective B2 (Longman) |
| Other Resources | Internet |

SL: Scheduled number of lessons

AL: Actual number of lessons

| School Term | Weeks | Topics | Learning Objectives/ Teaching Focus | SL/AL | Teaching and Learning Activities | Consolidation and Assessment | Values [#] |
|--|-------|---|---|-------|---|------------------------------|---------------------|
| First Term (1/9/2015 - 2/1/2016, Weeks 1 to 18) | 1 | No Lesson | | | | | |
| | 2 | Elective Part B 12.1 Testing 12.2 Testing Documents 12.3 User Training and Support | Describe different types of testing. Describe different activities involved in the testing and debugging phase of a network. Describe the documents prepared in the testing phase. Design and write a simple test plan and test specifications. Be aware of the importance of adequate end user support and training for the attainment of the benefits sought. | 3 | Activity 1: Writing test cases (p.116-117) Activity 2: Internet connectivity (p.117) Activity 3: Troubleshooting using Remote Desktop (p.119-120) | | I, II, III |
| | 3 | 12.4 Maintenance 12.5 Documentation 13.1 Network Management 13.2 Simple Network Management Protocol (SNMP) | Describe the activities involved in the maintenance phase. Describe various documents written in the network development life cycle. Understand the tasks involved in network management. Understand the concept of SNMP. | 4 | Activity 4: Preparing an information table (p.123) | | I, II, III |

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| | 4 | 13.3 Performance Monitoring and Fine-tuning 13.4 Troubleshooting 13.5 Disaster Planning and Recovery 13.6 Backup 13.7 Fault Tolerance | Develop the basic skills of monitoring and fine-tuning the performance of a simple network. Develop the basic skills of troubleshooting in a networking environment. Understand the meaning of disaster planning and recovery. Understand the importance of backup. Understand different components of data backup and the related technology. Understand the concept of fault tolerance and different technology about UPS and RAID. | 4 | Activity 5: Event Viewer (p.151-152) Activity 6: Backup and recovery (p.159-160) | | I, II, III |

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|-------------|-------|--|---|-------|---|------------------------------|---------|
| | 5 | 14.1 Network Security 14.2 Security Threats 14.3 Malware 14.4 Unauthorized Access 14.5 Interception 14.6 Denial of Service (DoS) Attack 14.7 Network Security Measures | Understand the main services provided by network security. Identify common security threats in a networking environment. Understand the main malware categories and describe the potential risks caused by malware. Identify the common ways and the potential risks of unauthorized access. Describe the potential risks caused by interception. Describe the potential risks caused by DoS attack. Propose some effective measures to improve network security. | 2 | Activity 1: Estimating the maximum number of password combinations used in a brute force attack (p.187) Activity 2: Exploring anti-virus software (p.189-191) Activity 3: Testing the integrity of anti-virus software (p.192) Activity 4: Testing the strength of passwords (p.193-194) Activity 5: Password Generator (p.194-195) | | II |

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|-------------|-------|--|---|-------|---|---------------------------------|---------|
| | 6 | <p>Compulsory Part</p> <p>19.1 Introduction to HTML</p> <p>19.2 Basic HTML Tags</p> <p>19.3 Colour Representation</p> | <p>Understand the use of HTML and the basic structure of an HTML document.</p> <p>Learn and familiarize yourself with different HTML tags for different format settings.</p> <p>Recognize the two ways of colour representation in web page authoring: colour names and 6-digit hexadecimal colour codes.</p> | 4 | <p>Activity 1: Hello World! (p.315)</p> <p>Activity 2: Finding errors in HTML code (p.324-325)</p> <p>Activity 3: Web pages for my favourite animals – the first draft (p.329-330)</p> <p>Activity 4: Web pages for my favourite animals – the second draft (p.332)</p> <p>Activity 5: Web pages for my favourite animals – the final draft (p.335)</p> | | I, II |
| | 7 | <p>20.1 What is Web Authoring?</p> <p>20.2 Planning and Organizing a Web Site</p> | <p>Recognize the concept and the process of web authoring.</p> <p>Identify and familiarize yourself with the procedures and considerations in web site development, which involves planning, building, publishing and testing.</p> | 4 | | | I, III |
| | 8 | 20.3 Basic Operation of Adobe Dreamweaver CS3 in Web Site Development | Be familiar with the working environment and the flow involved in web site development in Adobe Dreamweaver CS3. | 4 | <p>Activity 3: Designing the information structure for the 'LM College' web site using Adobe Dreamweaver (p.369-371)</p> <p>Activity 4: Constructing a web page for Sports Day 2008 using Adobe Dreamweaver (p.377-378)</p> | | |
| | 9 | First Term Assessment | | | | | |

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| | 10 | 21.1 Problem-solving Concepts 21.2 Problem-solving Procedures 21.3 Real-life Applications and Practical Considerations | Apply a systematic approach to solving problems. Understand the basic problem-solving procedures. Understand how the problem-solving procedures are used in solving real-life problems. | 4 | Activity 1: A method of developing a solution (p.5) Activity 2: Asking questions to help identify the problem (p.6) Activity 3: Calculating the average height of students in a class (p.7) Activity 4: What is the specification for 'Cook instant noodles' module? (p.9) | | II |
| | 11 | 21.4 Different Ways to Solve the Same Problem 22.1 Introduction to Algorithm Design 22.2 Identifying Inputs and Outputs of a Problem | Recognize different ways to solve the same problem. Understand what an algorithm is. Familiarize yourself with its representations in flowcharts and in pseudocode. Learn how to outline the input and output requirements of a problem. Learn how to design an appropriate user interface. | 4 | Activity 1: Using a flowchart and pseudocode to solve a simple problem (p.27) Activity 2: Drawing an IPO chart (p.28) Activity 3: Figuring out other improvements (p.32) | | II |
| | 12 | 22.3 Basics of Constants and Variables in Computer Programming 22.4 Selection of Appropriate Data Types 23.1 Input Statements, Output Statements and Assignment Statements | Recognize the use and nature of simple data types and data structures in solving a problem. Learn how to select appropriate data types for the solution to a particular problem and highlight their merits. Recognize how input statements, output statements and assignment statements are used and represented. | 4 | Activity 4: Developing the truth table of a logical expression (p.38-39) Activity 5: Choosing appropriate data types (p.40-41) | | III |

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| | 13 | 23.2 Basic Control Structures | Be familiar with the use of the sequence, selection and iteration control structures to control the flow of a program. | 4 | Activity 1: Conversion of temperature scales (p.57) Activity 2: Body Mass Index (BMI) (p.58) Activity 3: Converting a program flowchart into pseudocode (p.61) Activity 4: Developing different solutions to the same problem with the IF statement (p.62-64) Activity 5: FOR-loop (p.69) | | II |
| | 14 | 23.3 Algorithms for Manipulating Arrays 23.4 Advantages of Using the Modular Approach in Programming | Understand the use of an array. Learn how an array is used and manipulated in an algorithm. Describe the advantages of modularity in designing computer solutions. | 4 | Activity 6: Finding the mean of the elements in an array by modifying an existing algorithm (p.75) Activity 7: Entering the age information by using an array (p.76) Activity 8: Deleting an item from an array (p.79) Activity 9: Adding an item to a sorted array (p.80) Activity 10: Manipulating an array in Pascal (p.82) | | II |
| | 15 – 16 Exam Period | 24.1 Tracing and Testing Algorithms 24.2 Comparing Different Solutions to the Same Problem | Learn how to trace algorithms by identifying their boundary cases. Learn how to generate appropriate test data for algorithm testing. Compare different solutions to the same problem in different aspects, such as in the problem-solving approach, steps of operation and resource usage. | | Activity 1: Application of a trace table (p.94) Activity 2: Using a trace table to run through a control structure (p.94-95) Activity 3: Dry run pseudocode by using a trace table (p.95) Activity 4: Determining the expected results and reasons for using the chosen test data (p.99) Activity 5: Selecting test data for a 'Pass' or 'Fail' grading system (p.100) Activity 6: Comparing algorithms for inputting students' age information (p.103) | | I, III, IV |

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| | | 25.1 Equity of Access | Recognize equity of access. Identify the pros and cons of freedom of information on the Internet. | | Activity 1: Eliminating dangerous web sites (p.128) | | |
| | | 25.2 Work Issues | Recognize the digital divide and globalization and their impacts. Recognize gender equity. Learn how technologies assist people with disabilities. | | Activity 2: PC penetration rate and Internet penetration rate in Hong Kong (p.131) | | |
| | | 25.3 Work and Health Issues | Recognize the changes in the working environment resulting from the advance of technology. | | Activity 3: Gender-related design of web sites (p.132-133) | | |
| | | 25.4 Consequences of Indulging in Internet Activities | Recognize computer-related diseases. Recognize ergonomic devices. Recognize healthy and safe ways of using computers. | | Activity 4: Experiencing video conferencing (p.138) | | |
| | 17 – 18 | Christmas Holiday | Recognize the consequences of Internet Addiction. | | Activity 5: Searching for ergonomic devices (p.142) | | |
| | | | | | Activity 6: Relaxing the eyes (p.145) | | |
| | | | | | Activity 7: Discussion on Internet Addiction (p.146) | | |
| Second Term (3/1/2016 - 26/2/2016, Weeks 19 to 26) | 19 | 26.1 Intellectual Property Rights | Understand the types of intellectual property rights. Recognize the Copyright Ordinance in Hong Kong. | 4 | Activity 1: Protection of intellectual property rights (p.158) | | IV |
| | | 26.2 Copyright of Software | State the difference between proprietary software and open source software. Recognize different types of licence schemes. | | Activity 2: Copyright of personal photos (p.160) | | |
| | 20 | 26.3 Piracy | Recognize the nature, impact and prevention of piracy. | 4 | Activity 3: Finding out the benefits and risks of different types of software (p.165-166) | | IV |
| | 21 – 23 | Mock Examination | | | Activity 4: File sharing through Podcast (p.169) | | |

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| | Chapter 27 has been taught in Elective Part B | <p>27.1 Security Threats on the Internet</p> <p>27.2 Security Application Software</p> <p>27.3 Browsers and Security</p> | <p>Identify different types of malware.</p> <p>Recognize different ways of distributing malware.</p> <p>Recognize how computer users are threatened by spyware and adware.</p> <p>Be familiar with anti-virus software, anti-spyware program and firewall software.</p> <p>Become more familiar with the capabilities of latest web browsers.</p> <p>Recognize ActiveX controls and Java applets.</p> <p>Recognize vulnerabilities of web browsers.</p> | | <p>Activity 1: Comparing malware programs (p.187)</p> <p>Activity 2: More about viruses and anti-virus software (p.192-193)</p> <p>Activity 3: Study on a spyware survey (p.194-195)</p> | | |

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| | Chapter 28 has been taught in Elective Part B | 28.1 Data Privacy | Understand data privacy and the Personal Data (Privacy) Ordinance. | | Activity 1: News about privacy threats on the Internet (p.215-216) Activity 2: Laws against spam (p.217-218) Activity 3: A phishing paradise (p.220-221) Activity 4: Arresting Internet criminals with the help of computer technology (p.222-223) Activity 5: Finding out the legal consequences of computer crime (p.227-228) | | |
| | | 28.2 Privacy Threats on the Internet | Know the privacy threats on the Internet. | | | | |
| | | 28.3 Ways to Maintain Privacy | Describe the ways to maintain privacy while surfing the Internet. | | | | |
| | | 28.4 Encryption Technologies | Recognize the encryption technologies to protect data privacy. | | | | |
| | | 28.5 Access Control – Authentication and Authorization | Understand the basic concept of authentication and authorization. | | | | |
| | | 28.6 Securing Transactions on the Internet | Understand the software and hardware technology to secure transactions on the Internet. | | | | |
| | 28.7 Latest Development in Security Measures | Be aware of the latest development in security measures. | | | | | |
| 24 | Lunar New Year Holiday | | | | | | |
| 25 | Exam Skills discussion | | | 2 | | | |
| 26 | Exam Skills discussion | | | 4 | | | |

Core Values of Wah Yan College, Kowloon

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|---------------------------|--|---|
| I. Love and care | 1. Accept & feel positive about himself 2. Appreciation & Gratitude 3. Empathy & Compassion | 4. Forgiveness & Reconciliation 5. Service 6. Family as a basic unit of society; marriage is the foundation of a family |
| II. Strive for excellence | 7. Reflective 8. Commitment 9. Perseverance | 10. Curiosity & willingness to learn 11. Value imagination and creativity |
| III. Respect and Justice | 12. Life is valuable and respectable 13. Openness to good in all things 14. Respect for himself & others | 15. Integrity 16. Faithfulness |
| IV. Responsibility | 17. Freedom & Self-discipline 18. Care for the environment | 19. Social Identities: citizen identity, national identity and global citizen identity |
| V. Faith | 20. Experience of God 21. Explore & practise one's faith | 22. Appreciate religious liturgies |