

For information
on 19 June 2000

LegCo Panel on Education
Information Technology Education in Secondary Schools

PURPOSE

This paper briefs Members on the existing syllabuses of information technology (IT)-related subjects offered in secondary schools and how these syllabuses are updated.

IT-RELATED SUBJECTS

2. At present, four IT-related subjects, namely “Computer Literacy” for secondary one to three, “Computer Studies” for secondary four and five, and “Computer Studies” and “Computer Applications” for secondary six and seven, are offered in secondary schools. Although all these four subjects aim at providing a workable foundation for students either for further studies or employment, their emphasis varies. The objectives of these four subjects are set out below-

(A) “Computer Literacy” (secondary one to three) ^{Note (1)}

The objective of “Computer Literacy” is to provide students with basic computer knowledge.

(B) “Computer Studies” (secondary four and five) ^{Note (1)}

The objective of “Computer Studies” is to enable students to possess basic knowledge of programming languages and principles of computer operations, and to provide a workable foundation for further studies in IT at secondary six and seven levels, and in tertiary institutions.

(C) “Computer Studies” (secondary six and seven) ^{Note (2)}

Students who take this subject usually have studied “Computer Studies” at secondary four and five levels, although this is not a prerequisite. This is a more advanced course on programming languages and principles of computer operations. Its objective is to prepare students for pursuing further studies in IT in tertiary institutions.

(D) “Computer Applications” (secondary six and seven) ^{Note (2)}

^{Note (1)} This subject is available to all grammar, technical, prevocational and special schools.

^{Note (2)} This subject is available to grammar, technical and prevocational schools only.

The objective of “Computer Applications” is to equip students with practical computer application skills, e.g. word processing, spreadsheet and database management.

3. We will launch a new IT-related subject for secondary four and five students starting from the 2000/01 school year. This subject will be called “Information Technology” and will be available to all grammar, technical, prevocational and special schools. Instead of focusing on programming languages and principles of computer operations, the objectives of the new subject are to teach students how IT is applied in different workplace contexts and to equip students with basic computer application skills.

4. Syllabuses of the five subjects mentioned in paragraphs 2 and 3 above are set out in Annex A.

SYLLABUS UPDATING

5. The syllabuses of IT-related subjects are reviewed from time to time in the light of new developments and changing needs of the society. Major revisions of the syllabuses recently are set out at Annex B.

6. Since IT is a constantly evolving landscape, we recognise that syllabuses of IT-related subjects will need to be updated more frequently than those of other subjects. However, the existing subject-based approach, which requires reviewing the entire subject every time when the subject is

updated, together with the wide scope of each subject, does not allow quick updating of the syllabuses to accommodate the unique nature of IT.

7. The Curriculum Development Council (CDC) is now considering the issue set out in paragraph 6 above in the context of the holistic review of the curriculum. CDC's initial idea is to break the various IT-related subjects into modules. By so doing, the review of each module will be completed more quickly since the scope covered will be less wide and more focussed. The frequency of updating individual modules will depend on the nature of each module. For example, topics on basic principles of computer operations, which are more static and will not be affected much by technological development, will not need to be updated too frequently; those on software applications, on the other hand, will require more frequent updating to capture the latest technological advancement. Apart from having the benefit of keeping these subjects more up-to-date, the modular approach will also enable schools to choose their own combinations of modules in accordance with needs of their students.

8. CDC's plan is to start launching the modular approach in the 2001/02 school year. Details are still being mapped out by CDC and the Education Department. The views of schools, parents and the Hong Kong Examinations Authority will be tapped in the process.

Education Department

June 2000

Syllabus of Computer Literacy (secondary one to three)

1. Computer Systems (25%)
 - (a) Basics of Computer and Computer Operation
 - (b) Computer Hardware and Software
 - (c) Computers and Information Systems

2. Information Technology (58%)
 - (a) Areas of Computer Applications
 - (b) Text Processing and Graphics Handling
 - (c) Calculations and Charts
 - (d) Multimedia Presentation
 - (e) Computer Communications and Internet Access
 - (f) Using Databases

3. Programming (17%)
 - (a) Turtle Graphics
 - (b) Logo Procedures
 - (c) Variables

Syllabus of Computer Studies (secondary four and five)

1. Information Processing (45%)
 - (a) Computers in an Information Age
 - (b) Computer Communication and Networking
 - (c) Files and Databases
 - (d) Operating Modes
 - (e) Microcomputer and Application Software Packages
 - (f) Social Issues of the Widespread Use of Computer

2. Computer Systems (22%)
 - (a) Basic Concepts of a Computer
 - (b) Basic Hardware Components of a Computer System
 - (c) Representation of Data Within the Computer
 - (d) Computer Operations
 - (e) Programming Languages
 - (f) The Operating System

3. Programmes (33%)
 - (a) Algorithms and Design Techniques
 - (b) Programming

Syllabus of Computer Studies (secondary six and seven)

1. Information Processing (30%)
 - (a) Characteristics of Information Systems
 - (b) Systems Development
 - (c) Applications of Information Technology
 - (d) Social Implications

2. Computer Organization (34%)
 - (a) Machine Logic
 - (b) Basic Machine Organization
 - (c) Peripherals
 - (d) Data Representation and Manipulation
 - (e) Operating System
 - (f) Modern Computer Architecture

3. Programming and Programming Languages (36%)
 - (a) Programming in Pascal
 - (b) Programming Languages

Syllabus of Computer Applications (secondary six and seven)

1. Information Processing (14%)
 - (a) Components of an Information System
 - (b) Information Management
 - (c) Problem Solving with Computer
 - (d) Applications in Industry, Commerce, Science and Education
 - (e) Social Implications

2. The Computer System (6%)
 - (a) System Unit
 - (b) Peripheral Devices
 - (c) Communication Devices
 - (d) System Software
 - (e) Applications Software

3. Operating a Microcomputer (10%)
 - (a) Starting up the Computer
 - (b) Operating Input/Output Devices
 - (c) Using an Operating System
 - (d) Using Applications Packages
 - (e) Using a Chinese System

4. Databases (20%)
 - (a) Concepts and Terminology
 - (b) Database Management
 - (c) Query by Using Structured Query Language
 - (d) Multiple Databases
 - (e) Generating Screen, Report and Label
 - (f) Macros

5. Internet Communications (11%)
 - (a) Concepts and Terminology
 - (b) Internet
 - (c) Electronic Mail
 - (d) Setting Up Homepages

6. Word Processing (12%)
 - (a) Concepts and Terminology
 - (b) Typing
 - (c) Creating, Editing, Retrieving, Saving and Printing a Document
 - (d) Page Setup and Formatting
 - (e) Other Features
 - (f) Macros
 - (g) Desktop Publishing

7. Spreadsheet (18%)
 - (a) Concepts and Terminology
 - (b) Building, Editing, Retrieving, Saving and Printing a Worksheet
 - (c) Formatting
 - (d) Data Manipulation
 - (e) Graphs
 - (f) Multiple Worksheets
 - (g) Macros
 - (h) Data Analysis

8. Graphics (9%)
 - (a) Concepts and Terminology
 - (b) Creating and Editing a Graphic Image
 - (c) Presentation Graphics
 - (d) Graphic Files

Syllabus of Information Technology (secondary four and five)

1. The Nature, Impact and Issue of Information Technology (IT) (18%)
 - (a) Introduction of IT Applications in Everyday Life
 - (b) The Benefits and Drawbacks of Using IT
 - (c) Impacts of IT on People and Society
 - (d) Impacts of Technology on IT Development
 - (e) Basic Legal Framework relating to the Use of IT
 - (f) Strategies used to Prevent Deliberate or Accidental Illegal Actions

2. Information Processing (29%)
 - (a) Basic Knowledge of Computer Platforms
 - (b) Types of Computer Software
 - (c) Functions of Typical Application Programmes
 - (d) The Representation and Processing of Information
 - (e) Application of IT Tools in Problem Solving Activities
 - (f) Management and Maintenance of Computer Systems

3. Data Communications (29%)
 - (a) Basic Concepts of Data Communications and Networking
 - (b) The Features and Potentials of the Internet
 - (c) Local Area Networks

4. Applications of IT Tools (24%)
 - (a) Applications of Spreadsheet and Database
 - (b) Introduction of Office Automation and Electronic-commerce
 - (c) Applications in Education
 - (d) Applications in Industry
 - (e) Use of Internet
 - (f) Future Trend of IT and Applications

Major revisions of syllabuses of IT-related subjects

Subject	Year of updating	Major revisions made
Computer Literacy (secondary one to three)	1993	The suggested teaching hours on computer applications were increased.
	1999	Additional topics such as computer networks, Chinese computing and animation were made available to students as optional modules.
Computer Studies (secondary four and five)	1993	BASIC programming language was deleted.
	1999	The suggested teaching hours on programming languages were reduced whereas those on computer applications such as data communications and multimedia were increased.

Subject	Year of updating	Major revisions made
Computer Studies (secondary six and seven)	1996	The suggested teaching hours on information processing were increased.
	1998	<ul style="list-style-type: none"> • Structured query language was added to improve the content of programming languages. • Topics on IT applications such as word processing and spreadsheet were strengthened to better equip students with knowledge of computer applications in the business world.
Computer Applications (secondary six and seven)	1996	The suggested teaching hours on basic computer operations and word processing were reduced.
	1998	The suggested teaching hours on programming languages were reduced whereas those on internet communications were increased.