Syllabus For Information and Communication Technology - September 2016 /July 2017

FORM FOUR

Objectives:

Students will learn about:
- How to define and analyse problems;
- The importance of good programming skills and good programming styles;
- The importance of formulating appropriate algorithms in solving problems;
- Creative design and development of computer programs;
- How to illustrate different programming paradigms with appropriate programming languages;
- How to choose different languages to meet different needs;
- The importance of a systematic approach to software development; and
- How to apply concepts underlying software development in a systemic way.
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Textbook :   New Senior Secondary Information and Communication Technology
               Elective D Software Development Volume 1 and Volume 2
               Henry C H Ha / Longman Hong Kong Education

                                                                    Periods Allocated

1.   Introduce basic of Pascal environment   2

2.   PROGRAMMING (I)   2

       A.   Variable and assignment statements
       B.   Composition of a PASCAL program
       C.   Data types and user define types
       D.   Identifiers
       E.   Variable declaration

3.   PROGRAMMING (II)   23

       A.   Input and output statements
       B.   Simple arithmetic and relational operators
       C.   Conditional statements
              if statement, if-then-else statement, nested if statement, the case statement
       D.   While-do loop and repeat-until loop
       E.   For loop, nesting of loops
       F.   Arrays, sets, records and array of records.

4.   PROGRAM DEBUGGING AND READABLE PROGRAMS   20

      A.   Common types of errors
      B.   Using the manual, dry running
      C.   Problem solving techniques
           modular design, stepwise refinement, preview of procedures, program development
      D.   System Development
           Basic concept, system analysis, system design, system implementation, system conversion and maintenance, system documentation, alternative approaches, the personnel
      E.   Using a program flowchart to realize the algorithm.
      F.   Program language

5.   PROGRAMMING (III)   22
      A.   String manipulation
      B.   Input and output techniques
      C.   Procedures
      D.   Functions

6.   PROGRAMMING (IV)   20

      A.   Sorting
      B.   Linear and binary search
      C.   Merging two sorted array
      D.   File handling and maintenance and input/output formatting
      E.   Features of an array, a queue, a stack, and a linked list

7.   PROGRAMMING LANGUAGES   16

      A.   Programming paradigms
      B.   Language translator and compilers

8.   COURSE WORK PREPARATION   10

9   GENERAL REVISION (include formal and informal test)   20

(27 cycles)

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Signature of Teacher-in-charge: _____   Checked by : _____