

PENANG SANGAM HIGH SCHOOL
P.O.BOX 44, RAKIRAKI

LESSON NOTES 12

Year/Level: 11

Subjects: Computer Studies

<u>Strand:</u>	CE 2Application package
<u>Sub-strand:</u>	Programming
<u>Content Learning Outcome:</u>	❖ Step 2 Program Design Four structured programming techniques:

Lesson Notes

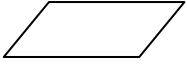
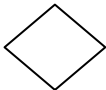
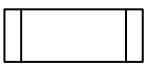
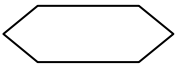
Step 2 Program Design

In the program design step, a solution is created preferably using structured programming techniques. These techniques consist of the following:

Four structured programming techniques:

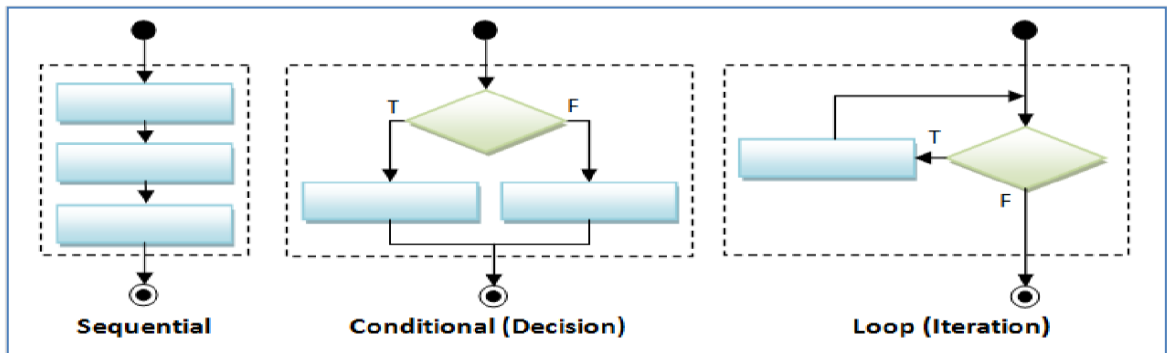
1. Top-down programming design – in top-down program design, major processing steps, called program modules, are identified. Module is made up of logically related program statements.
2. Pseudo code is an outline of the logic of the program you write.
An algorithm is a systematic logical approach used to solve problems in a computer
3. Flowcharts are the graphic representations of the steps necessary to solve a programming problem. The action represented by each of these symbols has a direct relation to one of the functional parts of the computer.

Flowchart Symbols

Symbol	Name	Description
	Terminal	An oval is used to depict the beginning and ending steps of the sequence.
	Input/Output	A parallelogram is used to indicate the input and output steps of the sequence.
	Process	A rectangle is used to represent arithmetic and memory portion of the computer.
	Decision	A diamond is used to represent the use of the computers logic and control unit which must decide whether a statement is true or false.
	Process	Predefined process depicts a subroutine or subprogram in a flowchart. It is used at the ending point of the main program and at the beginning of a subroutine.
	Repetition/loop	Preparation symbol indicates the starting of a loop

	Connector	A connector indicates the ending of a loop; it is also used to combine two flow lines
	Flowline	A flow line shows the sequence in which direction to be flowed

4. Logic structures are the arrangements of programming statements. Three types are (sequence, selection and loop).



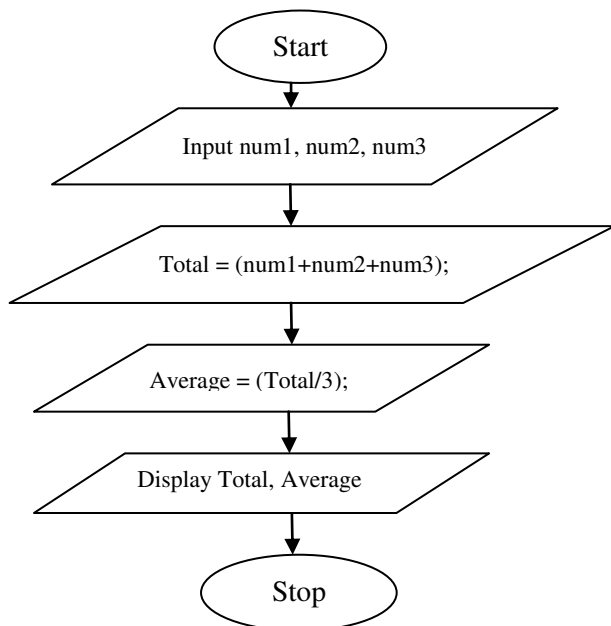
Sequence – one program statement followed by another

Selection (if-then-else) – when a decision must be made

Repetition/Iteration/loop – when a process is repeated until a condition is true

Example

Draw a flowchart to find sum of three numbers and display average. Write a Pseudo code of the program.



Pseudocode

Start procedure

Input num1, num2, num3;

Total = (num1+num2+num3);

Average = (Total/3);

Display Total, Average

End procedure

Exercise

Draw a flowchart to find sum of two numbers and display average. Write a Pseudo code of the program. Name the logic structure being used.