Basic Hardware Concepts

Programming Paradigms
- Procedural
- Object Oriented
- Event Driven

What is VB.Net?
- Windows Applications (Object Oriented, Event Driven)
- Console Applications (Procedural or Object Oriented)

The Object Model
- Class
- Objects (Built-in and user-defined)
- Properties
- Methods

Steps in Writing a Typical VB project.
- Planning: (GUI, properties, pseudocoding)
- Coding: (Convert the GUI to Forms and Controls, Set the properties, Convert the Pseudocode to VB code, Test and Debug.)

The Software Development Life Cycle (SDLC)
- Planning
- Analysis
- Design
- Implementation
- Testing
- Maintenance

Errors (syntax vs. run-time vs. logical errors)

Variables (represents memory, has a type and size)
- DIM strName as string
  - integer, double, decimal, boolean, char, byte, string, etc..
- Global vs. Local
- Why initialize variables?

Constants
- CONST TAX_RATE as Decimal = 0.08

Variable and Constant Scope
- 1) Module level (within the class)
- 2) Local level (within a procedure)

Compiler Directives
- Option Explicit ON (variables cannot be used without being declared first.)
- Option Strict ON (Makes VB a strongly typed language, No automatic type conversion. Must use the type conversion functions)

Type Conversion functions
- Cint(x)
- Cstr(x)
- Cdec(x)
- Clng(x)
- Cdbl()

GUI Components:
- Forms, Label, Textbox, Checkbox, Button, RadioButton, ListBox, ComboBox, PictureBox, GroupBox
Concatenation and Continuation:  (& and _)

Arithmetic operators (+, -, /, \, *, MOD, ^)

Relational operators (=, <=, >=, <, >)

Input and output
   Console Mode:  Console.ReadLine(), Console.WriteLine()
   Windows Applications:  MessageBox.Show(), InputBox()

Branching:
   Using the IF Statement:
      (If, if-then-else, nested if statements)

Loops
   (For..next, Do while ...Loop, do Until ... Loop)
   Necessary conditions for a loop (how to get in, and how to get out)

Truth Table

Problem Solving Methodology
   Top down design
      Break the problem into smaller, more manageable tasks.
      Divide and conquer
      Encourages modular design
      Defers the details till later
   Functions and Procedures

Procedures and Functions:
   Passing arguments
      (Pass by value vs. Pass by reference, when?, why?)
   Formal vs. actual parameters
   Returning values from functions
      Via the return statement vs. the function=s parameter list.