

# LAB 1

## Spring 2011, BESE- 16

### Revision of C++ Functions and Structures

#### Objective

- Revise functions in C++
  - Passing arguments by value as well as reference
  - Returning values from a function
  - Default Arguments
  - Scope of global and local variables
- Revise Structures in C++

#### Submission Requirements

You are expected to complete the assigned tasks within the lab session and show them to the lab engineer/instructor. Following guidelines will be helpful to you in carrying out the tasks and preparing the lab report.

#### Guidelines

- Name your reports using the following convention:
  - **Lab#\_Rank\_YourFullName**
  - '#' replaces the lab number
  - 'Rank' replaces Maj/Capt/TC/NC/PC
  - 'YourFullName' replaces your complete name.
- You need to submit the report even if you have demonstrated the exercises to the lab engineer/instructor or shown them the lab report during the lab session.

#### Tasks for Today

##### Functions

*In each of the following cases, also write a main program to test your functions.*

**Question 1:** Write a function called `divrem()` that takes three arguments of type **int**. This function should divide the first argument by the second, return the quotient (of type **int**), and send the remainder back using the third argument which is passed by reference. Do not do the division if the second number is 0, in that case the function should return -1 for both the quotient and the remainder. The default values given to dividend and the divisor should be 12 and 7 respectively. A call to such a function might look like this:

**quotient = divrem(dividend, divisor, remainder);**

**Question 2:** Write a program to calculate area of a rectangle, area of a triangle and circumference of circle using functions.

Area\_of\_rectangle = length x breadth

Area\_of\_triangle = (length x breadth) / 2

Circumference\_of\_circle =  $2\pi$  \* radius

**Question3:** Write a program to convert temperature from Celsius to Fahrenheit scale and vice versa using function(s) that demonstrates the scope of local and global variables.

Celcius\_to\_farenhite = (celciusTemp \* 1.8) + 32

Farenhite\_to\_Celcius = (farehnhiteTemp – 32)/ 1.8

## Structures

### Question 1:

- a. Create a structure called **course**. It has two members, course name, and course fee. Write functions that set the values of these attributes and a function that clears the values of these attributes.
- b. Modify the above program. Create another structure **student**. It should have a student number with integer data type, and two course objects with structure data type created earlier. Create a function that enters the data, one that clears the data, and one that adds fees for all subjects of a particular student.