# Gebze Institute of Technology
## Department of Computer Engineering

# CSE 241
## Object Oriented Programming
### Fall 2011
### Homework # 4
### Your First Class
### Due date Nov 5th 2011

In this homework, you will write your first C++ class and use it with a driver code. You will also use the separation of interface and implementation technique.

- Write a C++ class to represent a student. You should use a separate header file for the interface and a CPP file for the implementation. The class can keep the following information about the student
  - Student name
  - Student last name
  - Student number
  - Student GPA (Out of 4.00)
  - The number of credits taken so far

  You should write all necessary constructors and setter/getter functions keeping in mind that you are writing an object oriented program. There should be functions for input and output.

- Make a new CPP file to test your student class. This new file should contain the following functions
  - A global function that takes an array of students as parameter and sorts them with respect to their GPA.
  - A global function that takes an array of students as parameter and sorts them with respect to their last names.
  - Your main function that forms a number of students, tests all the member functions of the student class, and finally tests the two global sort functions.
- Now, write the same program in C using the OOP principles. This part of your code should be compiled by the gcc compiler.
- Write a small report that discusses the advantages of using C++ language over the C language in OOP for this homework.

Notes:
- Use all the OOP rules we learned in the class including, information hiding, principle of least privilage, const keywords for member functions and parameters, etc.
- You should use a separate header file for the interface and a CPP file for the implementation for both C++ and C programs.
- Do not forget to indent your code and provide comments.
- You may use cstring header for manipulating char arrays. No other standard classes should be used.
- You will submit 5 files, two header files (C and C++), one C file, one C++ file, and one report.
- Test your programs very carefully and submit the test results too.
- You should email your homework  to the TA.