

## EEL 3801 Introduction to Computer Engineering Summer 2005

Office: EN-211  
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T.A.s HW Grader:  
Lab:  
Lab:  
Lab:  
Lab:

Textbooks: 1. H. M. Deitel and P. J. Deitel, "C++ How to Program", Prentice Hall or any decent C++ book, or any good C++ book that you may have.  
2. Kip R. Irvine, "Assembly Language for Intel-Based Computers," 3rd Ed., Prentice Hall, 1998.

Optional: Andrew S. Tanenbaum, "Structures Computer organization," 2nd Ed., Prentice Hall 1984

Prerequisites: Programming proficiency in a high level language.

Goals: The student will gain an understanding of the basic principles of computer organization and assembly language programming. The student will become proficient in the C++ language. The student will demonstrate mastery in the following topics: success in writing and interpreting basic assembler programs, interpreting the output of an assembler, use a symbolic debugger and writing C++ programs using intermediate and advance techniques. This includes pointers and pointers to structures including linked-list, and classes.

### Topics:

1. Introduction to computer organization.
  - Computer architecture
  - Pointers
  - Files
  - Data scope
  - Recursion
2. Assembly language programming for the IBM-PC.
  - memory models
  - Data representation
  - integers, arrays floating point numbers
  - instruction set
  - 4. Advanced C programming language
    - Functional and operator overloading
    - Simple linked list
    - Data structures
3. Review of C programming (very brief)
  - Syntax
  - Data types
  - Program control
  - Functions
  - Arrays
  - Strings
  - Formatted input / output
  - 5. Object Oriented Programming
    - Classes
    - ADT (abstract data types)
    - Inheritance
    - Polymorphism
    - Static member functions

## Policies

- Grading: All exams and quizzes are closed book. One sheet of notes permitted.

HW	10 %
Labs	12 %
Midterm	35 %
Final	43 %

- The grades are determined by the following breakdown:

90 to 100	receives an A.
80 to 89.9	receives a B
70 to 79.9	receives a C
60 to 69.9	receives a D
0 to 59.9	receives an F

- Note, regardless of where I draw the cut-off limit, there are always grades that fall very close to the boarder line (i.e. 79.5 %). Giving the students that are within a specified distance of the boarder the better grade is simply lowering the limit. There will still be grades that fall very close to the limit. This does not fix the problem. For example say a student earned a 79 % overall and says that he should get a B since he is within 1 %. If I give him the B then I must give all students in the range of 79 to 89.9 a B as well. I simple lowered the limit by 1 percent. Now a student with a grade of 78 will say that he is only within 1 % and I should give him a B. I therefore only shifted the problem. At some point I must stop moving the limit and simply be firm on the grades I give. I hope you understand the problem and do not ask me to give you the better grade with the justification that you are so close.
- I guarantee that the average grade for the class on all exams including quizzes will be no lower than 75%. If it is lower I will curve the grades to raise it to 75%. This does not include homework or labs. This average is based on the exam grades generated by the students that take the exam. A grade of 0 given to a student because they did not take the exam is not used to determine the curve.
- You must save a copy of all the homework and labs submitted in case that it gets lost.
- You must report any missing or incorrectly recorded grade including homework, labs if any, and exams before the **last day of final exam week**. After this time I will assume all grades are correct and compute your final grade. I hold the right to refuse to correct any error found after this date. You may request me to correct the problem by emailing me the copy of the missing or incorrectly recorded item.
- You may submit homework via email directly to the TA. Do not email it to me! Any homework emailed to me will be deleted.
- All material not picked up by the end of the following semester will be thrown away.

- The homework must contain the following as appropriate:
  1. program listing,
  2. program output,
  3. answers to specific questions about results of an assignment
  4. cover sheet containing
  
- The cover sheet must contain:
  1. name,
  2. social security number and
  3. program (homework) number,
  4. description
  
- The description part must contain:
  1. the homework/program requirements (including a table of all input data),
  2. how you approached the problem (e.g., equations employed, structure chart), and
  3. what was actually achieved, including a table of all appropriate output values (substantiated by printed program output attached to the cover sheet) and a discussion of the results (NOTE: even if you think/know there is something wrong that you did not have time to correct, you must discuss your results; e.g., how do you know it's wrong?, what did you try to correct it?). If spreadsheet output is used, you must identify and underline the name of the spreadsheet software used at the top of your spreadsheet output.
  
- This description should be at least 150 words (you may handwrite any special characters, subscripts and algebraic expressions -- it's better to completely handwrite an expression than to type it partially and forget to handwrite the missing components) and at most one or two pages in length. If you wish, you may embed the entire cover sheet in comments at the beginning of your program, but use of a word processing system is encouraged.
  
- You should write your cover sheet under the assumption that it might be the only portion of a homework assignment which is graded. In other words, although your program listing, program output, spreadsheet output and other materials (e.g., algebraic details of a derivation which is referred to on the cover sheet) must be attached to the cover sheet, the grader should NOT have to consult these attachments -- EVERYTHING important should be summarized and discussed on the cover sheet.