Assessment   ET283 Microprocessor Fundamentals   J Fiore

Student Learning Outcomes (from Course Outline)

1. The student will demonstrate an understanding of numbering systems commonly encountered in computer systems.

2. The student will display an understanding of microcontroller architecture and I/O structure.

3. The student will demonstrate a basic proficiency in the C programming language.

4. The student will demonstrate an understanding of the differences between programming a desktop computer and a microcontroller.

5. The student will demonstrate a basic knowledge of how to use a host computer to program a microcontroller or other external target.

6. Through the laboratory, the student will demonstrate practical insight and knowledge of interfacing and input/output devices.

Measurement:

For items 1, 2 and 3, the student's grades on in-class tests and/or the final exam will be used with regards to these areas. Problems will be taken from representative areas addressed in the course outline. A passing grade will be considered minimum acceptable performance.

For item 4, the student will be given at least one programming assignment utilizing the desktop programming environment and at least one other requiring programming a remote target via a host. Successful completion of the assignments will be considered acceptable performance.

For items 5 and 6, the student will be given at least one programming assignment in the laboratory that will involve a programming problem utilizing interfacing circuitry. The student is expected to code a solution to the problem in a high level language. As part of the coding and testing process, the student must make use of the language IDE to code and download to the target (item 5). The student must build their interface circuit schematic; submitting source code and schematic for grading along with a demonstration of the resulting assignment solution (item 6).

Grade of A: Program meets or exceeds the assignment particulars. Proper coding techniques are obvious along with internal documentation. Interface circuit is fully functional and cleanly wired. The results are neat and professional in appearance.

Grade of B: Program exhibits high functionality although there may be some minor output errors under specific conditions. Presentation, coding technique and documentation may suffer small aberrations from the ideal. The circuit and layout are of decent quality.

Grade of C: Program and circuitry generally produce proper output although some of the more difficult or involved areas may not be correct. Coding style and documentation are average and could stand some sharpening. Circuit design and layout are likewise.

Grade of D: Program exhibits problems in several output areas and documentation and/or coding techniques are vague or confusing. Circuitry is lacking portions of functionality or exhibits undesirable behavior in certain areas.

Grade of F: Program exhibits any of the following deficiencies: majority of the program results are not correct under most conditions, coding style is substandard or obtuse, internal documentation missing. Circuitry has major flaws in either design or build that require sizable rework to correct.