16.216: ECE Application Programming

Spring 2012

Lecture 3: Key Questions
January 27, 2012

1. Describe how to represent values in binary (base 2) and hexadecimal (base 16).

2. Explain how to convert values between decimal, binary, and hexadecimal.

3. **Example:** Perform the following base conversions:

a. $11_{10} = ?_2 = ?_{16}$

b. $37_{10} = ?_2 = ?_{16}$

c. $11_{16} = ?_{10}$

d. $0x2F = ?_2 = ?_{10}$

4. List the four basic data types in C, as well as the typical size and range of values for each. List some valid and invalid values for each type.

5. Explain how `#define` can be used to assign a symbolic name to a constant.

6. What are the four key characteristics of a variable?

7. What rules must be followed when naming variables?

8. Show how variables are declared and how values are assigned to them.