

King Fahd University of Petroleum and Minerals  
College of Computer Sciences and Engineering  
Department of Computer Engineering

COE 202 – Fundamentals of Computer Engineering (T102)

**Homework # 01 (due date & time: Saturday 26/02/2011 during class period)**

**\*\*\* Show all your work. No credit will be given if work is not shown! \*\*\***

Showing all calculations steps (i.e. final answers alone are not acceptable), solve the following problems:

**Problem 1 (5 points):** Convert  $(37)_{10}$  and  $(59)_{10}$  to binary, octal, and hexadecimal.

**Problem 2 (15 points):** Convert the following binary numbers to decimal:

1.  $(100110110)_2$
2.  $(1001100.0101)_2$
3.  $(1100100.1001)_2$

**Problem 3 (30 points):** Convert the following decimal numbers to the stated number system:

1.  $(1983.921875)_{10} = (?)_8$
2.  $(571.82421875)_{10} = (?)_{16}$
3.  $(605.203125)_{10} = (?)_2$

**Problem 4 (30 points):** Convert the following numbers to the stated number system:

1.  $(BF2.D)_{16} = (?)_8$
2.  $(571.75)_8 = (?)_{16}$
3.  $(312.2031)_4 = (?)_8$

**Problem 5 (20 points):** Find the proper radix  $r$  in each of the following cases:

1.  $(213)_r = (47)_8$
2.  $(164)_r = (272)_8$