Introduction to Computer Architecture

CISC 3310 Principles of Computer Architecture
Lab Activity

* CRC Code

- Coursebook chapter 2 question 77: Generate the CRC code for the number 1011001.
  - Using the divisor 1011,

* CRC Code

- Generate the CRC code for the number 10111011
  - Using the divisor 1001

Hamming Code

- The ***(7,4)*** binary Hamming block encoder:
  - accepts blocks of ***4***-bit of information
  - adds ***3*** parity bits to each such block and produces ***7***-bits wide Hamming coded blocks
- Construct a ***(7, 4)*** binary Hamming code, using the following equations to generate the parity bits:

$$P_1 = D_1 \oplus D_2 \oplus D_3$$
$$P_2 = D_2 \oplus D_3 \oplus D_4$$
$$P_3 = D_1 \oplus D_3 \oplus D_4$$

* Hamming Code

- Generate all the possible codewords
  - For each possible message, generate a codeword
- What is the minimum distance between the code words?

Message **m**	Codeword **c**
0000	
0001	
0010	
0011	
0100	
0101	
0110	
0111	
1000	
1001	
1010	
1011	
1100	
1101	
1110	
1111	

Questions?