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

COE 341 – Data & Computer Communications (T081)

Programming Assignment # 02 (*due date: Wednesday 14/01/2009 during class period*)

> ### *** Submit both the program code, in *softcopy*, and the plots, in *hardcopy*. ***

Using **MATLAB**, write a receiver-end CRC program that accepts a binary frame (i.e. data and FCS) representing a frame reaching the receiver, and a binary divisor. The binary frame and the binary divisor should be entered interactively. The CRC program displays the received data bits (i.e. the extracted data from the received frame after removing the FCS part) if it concludes that the received binary frame is not in error. On the other hand, the program displays a message stating that the CRC program detected an error in the received binary frame based on the CRC computation.

Note that the program expects any length for both the binary frame and the binary divisor (i.e. the binary frame length and the binary divisor length are NOT fixed). <u>As usual, the program that you submit should be your own genuine work</u>.

Send your thoroughly commented source code <u>and</u> the results of your program to marwan@kfupm.edu.sa by the due date. Also, include a Readme file on how to run the program and the expected input. Use the following test cases to produce the results of your program:

1. Test case I: Binary data =   01111100011000
                  Binary divisor = 10101

2. Test case II: Binary data =   01001100011000
                  Binary divisor = 10101

3. Test case III: Binary data =   1110010001000010000010010100001100010
                  Binary divisor = 1001000110

4. Test case IV: Binary data =   1110011101000010000010010100001100010
                  Binary divisor = 1001000110

You can validate your program by comparing your results with the results you obtain by using the CRC applet at (http://www.macs.hw.ac.uk/~pjbk/nets/crc/). To run the CRC applet properly, make sure to have JAVA installed on the machine that will run the CRC applet.