ECT402 - Wireless Communication

Simulation Assignment 1

20-March-2023, 5pm

Instructions

(a) This is a simulation based assignement.

(b) The simulations can be done in either of MATLAB/SCILAB/PYTHON/C/C++/JAVA.

(c) The assignment shall be uploaded as a report which should contain the question, description of the background theory, code, results, analysis and inference of results and conclusion.

(d) A soft-copy of the report and the codes used for the simulation shall be uploaded.

1. Consider a hexagonal cellular system with radius of all the hexagonal cells R.

   (a) Generate all possible values of reuse distance (D) less than 100.

   (b) Plot the Signal to Interference Ratio (SIR) in dB of a mobile user in a cell with $R = 2Km$ for each value of reuse distance generated in (1a) for the following Path Loss Exponent values

      i. n = 2

      ii. n = 3

      iii. n = 4

2. Repeat (1) for $R = 5Km$.

3. Repeat (1) for $R = 1Km$.

4. Give your analysis and inferences on variation of SIR with respect to path loss exponent and cell radius.