ELC325

Digital Communications Matlab Simulink Project.

Delivery:

- Email the link to the GitHub repo to hazem.soliman115@cu.edu.eg AND maiengineer@hotmail.com by March 28 2019 Midnight.

Objective:

- **(10 Marks)** Simulate the performance of different modulation schemes, BPSK, QPSK, FSK, QAM(16-64) in an AWGN environment.
- **(4 BONUS Marks)** Apply a Raised-Cosine pulse shaping for each of the schemes above.

Deliverable:

- All files should be uploaded to a public Github repo.
- The markdown file in the repo should include for each modulation scheme
    - A brief explanation of the modulation scheme.
    - A brief set of instructions to reproduce the figures.
    - A scatter plot of the symbols at the transmitter and receiver, i.e. before and after noise.
    - BER performance figure. (A semilogY plot of the BER versus Eb/No ranging from -10 to 10 dB)

Instructions:

- The project is to done using Matlab Simulink, in particular the Communications Toolbox with a focus on the Digital BaseBand Modulation blocks.
- Use the Random Integer Generator as your source to generate a random sequence of binary bits
- Use the appropriate digital modulation and demodulation blocks for each modulation scheme above
- Use the AWGN Channel block as the channel between the transmitter and receiver
- Find the appropriate blocks needed for the deliverables, i.e. the scatter plots and BER performance

MarkDown File:

- Your github repo has a README.md markdown file. Fill it into sections for each modulation scheme
- Include the deliverables above for each scheme, i.e. explanation, reproducing steps scatter plots and the BER
- Useful guides: https://guides.github.com/features/mastering-markdown/, https://help.github.com/en/articles/basic-writing-and-formatting-syntax