Communication and Information Engineering
Zewail City of Science and Technology

Fourth Year: Communication and Information Engineering
Course: Information Theory and Coding (CIE425)
Semester: Spring 2017

Lecturer: **Dr. Ziad A. El-Sahn**
Teaching Assistants:
- Eng. Aya Taha
- Eng. Nourhan Abdel-Ghaffar

Simulation Project 1-Source coding

Write **a program** to implement encoder and decoder of the **binary Huffman code** of an independent discrete random variable. Test your code on the case when there is a source that produces 7 symbols with the following probabilities: 0.35, 0.30, 0.20, 0.10, 0.04, 0.005, and 0.005**.**

Then, Calculate:

1-entropy

2- Average length

3-maximum efficiency

4-Use built in function to check your program.

5- Test your code on a speech signal.

Phase 1:

Mention the algorithm steps and begin writing code

Phase 2:

Completing the code and calculate entropy, Average length and maximum efficiency .

Phase 3:

Check your code using built function for encoder and decoder of source code then test your code on a speech signal.

Deliverables and the deadline:

You have to submit report and file .m on Saturday 1st April 2017 .