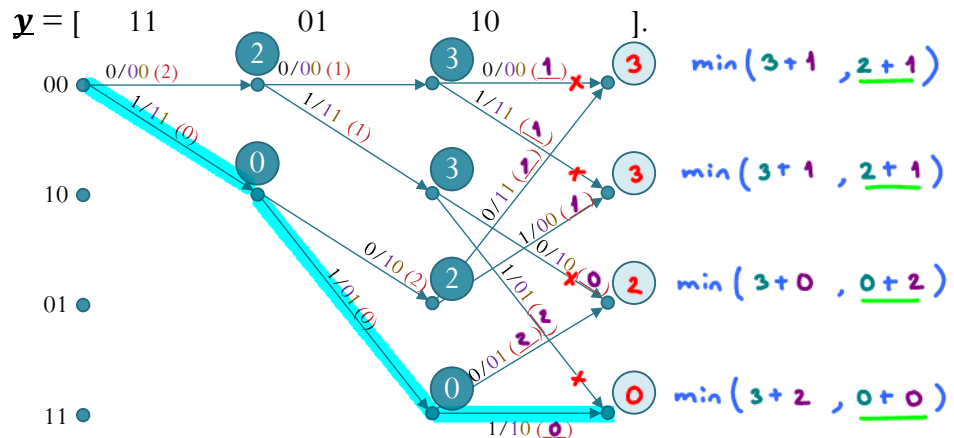# ECS 452: In-Class Exercise # <u>14</u>

Instructions

1. Separate into groups of no more than three persons.
2. The group cannot be the same as your former group.
3. Only one submission is needed for each group.
4. **Do not panic.**

1. Consider a convolution encoder whose trellis diagram is given below

$$\boldsymbol{y} = [\quad 11 \qquad 01 \qquad 10 \qquad].$$

Suppose that we observe <u>y</u> = [110110] at the input of the minimum distance decoder. Apply Viterbi algorithm to find the decoded codeword $\hat{\mathbf{x}}$ and the decoded message $\hat{\mathbf{b}}$.

(Make sure that you indicate all the distance values on the branches, the cumulative distance values, and the branches that are eliminated.)

read from the highlighted path
$$\hat{\underline{x}} = [11\ 01\ 10] \quad \leftarrow \text{no error in the received vector}$$
$$\hat{\underline{b}} = [1\ 1\ 1]$$