

CS447 Networks and Data Communications

July 2 Lecture Note

0. Announcements

(1) **Homework #4** questions has been emailed to each of you by noon yesterday (7/1)

- Submission due: 11:00 am, July 7
- We will discuss QUESTION #3 in the second half of our lecture today

(2) **Quiz #4** is scheduled on Tuesday next week (7/7)

- We review the sample Quiz #4 questions in the first half of our lecture today

(3) Project #2 will be introduced next week

1. Flow Control summary

(1) Stop-and-wait

$$U = T_P / (T_T + (2 \times T_P))$$

where:

- T_P = the signal propagation delay
- T_T = the signal transmission delay

(2) Sliding window

$$U = (N \times T_P) / (T_T + (2 \times T_P)) \quad \text{if } (N \times T_P) < (T_T + (2 \times T_P))$$

$$U = 1.00 (= 100\%) \quad \text{Otherwise (if } (N \times T_P) \geq (T_T + (2 \times T_P)))$$

where:

- T_P = the signal propagation delay
- T_T = the signal transmission delay
- N = the open window size

2. Error Control

- Concept (Error_Control_Concept.ppt) – we covered this on 6/30
- Stop-and-wait ARQ (ARQ.ppt)
 - How does it work?
 - Performance analysis
- Sliding-window base ARQ
 - Selective-reject ARQ (ARQ.ppt)
 - GBN (Go-Back-N) ARQ (GBN.ppt)
 - How do they work?
 - Performance analysis (Exercise_Questions_on_July_2_2026.doc)

2. QUESTION #3 Review (HW #4)

3. Parity-bit error detection (bit_frame_errors.ppt)

- How does it work?