

#### HKUSTx: ELEC1200.3x A System View of Communications: From Signals to...



- Pre-courseMaterials
- Topic 1: Course Overview
- ▼ Topic 2: The Link Layer

### 2.1 Link Layer

Week 1 Quiz due Jan 25, 2016 at 15:30 UT

## 2.2 Multiple Access Protocols

Week 1 Quiz due Jan 25, 2016 at 15:30 UT

#### 2.3 Aloha Protocol Week 1 Quiz due Jan 25, 2016 at 15:30 UT

# 2.4 Efficiency of Slotted Aloha

Week 1 Quiz due Jan 25, 2016 at 15:30 UT

#### 2.5 Lab 1: Link Layer

Lab due Jan 25, 2016 at 15:30 UTC

 MATLAB download and tutorials Topic 2: The Link Layer > 2.5 Lab 1: Link Layer > LAB 1 - OVERVIEW



#### **OVERVIEW**

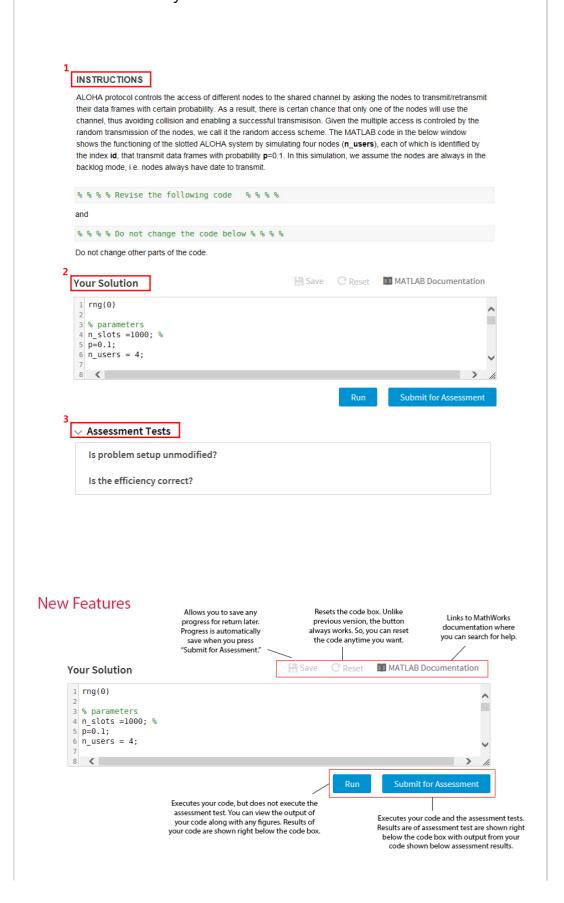
In this lab, we will study the slotted ALOHA multiple access scheme. For that purpose, we will first learn how to create and check the correctness of a frame, and then observe the throughput performance of the ALOHA protocol both by simulation and analytically. In particular, you will complete four tasks:

- 1. Task 1 provides an overview of the slotted ALOHA system with a given number of users that transmit data frames in each slot with probability p. In this task, you will find the efficiency of the system.
- 2. In task 2, you will create the frame that is used at the link level to send the datagram.
- 3. In task 3, you will check the correctness of received frame using the checksum bits in the frame structure.
- 4. In task 4, you will evaluate the performance of the ALOHA system. In particular, you will plot the efficiency of the system as a function of the transmission probability p both by simulation and analytically.

For the lab exercise, you will see a new interface. There are three elements:

- 1. "**Instructions**" States the objective of this exercise and explains the task you should complete.
- "Your Solution" Input your solution into this window (previously, called the "code window"). Note that now the "Your Solution" window occurs below the instructions.
- 3. "Assessment Tests" (new feature) Lists the tests that the grader will perform on your submissions. After you submit your solutions, you will see feedback here regarding whether your solutions passes all or only some of the tests. For the failed tests, there will be error messages indicating what you should revise to pass the grader and earn the credits.

**Attention:** You will have unlimited number of "submission attempts" before the deadline. The last submission before the deadline is the only one to count towards your score.



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