

IE-341

Section 1, CRN: 30512/513/514

Section 2, CRN: 30515/516/517

Section 3, CRN: 38299/300/301

Section 4, CRN: 65886/887/888

First Semester 1438-39 H (Fall-2017) – 3(2,1,2)

“HUMAN FACTORS ENGINEERING”

Sunday, October 22, 2017 (02/01/1439H)

Tutorial 4: Signal Detection Theory

Name:	Student Number: 43	Section: Mon@8/ Mon@10 / Tu / Wed
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Answer ALL of the following questions

1) Examine the “noise-only” and “signal + noise” SDT distributions shown below then answer the questions to follow:

a)



b)



- Which has the highest sensitivity?
- Which has the highest FA rate and which has the highest Hit rate? Why?
- In which case is response bias (β) > 1 and in which case is it < 1?
- In which case is the RC (response criterion) considered to be *conservative*, and when is it considered to be *liberal/risky*?
- Suggest one way in which we can increase Hits and decrease FA

- 2) Go to the following website: [Web Interface for Statistics Education \(WISE\)](#).
[Signal Detection: Overview](#). Read the explanation, then solve the following:
- [“Signal Detection: Hits and False Alarms Examples”](#): find the FA, Hit, Miss, and CR rates, and then check your answers.
 - [“Signal Detection: p-values and z-scores”](#): solve exercise 1 and exercise 2, then check your answers.
 - [Signal Detection: d' Defined](#): solve exercise 3, and then check your answer (note, use the use the [WISE p-z converter](#) to help you).