


EE521 Analog and Digital Communications


Study Plan
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The Term Project

- Continue with the start that you turned in with the first quiz backup
 - Input
 - Frequency sweep 1000 Hz to 3500 Hz
 - Noise to obtain 20 dB SNR
 - Sampling to obtain good performance
- Do NOT pitch your beginning and pick up the ADC to bitstream modules as a template
- Sample and encode/decode as instructed
- Measure BER vs. Eb/N0 as instructed
- Compare hard decoding with soft decoding


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Scope of the Study Plan

- Suggested extra readings
- Scope of the topics
- Homework problems
 - Selected for their study value
 - Chosen to take about 15 minutes apiece
 - From the Text
 - Three to five per chapter
- Suggested examples from the text


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Coverage of the Study Plan

- Text, Chapters 2-4, 6-7
- More will be added as they are needed
- Extra topics are available
 - SystemView examples
 - Modulation/demodulation


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Feedback and Consultation

- Let me know by email whenever you
 - Are behind in the reading
 - Have a problem with a study item
- Specific issues, please
 - Good: "I don't understand Problem 2.1 p. 18"
 - Good: "I need a little explanation of Example 2.17 pp. 75-76"
 - Bad: "I don't understand Chapter 1"
- Channels
 - Email jkbeard@temple.edu
 - Simple, one-time issues such as *Good* above
 - Anything that is between you and I
 - Office – Topics that require a conversation, not a single answer or response
 - Phone – NA, no phone in current office; email or visit preferred

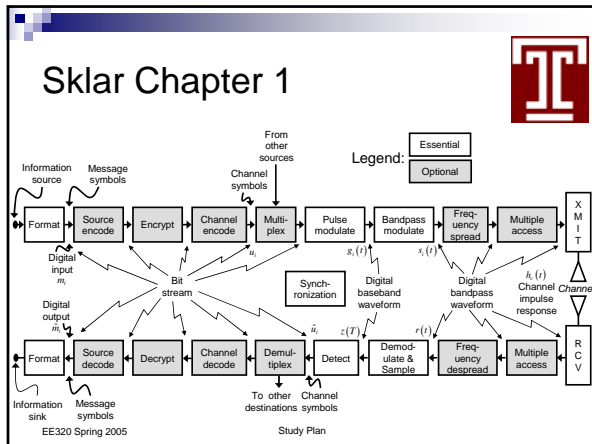
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Study Problems Overview

- Look at the slides for each week for supplementary material
- Look at your notes
- Several are given for each chapter
- Pick the easiest first
 - Some of the longer or more difficult problems are marked as such here – don't do them first
 - If you have difficulty with a problem and can't resolve your problems with the text, put it aside and come back to it later
- In the event of difficulty
 - If an example is given, go through it thoroughly first
 - Re-read the text sections relating to the problems
 - Put it aside and come back to it after you work others
 - If the difficulty persists, send me an email
- Emails to the Professor
 - Use jkbeard@temple.edu
 - Give the problem number
 - State your difficulty as specifically as possible

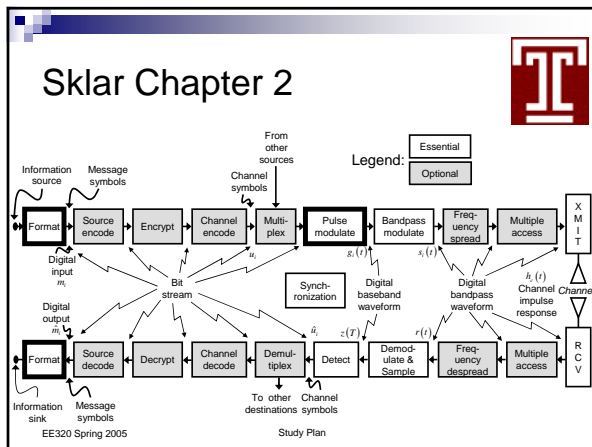
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Chapter 1

- Review
 - Digital signal processing
 - Noise in signals
 - Energy and power spectral density
 - Random variables and statistics of signals
 - Linear systems
- Topics are covered in prerequisites
- Read for review
- Problem 1.1 page 51
- Questions on Chapter 1 OK

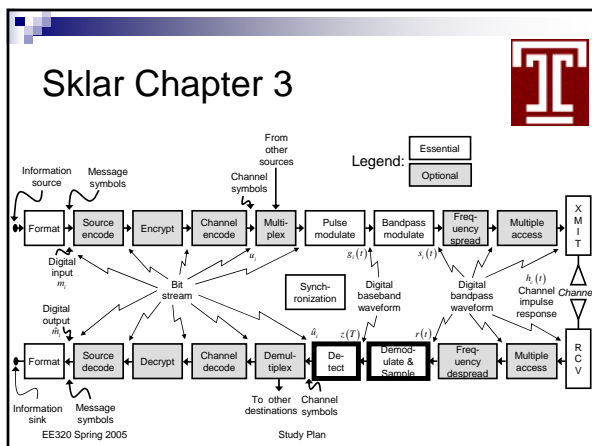
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Chapter 2 Study Problems

- Quadrature demodulation material in first lecture is material that is NOT FOUND IN THE TEXT
- Problem 2.2 page 101
- Problem 2.4 page 101
- Problem 2.6 page 102
- Problem 2.7 page 102
- Problem 1.16 page 103
- Look at doing the Chapter 2 exercises in SystemView

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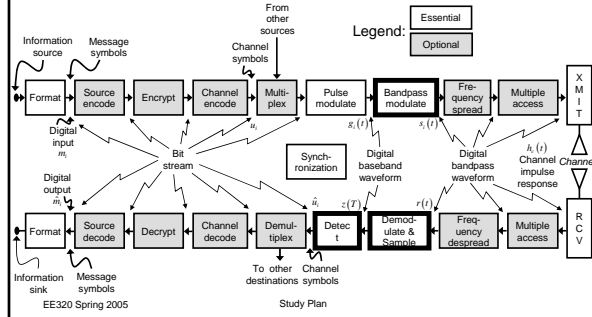


Chapter 3 Study Problems

- Problem 3.1 page 162
- Problem 3.2 page 162
- Problem 3.3 page 162
- Problem 3.4 page 162
- Problem 3.5 page 162 (more difficult BER problem)
- Problem 3.9 page 164 (longer problem)
- Problem 3.11 page 164 (related to term projects)

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Sklar Chapter 4



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Chapter 4 Study Problems



- Example 4.1 pp. 187-188
- Example 4.2 pp. 193-194
- Problem 4.1 page 237
- Problem 4.2 page 237 (longer problem)
- Problem 4.3 page 237
- Problem 4.4 page 237 (long problem)
- Problem 4.11 page 239 (hard problem)
- Problem 4.12 page 240
- Question 4.1 page 241
- Question 4.5 page 241 (excellent but longer problem)
- Question 4.9 page 241

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Chapter 5 Study Problems

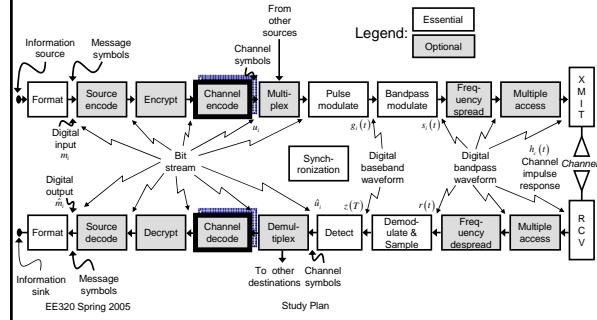


- Communication link analysis
- Skipped in EE521
- Treats
 - Propagation
 - Noise
 - Interference
 - Fading
- See EE320 lectures

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Sklar Chapters 6 and 7



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Chapter 6 Study Problems



- Problem 6.1 page 375 (very long problem)
- Problem 6.2
- Problem 6.3
- Problem 6.6
- Problem 6.8 page 376
- Problem 6.16 page 377
- Problem 6.18 (simple if programmed)

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Chapter 7 Study Problems



- Problem 7.1 page 431
- Problem 7.5 page 432
- Problem 7.6 page 432 (uses problem 7.5)
- Problem 7.7 page 432 (uses 7.5, 7.6)
- Problem 7.11 page 433
- All Questions on page 435

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