List of refinements in my slides:

(The latest version is always maintained on my web site http://shannon.cm.nctu.edu.tw. These listed items will be useful if some of you download the previous version.)

- Slide 6-2: The bottom one should be "FSK".
- Slide 6-30: I switch the order of $P\left(x\left|+\sqrt{E_b}\right.\right), P\left(x\left|-\sqrt{E_b}\right.\right)$ in order to synchronize with the following derivation.
- Slide 6-43: I change $\pm$ to $\mp$ in

  $$\arg\max\left\{\frac{1}{2\pi\sigma^2}e^{-[(x_1\mp\sqrt{E/2})^2+(x_2\mp\sqrt{E/2})^2]/(2\sigma^2)}\right\}$$

  in order to synchronize with the previous derivation.
- Slide 6-46:

  $$\frac{1}{2\pi\sigma^2}e^{-[(x_1\pm\sqrt{E/2})^2+(x_2\pm\sqrt{E/2})^2]/2\sigma^4}dx_1dx_2$$

  should be

  $$\frac{1}{2\pi\sigma^2}e^{-[(x_1-\sqrt{E/2})^2+(x_2+\sqrt{E/2})^2]/2\sigma^4}dx_1dx_2$$

  .
- Slide 6-52: More interpretation is added on top as:

  $s(t)=\Re\left\{e^{j[(\pi/2)I_k+\pi/4]}e^{j2\pi f_ct}g(t)\right\}$ for $I_k=0(++),1(-+),2(--),3(+-)$,

  Single sign change = 90 degree shift
  Double sign change = 180 degree shift
- Slide 6-53: The page index of the slide is lowered so that it can be visible.
- Slide 6-63: I add a sentence to explain why I use "$\approx$" as "This is the lower bound of the upper bound. So it is not really an upper bound!"
- Slide 6-64: The cross reference of 6-49 should be 6-50.
- Slide 6-71: The page index of the slide should be 6-71 instead of 5-71.

- Slide 6-76: The page index of the slide should be 6-76 instead of 5-76.
- Slide 6-78: $\hat{P}(f)$ is replaced by $j\hat{P}(f)$. Note that $j\hat{P}(f)$ is real. I also add that $G_+(f) = P(f) + j\hat{P}(f)$.
- Slide 6-80: $\mathbf{1}\{\mathbf{t} \neq \mathbf{0}\}$ is replaced by $\mathbf{1}\{t \neq 0\}$.
- Slides 6-79∼6-88: The page indices of the slides should be 6-79∼6-88 instead of 1-79∼1-88.
- Slide 6-84: $G_+(f) = 2u(f)P(f)$ and $\hat{P}(f)$ are respectively replaced with $G_+(f) = 2u(f)P(f) = P(f) + j\hat{P}(f)$ and $j\hat{P}(f)$.
- Slide 6-88: On the bottom line, $\int_0^\infty P(f)P(-f)df < 0$ should be replaced by $\int_0^\infty P(f)P(-f)df < \infty$.
- Slide 6-89: "One may then free" is replaced with "One is thus free".
- Slide 6-94: A small box is added at the up-right corner with content:

  Recall the below terms:

  1. Zero-forcing equalizer
  2. Nyquist criterion/ISI
  3. Noise enhancement
  4. MMSE equalizer

- Slide 6-100: The page index of the slide should be 6-100 instead of 5-100.