

Project Information

A project related to a wireless communication standard or bodies of standards is a required portion of this course. For the standard(s) you are assigned to, you will write a report (8-15 pages, including figures) and will also give a short presentation to the class (10 minutes). The objective is for you to concisely explain the physical layer design of the standard(s) during your presentation, while providing additional detail in your report. You should give the basic parameters of the standard, which specify things such as the modulation types, channel codes, and how ISI is dealt with, as well as describe how receivers are implemented (e.g., if single-carrier is used, is linear equalization or MLSE performed?). For each of the standard(s) you should be able to find information on the Internet, in research papers, and in books - I recommend that you use all of these sources.

I will setup meetings with each group during the week of April 19-23 - during this meeting you should have preliminary versions of your presentation and report, so that I can specify any additional information that you need to provide. The presentations will be during the last week of classes (May 3-6), and your final report is due on Thursday, May 6.

Project topics are listed below:

1. LTE - Downlink
2. LTE - Uplink
3. WiMax
4. 802.11g/n
5. 802.11b
6. Bluetooth
7. Zigbee
8. Broadcast TV - DVB-T, ASTC, and MediaFLO (3 people)
9. GSM (plus EDGE and GPRS)
10. IS-95
11. WCDMA/UMTS/HSPA (3GPP) and CDMA2000 (3GPP2) (3 people)
12. Ultra-wideband (UWB)
13. 60 GHz Communication
14. TV Whitespace (cognitive radio) - 802.22

By the end of the day on Friday (March 26), please email me your 3 preferred topics (in order of preference). You can provide individual preferences, or you can form a group of 2 people and email me your group's preference. I will announce project assignments over the weekend.