Examination Feedback for EEE6431 – Broadband Wireless Techniques
Spring Semester 2013-14

Feedback for EEE6431 Session: 2013-2014

Feedback: Please write simple statements about how well students addressed the exam paper in general and each individual question in particular including common problems/mistakes and areas of concern in the boxes provided below. Increase row height if necessary.

General Comments:

Overall, the students performed satisfactorily. Most students attempted Q1, 2 & 3 with the fewest students attempting Q4. Students again tended to be challenged by systems questions where design calculations or explanations of the overall system operation were involved. A common mistake was omitting explanations of theory, in particular responding to comments. Numerical miscalculations were quite common as were inaccurate calculations characterized by leaving out a sufficient number of significant figures.

Question_1:

Q1 was attempted by all students and the question was answered extremely well. The most common mistakes included not labelling all the essential blocks of a digital communication system; giving incomplete description, explanations lacking depth and qualitative reasoning, making computational mistakes in calculations and not differentiating between dB and dBm. Otherwise, this question demonstrated that students had acquired a good understanding of pathloss mechanisms in wireless communication systems.

Question_2:

Q2 was attempted by almost all students and the question was answered satisfactorily. The most common mistakes included not calculating correctly the integration of the Rayleigh power distribution; using dB values instead of the equivalent linear values when substituting into equations; and giving insufficient responses to theory questions. The main mistake was misinterpreting the use of the power delay profile when calculating the mean excess delay and the *rms* delay spread.

Question_3:

Q3 was attempted by most students and the question was answered satisfactorily. Though Q3 was a systems question, most students responded strongly. The main mistakes made were confusing the different types of capacity calculations and how these are applied; calculating the incorrect capacity value in part (b) and (c); failing to explain clearly the differences between the Ergodic and Shannon AWGN capacities. Students omitted answering the more theoretical parts of Q3 resulting in marks being lost.

Question_4:

Q4 was attempted by a relatively small number of students. In general, the question was not answered effectively. Students were particularly challenged by Q4(c) and did not realize the need to consider all 8 tuples of the length 3 binary count. Students also found Q4(d) challenging and most failed to recognize the behaviour of the unresolved multipath components. Again, students tended to omit the theoretical parts of the question leading to marks being lost.