20SK – Signals and Codes

Lecture 13 – Binary cyclic codes (2016/01/07)

Topics discussed:

- Binary cyclic codes: construction of generator polynomial, parity-check polynomial.
- Linear codes as binary cyclic codes.
- Relation between cyclic and linear codes.
- Encoding a cyclic code using a shift register.

The relevant literature is [1, chapter 3], [2, chapters 10 and 12] and [3, chapter 4].

Resources

[1]   Morelos-Zaragoza, R. H.: The Art of Error-Correcting Coding. 2nd edition, John Wiley & Sons, 2006, 263pp.

[2]   Adámek, J: Foundations of Coding: Theory and Applications of Error-Correcting Codes with an Introduction to Cryptography and Information Theory. Wiley Interscience, 1991, 352 pp.

[3]   Moon, T. K.: Error Correction Coding – Mathematical Methods and Algorithms. Wiley Interscience, 2005, 756 pp.