ELG 5372 (EACJ5504)

Error Control Coding

Fall 2016

Professor:	Dr. Abbas Yongaçoğlu Room CBY A-715 Tel: 562 - 5800 ext. 6228 yongac@uottawa.ca
Lectures	Tuesday 13:00 - 14:20, SCS E218 Thursday 11:30 - 12:50, SCS E218
<u>Text:</u>	 T.K. Moon, Error Correction Coding, John Wiley 2005. or S. Lin and D.J. Costello, Error Control Coding, 2nd Edition, Prentice Hall, 2004. or S.B. Wicker, Error Control Systems Prentice-Hall 1995
<u>Syllabus:</u>	 Introductory Concepts Introductory Algebra Linear Block Codes Important Linear Block Codes Cyclic Codes Cyclic Codes BCH and Reed-Solomon Codes Convolutional Codes Viterbi Decoding of Convolutional Codes Trellis Coded Modulation Turbo Codes and Iterative Decoding (if time permits) BICM, LDPC, Polar Codes (as projects)
Grading:	Homework:% 25Project:% 25Final Exam:% 50
Projects:	A small project will be done by each student. The work will be either performance evaluation of a coded communications system by simulations (or bounds) or doing literature review. Students can come up with their own project ideas, but also a list of suggested project topics will be given in the fourth week of classes. Project reports of approximately 10 - 20 pages will be submitted in the final week of classes.
<u>Final Exam:</u>	This will be 3-hours, open-book, in-class exam in December.
Schedule:	No Class on Nov. 15 and Nov. 17 Reading Week Oct. 24 28, we may have a make up class on Oct. 27

References

- [1] M. Bossert, Channel Coding ..., John Wiley 1999
- [2] C.R. Rorabaugh, Error Coding Cookbook, McGraw-Hill 1996
- [3] R.E. Blahut, Theory and Practice of Error Control Codes, Addison Wesley, 1983. QA 268.B548 1984
- [4] G.C. Clark and J. Bibb Cain, Error Correction Coding for Digital Communications, Plenum Press, New York, 1981. TK 5102.5 .C52 1981
- [5] F.J. MacWilliams and N.J.A. Sloane, The Theory of Error -Correcting Codes, North-Holland, New York, 1977.
 QA 268 .M3 1977 V 1-2
- [6] A.M. Michelson and A.H. Levesque, Error-Control Techniques For Digital Communication, John-Wiley, 1985. TK 5103.7.M53 1985
- [7] W.W. Peterson and E.J. Weldon, *Error Correcting Codes*, 2nd Edition, The M.I.T. Press, Cambridge, Mass., 1971.
- [8] W.G. Chambers, Basics of Communications and Coding, Clarendon Press, Oxford, 1985. TK 5103.7 .C53 1985.
- [9] A.J. Viterbi and J. K. Omura, "Principles of Digital Communication and Coding", McGraw-Hill, 1979.
- [10] M. Y. Rhee, "Error Correcting Coding Theory", McGraw-Hill, 1989.