

# 電機工程學系

課程名稱：中文錯誤更正碼(二) 英文 Error-Correcting Codes (II)

科號 EE 665200

大學部

■電機系碩博士班 甲組 乙組

電子所 通訊所 光電所

課程說明：

This course covers the most important developments in recent years in the area of error-correcting codes to complement the contents of its predecessor Error-Correcting Codes. VLSI implementation and applications of some popular codes will also be introduced in this course.

課程內容：

0. Reviews on Block Codes and Convolutional Codes
1. Turbo Codes
2. Low Density Parity-Check (LDPC) Codes & Repeat Accumulate (RA) Codes
3. Reliability-Based Soft-Decision Decoding Algorithms for Linear Block codes
4. Product Codes and Block Turbo Decoding
5. Coded Modulation
6. Space Time Codes
7. VLSI Architectures for Turbo Codes and LDPC Codes (Optional)
8. Applications of Turbo Codes and LDPC Codes (Optional)

擬用教科書或參考書：

教科書：無

參考書：

1. S. Lin and D. J. Costello, Jr., Error Control Coding, 2nd ed. Upper Saddle River, NJ: Prentice Hall, 2004. (Main Reference)
2. C. B. Schlegel and L.C. Perez, Trellis and Turbo Coding, IEEE Press, 2004
3. R. H. Morelos-Zaragoza, The Art of Error Correcting Coding. Chichester, England: John Wiley & Sons, 2002.
4. S. Lin, T. Kasami, T. Fujiwara, and M. Fossorier, Trellises and Trellis-Based Decoding Algorithms for Linear Block Codes. Boston: Kluwer, 1998.
5. M. Bossert, Channel Coding for Telecommunications, John Wiley & Sons, 2002.
6. B. Vucetic, and J. Yuan, Space-Time Coding, John Wiley & Sons, 2003.
7. H. Jafarkhani, Space-Time Coding: Theory and Practice, Cambridge Univ. Press, 2005
8. R. E. Blahut, Theory and practice of error control codes
9. Various Related Papers