

COURSE DESCRIPTION

EASTERN MEDITERRANEAN UNIVERSITY
Faculty of Engineering
Department of Electrical and Electronic Engineering

EENG/INFE 467 - Information Theory	
Department: Electrical and Electronic Engineering	
Program Name: Electrical and Electronic Engineering Systems Engineering	Program Code: 27/28
Course Number: EENG/INFE 467	Credits: 4
Required Course (for INFE)	Elective Course (for EENG)
Prerequisite(s): MATH322	
Catalog Description: Modelling of information sources and measure of information. Joint and conditional entropy. Source Coding: Huffman, Lempel Ziv coding and arithmetic coding. The Rate distortion theory. Modelling of communication channel and the Channel Capacity Theorem. Scalar and vector quantisation and Transform coding. Coding of discrete information sources: Block codes, cyclic codes, convolutional codes. Combined modulation and coding, trellis coded modulation (TCM).	
Course Web Page: http://faraday.ee.emu.edu.tr/eeng467	
Textbook(s): 1) Richard B. Wells, <i>Applied Coding and Information Theory for Engineers</i> , 1999, Prentice Hall, ISBN: 0-13-961327-7	
Indicative Basic Reading List : 1) Thomas M. Cover and Joy A. Thomas, <i>Elements of Information Theory</i> , 2nd Edition © 1991, Wiley, ISBN: 0-471-06259-6.	
Course Outline: Week 0: Familiarization with the Course and the teaching and learning environment Week 1 -3: Modeling of information sources and measure of information Week 3-5: Joint and conditional entropy Week 5-6: Source coding Week7-8: The rate distortion theory Week 9 : Mid-Term Examination. Week 10: Modeling of communication channels Week 11-12: Channel capacity theorem Week 13: Quantization and transform coding Week 14: Coding of discrete information sources Week 15: Final Examination	

Course Learning Outcomes:

On successful completion of this course, all students will have developed knowledge and understanding of:

- (a) an understanding of the measure of information
- (b) an understanding of source coding (compression) and channel coding
- (c) an ability to carry out modeling of communication channels
- (d) an ability to analyse source/channel coding schemes

On successful completion of this course, all students will have developed their skills in:

- (e) using the MATLAB programming environment

**Class
Schedule:**

4 hrs of lectures per week

**Laboratory
Schedule:**

Assessment	Method	No	Percentage
	Midterm Exam(s)	1	35 %
	Term (Group) Project	1	15 %
	Homework(s)	5	10 %
	Final Examination	1	40 %

Contribution of Course to Criterion 5

Credit Hours for:

Mathematics & Basic Science : 0

Engineering Design : 4

General Education : 0

Relationship of Course to Program Outcomes

The course has been designed to contribute to the following program outcomes:

- (a) An ability to apply knowledge of mathematics, science, and engineering,
- (c) An ability to design a system, component, or process to meet desired needs within realistic constraints,
- (d) An ability to function on multi-disciplinary teams,
- (e) An ability to identify, formulate and solve engineering problems,
- (k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Prepared by: Prof. Dr. Aykut Hocann

Date Prepared: 22 September 2013