



Iran University of Science and Technology,  
Computer Engineering Department,  
Fall 2008 (1387)

## Introduction to Multimedia Systems

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## About This Course

- ▶ Aims of Module
- ▶ Objectives of Module
- ▶ Reference and Recommended Course Books
- ▶ Syllabus Outline
- ▶ Grading Policy

## Aims of Module

- ▶ To give students a broad grounding in issue surrounding multimedia, including the role of and design of Multimedia Systems which incorporate:
  - ▶ Digital Audio
  - ▶ Pictures
  - ▶ Graphics
  - ▶ Text
  - ▶ Video
  - ▶ Data Compression and Transmission
  - ▶ Integration of Media
  - ▶ Multimedia Authoring
  - ▶ Delivery of Multimedia

## Objectives of Module

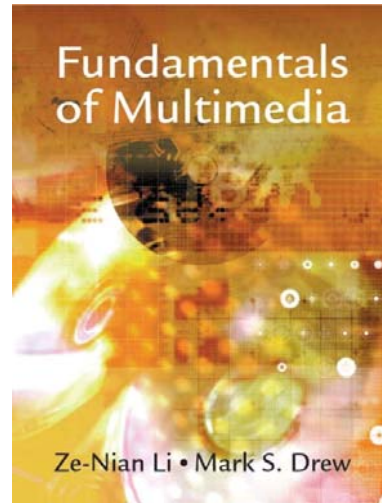
- ▶ Students should be able to:
  - ▶ Understand the relevance and underlying infrastructure of the multimedia systems.
  - ▶ Understand core multimedia technologies and standards (Digital Audio, Graphics, Video, VR, data transmission/compression)
  - ▶ Be aware of factors involved in multimedia systems performance, integration and evaluation
  - ▶ Understand the concepts of Multimedia Networks and Multimedia Retrieval

## Course Reference

▶ The main course reference is:

- ▶ “**Fundamentals of Multimedia**”, Ze-Nian Li and Mark S. Drew, Prentice-Hall, 2004, ISBN: 0130618721,

- ▶ Book Homepage:  
<http://www.cs.sfu.ca/mmbook/>



## Course Reference (Cont'd)

▶ Other material:

- ▶ **Multimedia Communications: Applications, Networks, Protocols and Standards**, Fred Halsall, Addison Wesley, 2000 (ISBN 0-201-39818-4)
- ▶ **Multimedia: Computing, Communications and Applications**, R. Steinmetz and K. Nahrstedt, Prentice Hall, 1995.
- ▶ **H.264 and MPEG-4 Video Compression: Video Coding for Next-generation Multimedia**, Iain E. G. Richardson, John Wiley & Sons, 2003.
- ▶ **Multimedia and Virtual Reality: Designing Multisensory User Interfaces**, Alistair Sutcliffe, Lawrence Erlbaum Associates Publisher, 2003.
- ▶ **Content-Based Analysis of Digital Video**, Alan Hanjalic, Springer, 2004.
  
- ▶ Other material will also be used, and introduced during the course.

## Syllabus Outline

- ▶ Chapter 1: Introduction To Multimedia
- ▶ Chapter 2: Multimedia Authoring and Tools
- ▶ Chapter 3: Graphics and Image Data Representation
- ▶ Chapter 4: Color in Image and Video
- ▶ Chapter 5: Fundamental Concepts in Video
- ▶ Chapter 6: Basics of Digital Audio
- ▶ Chapter 7: Lossless Compression Algorithms
- ▶ Chapter 8: Lossy Compression Algorithms
- ▶ Chapter 9: Image Compression Standards
- ▶ Chapter 10: Basic Video Compression Techniques

## Syllabus Outline (cont'd)

- ▶ Chapter 11: MPEG Video Coding I: MPEG-1 & 2
- ▶ Chapter 12: MPEG Video Coding II: MPEG-4, 7 & Beyond
- ▶ Chapter 13: Basic Audio Compression Techniques
- ▶ Chapter 14: MPEG Audio Compression
- ▶ Chapter 15: Computer and Multimedia Networks
- ▶ Chapter 16: Multimedia Network Communications and Applications
- ▶ Chapter 17: Wireless Networks
- ▶ Chapter 18: Content-based Retrieval in Digital Applications

## Grading Policy

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- ▶ Homework (15%)
- ▶ Project (10%)
- ▶ Quiz (10%)
- ▶ Mid-term Exam (25%)
- ▶ Final Exam (40%)

## Class

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- ▶ Time: Saturday 10-12, Sunday 15-17
- ▶ Location: IUST, CE Dept., Room 205
  
- ▶ Instructor:
  - ▶ Ehsan Adeli Mosabbeb
  - ▶ Email: [eadeli@iust.ac.ir](mailto:eadeli@iust.ac.ir)
  - ▶ URL: <http://webpages.iust.ac.ir/eadeli/>
  - ▶ Address:
    - ▶ High Performance Computing Lab,  
Computer Engineering Department,  
Iran University of Science and Technology,  
Narmak, Tehran, Iran

## Course Material

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- ▶ Everything regarding the course will also be available at:
  - ▶ [http://www.adeli.ir/courses/mms\\_fall2008/](http://www.adeli.ir/courses/mms_fall2008/)
  
- ▶ Special Thanks to Prof. Mark Drew for his great help on preparing material for this course.
  - ▶ <http://www.cs.sfu.ca/~mark>