

Course Code 005636 (Fall 2017)

Multimedia

Course Information

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Multimedia

- 3 Credits Course
- Lectures: 3 hours of lectures weekly
 - Tuesday 10.30 am to 12 pm
 - Thursday 10.30 am to 12 pm
- Type: Theory/Tutorial (Lectures)
- Attendance: Please check Ucheck for attendance, absence and late rules
 - Attendance: 2 min before and 15 min after lecture
 - Late: after 15 to 45 mins

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Assessment

- Homework + quiz: 30%
 - Mid-term exam: 30%
 - Final exam: 30%
 - Attendance: 10%
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- Objective: Multiple choice, True/False, Matching, and Completion
 - Subjective: Short-answer essay, Extended-response essay, Problem solving.

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Course Materials

- PDFs of slides
- The slides are available in Blackboard of Sejong University
- Sometimes the slides will be updated at a later date.

- Some more references and links for lectures notes maybe given time to time

- MATLAB
 - Some examples and the programming elements of the coursework will use MATLAB.

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Outline

- Basic grounding in issue surrounding multimedia,
- Multimedia data:
 - Digital audio, graphics, images and video, etc.,
 - Underlying concepts and representations of sound, pictures and video,
 - Audio/Digital signal processing fundamentals—filtering, audio synthesis
- Data compression — JPEG, MPEG video and MPEG Audio.
 - Core data compression algorithms in JPEG/MPEG etc.
- Transmission and Integration of media.
- Multimedia applications: e.g. content-based retrieval.

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- Syllabus

- Introduction: Multimedia applications and requirements
- Multimedia data acquisition and formats: Audio, Graphics, Images and Video
- Audio/Video fundamentals including analog and digital representations, human perception, and audio/video equipment, applications.
- Digital Audio signal processing, Image/Video Processing.
- Digital Audio Synthesis: Basic audio synthesis techniques
- MIDI: Basic MIDI definitions, MIDI control of audio synthesis, MIDI and data compression (MPEG4)

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- Syllabus

- Audio and video compression

- Lossy v. Lossless Compression
- Information Theoretic Transform
(Huffman Coding, Arithmetic Coding, LZW/GIF)
- perceptual transform coders for audio/images/video
(Fourier, DCT, Vector Quantization)
- Image and video compression applications and algorithms:
JPEG, H.263, MPEG Video, MPEG Audio,

- Multimedia applications

- Content based multimedia retrieval (audio & video)

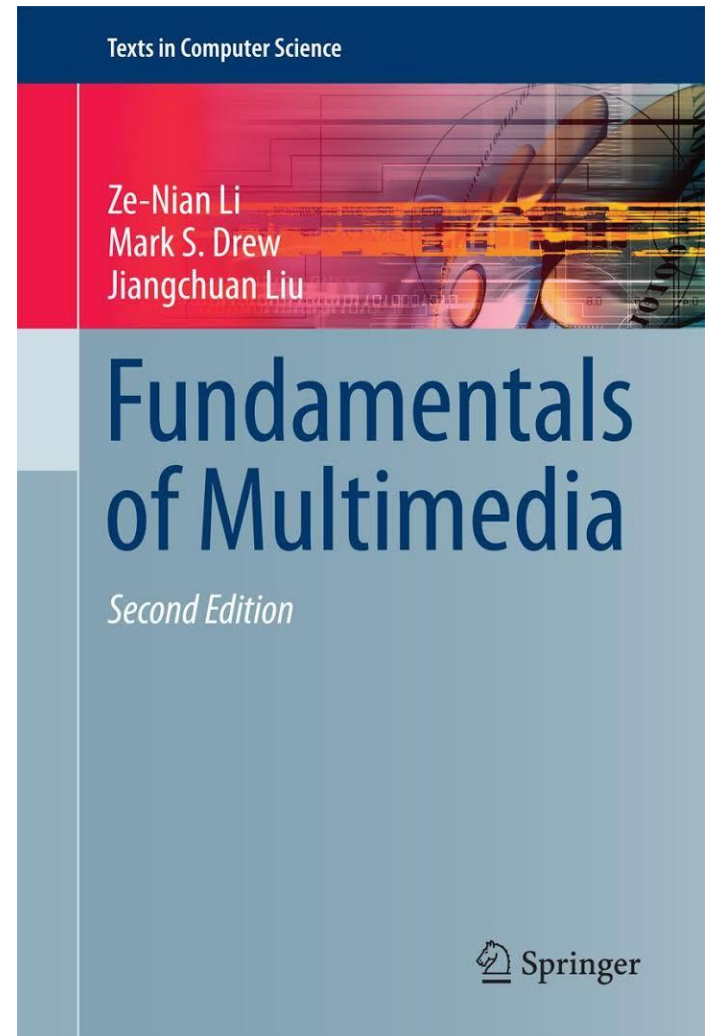
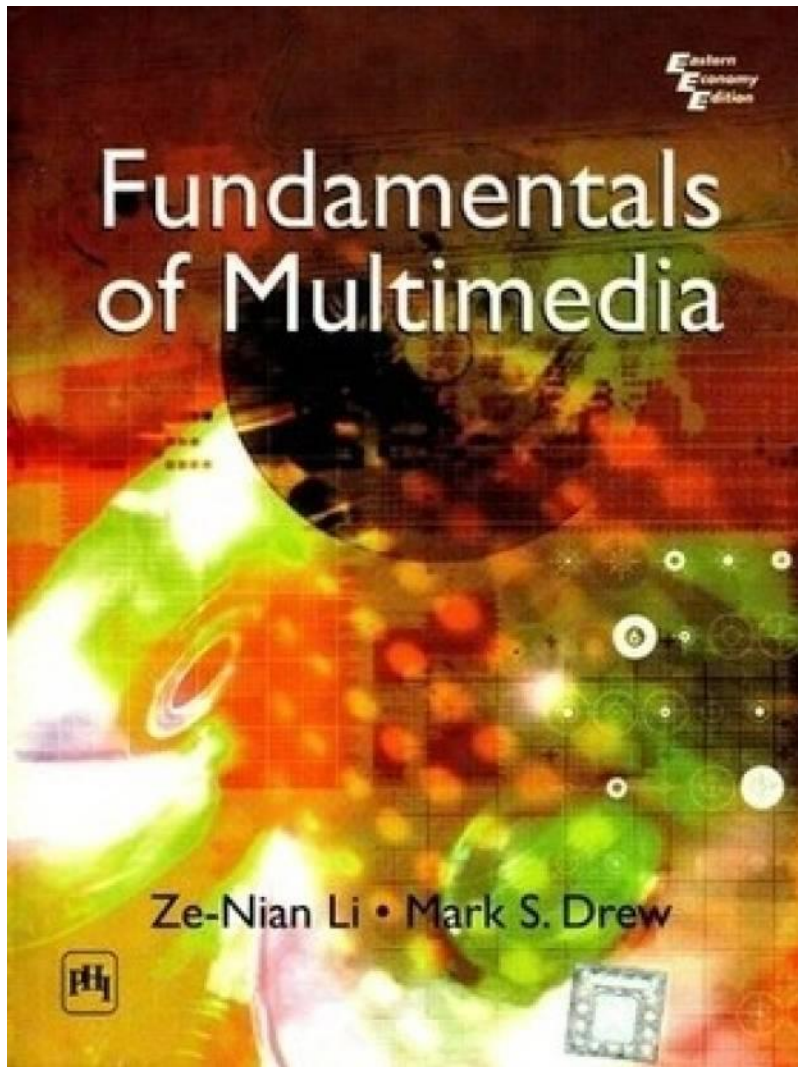
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Contact

- E-mail (Preferred):
 - islam.smriaz@gmail.com
 - riaz@sejong.ac.kr
- Name/ID should be mentioned in any contact.
- Office: 314 (Gunja Building)
 - A prior appointment through e-mail is required.

Multimedia

- Recommended Text Book



Other Books

- Digital Image Processing Using MATLAB(BY-Rafael C. Gonzalez, Richard E. Woods and Steven L. Eddins)
- Sound Synthesis and Sampling (BY-Martin Russ)
- Data Compression: The Complete Reference (BY-David Salomon)
- Multimedia Communications: Applications, Networks, Protocols and Standards (BY-Fred Halsall)

Q&A

