EE474 – Introduction to Multimedia

Spring 2020

Instructor: Prof. Yong Man Ro
ITC Building (N1), room 414 : http://ivylab.kaist.ac.kr
350-3494, **ymro@kaist.ac.kr**

Class Hours: Lecture: Tue 10:30 am ~12:00, Thu 10:30 am ~12:00

Online lecture (only in 2020): Real time lecture (zoom) or Recorded lecture (PPT)
The lecture type is announced in KLMS a week before leccturing.

Prerequisites: Not require but this course is good for students who are looking forward to having fundamental experience of the digital multimedia and related programming experience

Classroom: [(N1)IT 융합빌딩] 113 (Lecture),
[(E3-4) 새늘동] 1412 해동라운지 (For programming)

Office Hours: 14:00 ~ 15:30 (Tuesday, Thursday)

Class homepage: http://klms.kaist.ac.kr/

Teaching Assistant: Sangmin Lee, Minsu Kim, Joanna Hong,
(Tel: 350-8094, sangmin.lee@kaist.ac.kr, ms.k@kaist.ac.kr, joanna2587@kaist.ac.kr)

Assistant's Office Hours: 15:30 ~ 17:00 (Tuesday, Thursday)

Handout: Lecture Notes

Text: Lecture Notes (providing from Prof. Yong Man Ro)

Sub-Text: **1**. Fundamentals of Multimedia (FM), Ze-Nian Li, Mark S. Drew, J. Liu, Springer 2nd Edition, 2014
2. Digital Multimedia by Chapman (DM), Nigel P./ Chapman, Jenny, in Wiley, 3rd Edition, 2009

Reference: **1.** Multimedia: Making It Work, 9 Edition by Vaughan, Tay in McGraw-Hill, 2014.
2. Recent articles about multimedia (recommended at classes)
3. Fundamentals of Deep Learning: Designing Next-Generation Machine Intelligence Algorithms

Grading Policy: Midterm (20%), Final (20%), HW (15%), Quiz (10 %), Term Project or program assignment (30%), Class Conduct (5 %)

Objective:

This course introduces multimedia elements including image, graphics, sound, and video components. In related with the multimedia elements, students learn the fundamental of multimedia processing. By teaching not only fundamental technologies but also emerging technologies (e.g., deep learning with multimedia processing), the course helps and encourages students to develop their imaginative and creative skills.

Course Policies:

Course Communication: Course Website are available. If you are looking for information on the lecture check out the lecture overview on the web for more detail. Also find out about any new announcements or changes to classes on the web.

Missed Classes: The student is responsible for obtaining material distributed on class days when he/she was absent. This can be done through contacting a classmate who was present or by contacting the instructor during his office hours or other times. Missed or late quizzes cannot be made up under any circumstances but with good cause and adequate notice, an early quiz may be given.

Assignments: All assignments are due at the beginning of class on the date due. Late submission of assignments will be assessed a penalty of 10% per day. No exceptions are made.

Academic Dishonesty: Plagiarism and cheating are serious offenses and may be punished by failure on exam or assignments; failure in course; and or expulsion from the University.

Need for Assistance: If you have any condition, such as a physical or learning disability, which will make it difficult for you to carry out the work as I have outlined it, or which will require academic accommodations, please notify the lecturer as soon as possible.

Course Schedule

•Tentative Timetable

Week	Main Contents	Materials/ references
1	Introduction, Course outline, What is multimedia	Lecture Note
2	Enabling technology and digitization/ Program exercise protocol	Lecture Note/ Chap. 1 (FM, DM) Chap.2 (DM)
3	Digitization (cont')/ Graphics and Image representation	Lecture Note/ Chap 3 (FM) chap 4,5 (DM)
4	Image	Lecture Note/ Chap 3,4. (FM) Chap. 6(DM)
5	Multimedia and Deep learning I	Lecture Note/ Chap 4. (FM) Chap. 6(DM)
6	Multimedia and Deep learning II	Lecture Note/ Chap. 5(FM) Chap. 7 (DM)
7	Color	Lecture Note/ Chap. 6 (FM) Chap. 9(DM)
8	Color (cont') / Mid-term exam.	
9	Video	Lecture Note/ Chap. 7,8 (FM)
10	3D TV/VR	Lecture Note/ Chap. 9 (FM)
11	Digital audio, Term project proposal	Lecture Note/ Chap. 10 (FM)
12	Audio representation /Transform and lossy compression	Lecture Note/ Chap. 11, 12 (FM)
13	Term project mid presentation	Lecture Note/ Chap. 13,14 (FM)
14	Video compression	Lecture Note/ Chap 15, 16(FM) Chap 17 (DM)
15	Trendy Multimedia application/Term project final presentation	all
16	Term project final presentation /Final exam.	

* Above schedule is subject to change.