**EE 5359 Multimedia processing**

**Spring 2012**

**Instructor:** Dr. K. R. Rao

**Office Number:** NH 530

**Office Telephone Number:** 817-272-3478

**Email Address:** [rao@uta.edu](mailto:rao@uta.edu)

**Office Hours:** Mon: 10:00-11:00 A.M, Wed: 3:00-4:00 P.M.

**Section Information:** EE 5359 001, 002

**Time and Place of Class Meetings:** T/TH 3:30–4:50 P.M., Room 109 NH

Prerequisite: graduate standing and EE 5350 or consent of instructor

Course

The course focuses on international standards related to image/video/audio formulated by ISO/IEC/ITU. Emphasis will be on the family of MPEG 1/2/4 (Moving Picture Experts Group), H.26x (x = 1, 2, 3), JPEG/JPEG-LS/JPEG2000 (Joint Photographic Experts Group), JBIG 1/2 (Joint Binary Image Group), H.264/MPEG-4 Part 10 AVC (Advanced Video Coding) and the emerging H.265 standard (HEVC). Other standards such as WMV-9 (Windows Media Video) of Microsoft and AVS China (Advanced Video Standard) and their similarities/differences with H.264 will also be presented, also audio coding AC3, AAC, AAC + SBR, G.72x–series, MPEG-1, 2, 4 audio. Course will be supplemented with ftp/web sites, software, standards documents, test sequences etc.

Industry worldwide is very active in developing products (software/hardware) based on these standards with emphasis on the latest standard H.264. Some of these are digital TV, HDTV, HD-DVD, set-top-box, handheld devices with multimedia capabilities, digital cameras, camcorders, electronic games, IPTV, video streaming, iPods etc. This explosive growth in consumer electronics provides opportunities for jobs, careers, etc.

References

O. Marques, “Practical image and video processing using MATLAB, Hoboken, NJ: Wiley, 2011.

Text

No required text book. Several files related to books, review papers, conference publications, standards documents, PPslides, software, conformance bit streams, research topics, databases etc will be available on line. Also projects presented during the previous semesters are posted online (proposals, project reports, PowerPoint slides etc.)

Grading

Several projects for implementing the various parts of the standards will be assigned to all students. These real world projects are challenging enabling the students to acquire the skills required to enter the industry. Each student is required to write a detailed written report on a specific standard and make a presentation before the class. No home work and no exam.

Grades are based on the student’s performance in the course  and nothing else. This includes tests/projects etc based on the grading formula  - all described in detail in the course web site. This format is universal and applies equally to all students.

Please do not ask

 1.       “I will do additional work/project etc to improve my course grade after the grades are assigned.”

2.       My GPA is low and I need an A to avoid probation etc.

3.       I must graduate this semester and the only way is to get grade A.

4.       My  grades in TPC are low and I need an A.

      5. Any other excuse.

Students are expected to keep track of their performance throughout the semester and seek guidance from available sources (including the instructor) if their performance drops below satisfactory levels.

**Make-up Exams**: None

**Grade Grievances**: It is the obligation of the student, in attempting to resolve any student grievance regarding grades, first to make a serious effort to resolve the matter with the instructor with whom the grievance originated. Individual instructors retain primary responsibility for assigning grades. The instructor's judgment is final unless compelling evidence shows preferential treatment or procedural irregularities. If students wish to appeal, their requests must be submitted in writing on an Academic Grievance Form available in departmental or program offices to the department chair or program director. Before considering a grievance, the department chair or program director will refer the issue to a departmental or program committee of graduate faculty. If the committee cannot reach a decision acceptable to the parties involved, the department chair or program director will issue a decision on the grievance. If students are dissatisfied with the chair or director's decision, they may appeal the case to the academic dean. If they are dissatisfied with the academic dean's decision, they may appeal it to the Dean of Graduate Studies. Students have one year from the day grades are posted to initiate a grievance concerning a grade.

**Drop Policy:** Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance**. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://wweb.uta.edu/ses/fao>).

**Americans with Disabilities Act:** The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at [www.uta.edu/disability](http://www.uta.edu/disability) or by calling the Office for Students with Disabilities at (817) 272-3364.

**Academic Integrity:**  All students enrolled in this course are expected to adhere to the UT Arlington Honor Code:

*I pledge, on my honor, to uphold UT Arlington’s tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*

*I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

Instructors may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents’ Rule* 50101, §2.2, suspected violations of university’s standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student’s suspension or expulsion from the University.

**Student Support Services**:UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may contact the Maverick Resource Hotline by calling 817-272-6107, sending a message to [resources@uta.edu](mailto:resources@uta.edu), or visiting [www.uta.edu/resources](http://www.uta.edu/resources).

**Electronic Communication:** UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

**Student Feedback Survey:**  At the end of each term, students enrolled in classes categorized as lecture, seminar, or laboratory will be asked to complete an online Student Feedback Survey (SFS) about the course and how it was taught. Instructions on how to access the SFS system will be sent directly to students through MavMail approximately 10 days before the end of the term. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback data is required by state law; student participation in the SFS program is voluntary.

**Librarian to Contact:**  Sylvia George-Williams

NH - B03D  
(817) - 272-7519

sylvia@uta.edu

**http://** [**www.uta.edu/library**](http://www.uta.edu/library)

For technical concerns

Engineering Television, UTA: Please contact [etv.problems@engineering.uta.edu](mailto:etv.problems@engineering.uta.edu)

Distance Education: Please contact Engineering Center for distance education (Room 242 Nedderman Hall) 817-272-5630, Donya: (phone: 1-817-272-2352 FAX: 1-817-272-5630, EMAIL: [drandolph@uta.edu](mailto:drandolph@uta.edu))

**Course Schedule:**

PROJECT PROPOSAL :

Due date: Tuesday, Feb 21 2012

Format: Presentation with PP slides.

INTERIM REPORT :

Due date: Thursday, Mar 22 2012

Format: Short Report and PP slides with preliminary results to be orally presented.

DRAFT of FINAL REPORT :

Due date: Thursday, Apr 26 2012

Format: Report containing a lot of figures, tables, graphs and references with ftp and websites should be submitted two weeks prior to final submission.

(This will give time to make changes/addition etc.)

FINAL PROJECT REPORT :

Due date: Thursday, May 3 2012

Format: Hardcopy & Softcopy of report and ppt slides submission, oral presentation with ppt slides.

*As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. –K. R. Rao.*