## Syllabus

**Course Title**: CSCE 590 Introduction to Image Processing
**Instructor**:     Ioannis Rekleitis,
                Storey Innovation Center
                Computer Science and Engineering
                Room 2235
                550 Assembly Street, Columbia, SC
                Email: yiannisr@cse.sc.edu

**Class meeting**:
           June 25 – August 2     MTWR 10:30 a.m. – 12:10 p.m.
           Final Exam standard time.

**Course Description**: Vision is one of the most powerful senses. Nowadays, every phone, tablet, or laptop ha a camera.  At the base of every vision system there is the image. In this course we will study the fundamentals of image processing. From image representations to basic operations this course will expand to the principal concepts behind most current image manipulation software.

**Course learning outcomes:**
- Develop the ability to work with different image formats
- Develop the ability to perform basic image manipulation operations
- Develop the programing skills in large projects involving MATLAB and C++ (MATLAB is available to all students for free).

**Prerequisites**:
CSCE 240.

**Required text(s):**
The required textbook: is:
- Digital Image Processing, Rafael C. Gonzalez and Richard E. Woods, 3rd Edition, Prentice Hall

Other texts include:
1. Digital Image Processing Using MATLAB, Rafael C. Gonzalez, Richard E. Woods, and Steven L. Eddins, 2nd Edition, Gatesmark Publishing, 2009

### Schedule, deliverables, and evaluation:

| Component | Undergraduate | Graduate |
|---|---|---|
| Assignments (4) | 12.5% | 12.5% |
| Graduate Assignments (4) | --- | 2.5% |
| Midterm Exam | 15% | 10% |
| Final Exam (standard time) | 30% | 25% |
| Class Participation | 5% | 5% |
| **Total** | **100%** | **100%** |

**Schedule**:
  Week 1>  Introduction to Images: binary, greyscale, color.
  Week 2>  Encodings, Point Operations, Histograms
  Week 3>   Operating with multiple images (Masks, Addition, Subtraction)
  Week 4>  Convolution, Smoothing, Edge Detection, Enhancing, Correlation
  Week 5>  Stereo, Optical Flow, Shape from X
  Week 6>  Features (Harris, SIFT, SURF), Advance topics

**Grading Scheme:**
>90% : A
>87% : B+
>80% : B
>77% : C+
>70% : C
>60% : D
<60% : F

**Graduate/Honor Grading Policy**:
Graduate and Honors student we will have an additional part on each assignment, which will count for ten percent of the marks. Failure to complete these parts will cost one letter grade.

**Academic Integrity**:
You are expected to practice the highest possible standards of academic integrity. Any deviation from this expectation will result in a minimum academic penalty of your failing the assignment, and will result in additional disciplinary measures. This includes improper citation of sources, using another student's work, and any other form of academic misrepresentation.

**Attendance Policy**:
When you miss class, you miss important information. If you are absent, you are responsible for learning material covered in class. If you are absent when an assignment is due, you must have submitted the assignment prior to the due date to receive credit. If you miss more than 20% of the classes, whether excused or unexcused, your grade will be dropped one letter grade.

**Accommodating Disability**:
Reasonable accommodations are available for students with a documented disability. If you have a disability and may need accommodations to fully participate in this class, contact the Office of Student Disability Services: 777-6142, TDD 777-6744, email sasds@mailbox.sc.edu, or stop by LeConte College Room 112A. All accommodations must be approved through the Office of Student Disability Services.

**Diversity**:
In order to learn, we must be open to the views of people different that ourselves. In this time we share together over the semester, please honor the uniqueness of your fellow classmates and appreciate the opportunity we have to learn from one another. Please respect each others' opinions and refrain from personal attacks or demeaning comments of any kind. Finally, remember to keep confidential all issues of a personal or professional nature that are discussed in class.