ECE 8220 – Digital Image Processing
COURSE OUTLINE – WINTER 2015

COURSE DESCRIPTION:
Study of digital camera images in terms of image structures, visual patterns and the application of topological methods, recognizing patterns in digital images and classifying digital images.

COURSE OBJECTIVE:
The main objective of this course is to investigate digital camera images using standard digital image processing methods, identifying image structures, feature (colour, shape, and texture) extraction, and topological methods that facilitate digital image-based pattern recognition, image classification, and image understanding.

PRE-REQUISITES: ECE 4440 or equivalent desirable.

CONTACT HOURS: 3

COURSE CONTENT:
Study of digital image structures and visual patterns arising from sets of pixels, image covers, linear filtering, edges, lines, ridges, corners, proximity, segmentation, separation of image regions, component analysis, moments, shapes, covering uniformity, texture, classification and feature spaces, dense subsets in digital images, digital image proximity spaces.

HOMEWORK: Bi-weekly assignments.

TEXTBOOK:
J.F. Peters, 8220 course notes.

EVALUATION:
Your final course grade is determined by your performance in assignments, term test, and a final examination. The weighting of each of these components is as follows:

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<th>COMPONENT</th>
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<th>TOTAL VALUE</th>
<th>DETAILS / ADDITIONAL INFO</th>
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<td>Seminars</td>
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<td>Homework/Assignments</td>
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<td>Project</td>
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<td>Final Examination</td>
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INSTRUCTOR INFO:
Name: James F. Peters
Office: E1-530
Tel: 204 474 9755
Email: james.peters3@ad.umanitoba.ca

Office Hours: By appointment

VOLUNTARY WITHDRAW:
Thursday, Mar. 19, 2015

REQUIREMENTS/REGULATIONS

- Student Responsibilities: It is the responsibility of each student to contact the instructor if he/she is uncertain about his/her standing in the course and about his or her potential for receiving a failing grade. Students should also familiarize themselves with Sections 4 and 6 of the Regulations dealing with incomplete term work, deferred examinations, and attendance and withdrawal.
  - Lectures: Attendance at lectures is essential for successful completion of this course. Students must satisfy each evaluation component in the course.

ACADEMIC INTEGRITY:

Students are expected to conduct themselves in accordance with the highest ethical standards of the Profession of Engineering and evince academic integrity in all their pursuits and activities at the university. As such, in accordance with the General Academic Regulations and Requirements of the University of Manitoba, Section 7.1, students are reminded that plagiarism* or any other form of cheating is subject to serious academic penalty (e.g. suspension or expulsion from the faculty or university) regardless of media
  - examinations
  - assignments
  - laboratory reports
  - term exams

A student found guilty of contributing to cheating in examinations or term assignments is also subject to serious academic penalty

*Plagiarism: to steal and pass off (the ideas or words of another) as one's own; use (another's production) without crediting the source