WINTER 2019

ECE 8300 – Computer Vision

COURSE DESCRIPTION:

Study of techniques in the computational geometry of shape detection, analysis and classification.

COURSE OBJECTIVE:

The main objective of this course is to investigate the geometry of shapes in digital images tessellation and triangulation techniques.

PRE-REQUISITES:

ECE 4440 or equivalent desirable

CONTACT HOURS:

3-hours per week

COURSE CONTENT:

Study of the detection, analysis and classification of shapes in digital images using computational geometry.

HOMEWORK:

Homework will consist of assignments and an end-of-term presentation of sample findings.

TEXTBOOK:

- J.F. Peters, Computational Geometry and Topology of Digital Images. Shape Complexes, Optical Vortex Nerves and Proximities, Intelligent Systems Reference Library, Springer 2019.
- J.F. Peters, 8300 course notes.
- R.C. Gonzalez, R.E. Woods, Digital Image Processing, 3rd Ed., Pearson Prentice-Hall, NY, 2008 (recommended).
- M. Sonka, V. Hlavac, R. Boyle, Image Processing, Analysis, and Machine Vision, Cengage, 2008 (recommended).
- C. Solomon, T. Breckon, Fundamentals of Digital Image Processing. A Practical Approach with Examples in Matlab,
- Wiley-Blackwell, 2011 (recommended).

EVALUATION:

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

COMPONENT	NO	VALUE %	TOTAL VALUE	DETAILS / ADDITIONAL INFO
Seminars	1	0%	0	
Assignments	4	10%	40%	
Project	1	10%	10%	
Final Examination	1	50%	50%	
TOTAL			100	

INSTRUCTOR INFO:

Name:..... James F. Peters
Office:..... E1-530 EITC
Email:..... james.peters3@umanitoba.ca

Office Hours: ..... By appointment

VOLUNTARY WITHDRAW:

Wednesday, 20 March 2019

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 his/her potential for receiving a failing grade. Students should also familiarize themselves with Sections 4 and 6 of the Regulations dealing with, among others, incomplete term work, deferred examinations, attendance and withdrawal, etc..

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

Please refer any questions regarding Academic Integrity to your course instructor.

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