

DEPARTMENT OF SCIENCE

COURSE OUTLINE – WINTER 2014

CS3060 - INTRODUCTION TO DIGITAL IMAGE PROCESSING - 3 (3-0-3) 90 HOURS

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OFFICE HOURS:	ТВА		

PREREQUISITE(S)/COREQUISITE: CS2010

REQUIRED TEXT/RESOURCE MATERIALS:

Digital Image Processing Third Edition Rafael C. Gonzalez Richard E. Woods Prentice Hall

CALENDAR DESCRIPTION:

Introduction, history, and applications of image processing; scanning and quantization; visual perception; output devices; pattern recognition; feature extraction; decision theory; classification rules; data representation and formats; image enhancement and restoration; edge detection; segmentation and texture; correlation and registration.

CREDIT/CONTACT HOURS: 3 (3-0-3) 90 Hours

DELIVERY MODE(S): In class lecture

OBJECTIVES (OPTIONAL):

TRANSFERABILITY: University of Alberta, University of Calgary, University of

Lethbridge, Athabasca University

GRADING CRITERIA:

** Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions.

GRANDE PRAIRIE REGIONAL COLLEGE						
GRADING CONVERSION CHART						
Alpha Grade	4-point	Percentage	Designation			
	Equivalent	Guidelines	Designation			
A ⁺	4.0	90 - 100	EXCELLENT			
Α	4.0	85 – 89				
A	3.7	80 - 84	FIRST CLASS STANDING			
B⁺	3.3	77 – 79				
В	3.0	73 – 76	6000			
B⁻	2.7	70 – 72	0000			
C⁺	2.3	67 – 69	SATISFACTORY			
С	2.0	63 - 66				
C⁻	1.7	60 - 62				
D^{+}	1.3	55 – 59	MINIMAL PASS			
D	1.0	50 – 54				
F	0.0	0 – 49	FAIL			
WF	0.0	0	FAIL, withdrawal after the deadline			

Students are cautioned that it is their responsibility to contact the receiving institutions to ensure

transferability

EVALUATIONS:

Lab Assignments	:	32%
Midterm I	:	17%
Midterm II	:	17%
Final	:	34%

STUDENT RESPONSIBILITIES:

The Student must pass the theory/concepts portion of the course in order to obtain a passing grade for the term. In other words, a student must obtain 34 out of a possible 68 points from the exam components only, lab assignments are not counted.

STATEMENT ON PLAGIARISM AND CHEATING:

Refer to the Student Conduct section of the College Admission Guide at

http://www.gprc.ab.ca/programs/calendar/ or the College Policy on Student Misconduct: Plagiarism and Cheating at www.gprc.ab.ca/about/administration/policies/**

**Note: all Academic and Administrative policies are available on the same page.

COURSE SCHEDULE/TENTATIVE TIMELINE:

Image Fundamentals:

visual perception, sampling and quantization,

pixel relations and imaging geometry

Image Transforms:

Fourier transforms, Hough Transforms, Wavelets

Image Enhancement:

histogram-modification techniques, smoothing and sharpening, pseudo-color

Image Restoration:

algebraic approach, inverse filtering, geometric transformations

Image Compression:

encoding process and criteria, lossless and lossy compression

Image Segmentation:

thresholding, edge detection, boundary following, region growing, motion detection; Image Description:

chain codes, shape descriptors, morphology

Pattern recognition:

decision rules, clustering