

**159731**

**Studies in Computer Vision**

**Course and Assessment Guide**

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Computer Science  
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**S1 - 2020**

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# The paper Prescription

Selected advanced topics including: low level digital image processing, image processing, image transforms, pattern recognition.

Pre/co requisites: Graduate Status and Permission AD

## Learning outcomes

On successful completion a student should be able to:

1. Describe the Digital Image Processing principles and concepts.
2. Apply these principles/concepts on real world problems.
3. Write computer programs that implement solutions to these problems.

## Study resources

### Study guide

A Study guide is provided to you as a supporting material for this course. The study guide presents the topics in more details than the slides. At the end of each chapter, there are extra reading and supplementary exercises that can be completed by the students on their own time.

### Textbooks

*Recommended reading*

"Digital Image Processing" by R.C. Gonzalez and R.E. Woods, third edition, Prentice Hall

## Stream: Your online learning environment

Stream contains material that can be downloaded to your private computer:

- The study guide (pdf)
- The slides (pdf) and a printable version of the slides in 6 slides per page (pdf).
- Sample codes in C and C++ that can be used as supplementary material for the exercises and assignments
- The assignment proposals, sample code that can be used as a starting point for each assignment, and input examples for you to test your assignment solution.
- Links to useful web sites in computer vision and image processing

## Contacting your lecturer:

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## How to approach your study

Each week covers a specific set of data structures and/or algorithms. You benefit if you do:

- Attend lectures and tutorials.
- Read the study guide chapters that refer to the topics presented on that week.
- Complete the proposed exercises at the end of each chapter.
- Complete the assignments on time. The tutorials contain important clues that help with the completion of the assignments.

## Suggested study schedule

This is a 15 credit paper. The following table gives a breakdown of how I envisage you allocating your study time. Although the workload varies a little from week to week, you should allocate about 12.5 hours per week over the semester. If you are aiming for an A pass you may need to spend more time.

Formal schedule learning (lectures)	24 hours
Assignment preparation and coding	45 hours
Exercises and supplementary reading	36 hours
Mini-project/Seminar preparation	45 hours
<b>TOTAL</b>	<b>150 hours</b>

### Semester 1 2017

Date	Weeks	Topic	Text/Readings
25/Feb	1	Introduction to Computer Vision	slides
3/March	2	Digital Image Fundamentals	Chapter 1
10/March	3	OpenCV (programming guide in Computer Vision	Chapter 2
17/March	4	Intensity and Affine Transformations	Chapter 3
24?march	5	Feature Detection	Chapter 4
31/March	6	Colour Processing	Chapter 5
6/April	MID SEMESTER BREAK		
to 17/April			
21/April	7	Image Compression	Chapter 6

28/April	8	Video Processing	Chapter 7
5/May	9	Object Recognition	Chapter 8
12/May	10	Frequency Domain + <i>presentations</i>	Chapter 9
19/May	11	Omnidirectional/calibration + <i>presentations</i>	Chapter 10/11
26/May	12	<i>Presentations</i> + <i>TEST</i>	
26 May	TEST: 26 May		

## Assessment

Assessment Description	Learning Outcomes Assessed			Contribution to Paper Mark
Assessment	1	2	3	
Assignment 1	✓	✓	✓	10.00%
Assignment 2	✓	✓	✓	10.00%
Assignment 3	✓	✓	✓	10.00%
Mini-project/report	✓	✓	✓	40.00%
Test	✓	✓		30.00%

Assessment	Due Date / Deadline	Late Penalty	Mandatory for completion
Assignment 1	12/06/20	10%/day	
Assignment 2	12/06/20	10%/day	
Assignment 3	12/06/20	10%/day	
Seminar/report	19/06/20	10%/day	yes
Test	26/05/20	n/a	yes

## Requirements for completing the paper

To complete this paper you will need to attend the Test and present a seminar related to the mini-project (both are compulsory). You also need to achieve an average value of at least 50% of the sum of the assessment items.

## Assignment submission

Assignments have to be submitted on the due date, if submitted late there is a 10% a day penalty.

## Academic integrity

It is mandatory that any assessment items that you submit during your University study are your own work. Massey University takes a firm stance on academic misconduct, such as plagiarism and any form of cheating.

Plagiarism is the copying or paraphrasing of another person's work, whether published or unpublished, without clearly acknowledging it. It includes copying the work of other students and reusing work previously submitted by yourself for another paper.

Plagiarism, and cheating in tests and exams will be penalised; it is likely to lead to loss of marks for that item of assessment and may lead to an automatic failing grade for the paper and/or exclusion from reenrolment at the University.

Please see the *Academic Integrity Guide for Students* on the University website for more information. The Guide steps you through the University Academic Integrity Policy and Procedures. For example you will find definitions of academic integrity misconduct, such as plagiarism; how misconduct is determined and managed; and where to find resources and assistance to help develop the skills of academic writing, exam preparation and time management. These skills will help you approach university study with academic integrity.

## Conditions for aegrotat pass and impaired performance

If you are prevented by illness, injury or serious crisis from attending a compulsory learning experience, an examination or completing an element of assessment (worth 10% or more) by the due date, or if you consider that your performance has been seriously impaired by such circumstances, you may apply for aegrotat or impaired performance consideration. You must apply on the Aegrotat & Impaired Performance Application form available from the Massey University website. The completed form must be accompanied by a certificate signed by a health professional, and/or corroborating evidence.

## Queries about final grades

Each qualification is managed by a Programme Committee and the Chair of the Programme Committee, the Programme Director/Leader, is the chief examiner for that qualification. Although each Paper Coordinator is the examiner for the paper they coordinate, overall responsibility is with the Programme Director. The Programme Director/Leader ensures the processes have been followed, but accomplishes this through the examinations section of our Student Administration Unit. If you are not happy with the grade you are given, then you should, in the first instance, contact Student Administration about that. They will then ensure your complaint is followed up and a response provided.

## Grievance procedures

A student who claims that he/she has sustained academic disadvantage as a result of the actions of a University staff member should use the University Grievance Procedures. Students, whenever practicable, should in the first instance approach the University staff member concerned. If the grievance is unresolved with the staff member concerned, the student should then contact the relevant Head of Institute/School/Department or College office for further information on the procedures. The procedures can be found on the University website in the University Calendar.