

Module Code	EE5M08/EEU44C08
Module Name	Digital Image and Video Processing
ECTS Weighting¹	5 ECTS
Semester taught	Semester 2
Module Coordinator/s	Assistant Professor François Pitié
Module Learning Outcomes with reference to the Graduate Attributes and how they are developed in discipline	<p>On successful completion of this module, students should be able to:</p> <ol style="list-style-type: none"> 1. Describe the elements of current media formats; 2. Describe the building blocks of compression systems and select processing modules to enable efficient compression; 3. Use Matlab to perform fundamental image processing applications such as image filtering; 4. Use Matlab to perform video processing applications such as motion estimation; <p>Graduate Attributes: levels of attainment</p> <p>To act responsibly - Introduced</p> <p>To think independently - Attained</p> <p>To develop continuously - Enhanced</p> <p>To communicate effectively - Attained</p>
Module Content	<p>The Digital Image and Video Processing module develops the concepts learned in Signal Processing and Information Theory and applies them to images and video. Image and Video Processing is the basis of all digital media technology and is an active area of research over a wide range of applications such as Compression and Medical Image Analysis. The course features an introduction to digital image/video processing algorithms that form the core of digital media technology. There is a particular emphasis placed on the issues pertaining to the coding (compression) of both images and videos. At the end of this module students should have a basic knowledge of JPEG, MPEGx, Motion Estimation and other well-established image/video processing applications. The students should also be able to implement and test the algorithms in software.</p>
Teaching and Learning Methods	<p>The teaching strategy for this module is a mixture of lectures, problem-solving laboratories and interactive class demonstrations. There are 4 assignments to be undertaken throughout the course that complement</p>

¹ [TEP Glossary](#)

	the material covered in the lectures and are designed to deepen understanding of the course material. The assignments are MATLAB based. All lecture material can be accessed online and lectures are recorded.							
Assessment Details² Please include the following: <ul style="list-style-type: none">• Assessment Component• Assessment description• Learning Outcome(s) addressed• % of total• Assessment due date	Assessment Component	Assessment Description	LO Addressed	% of total	Week due			
	Exam	End of Year Exam, 2 hours in-person	All	75%	End of Year			
	CA	Continuous Assessment (Lab Work + Design Problem)	LO 3,4	25%	Spaced over Semester			
Reassessment Requirements	100% based on exam							
Contact Hours and Indicative Student Workload²	<table><tr><td>Contact hours: 55</td></tr><tr><td>Independent Study (preparation for course and review of materials): 30 hours</td></tr><tr><td>Independent Study (preparation for assessment, incl. completion of assessment): 40 hours</td></tr></table>					Contact hours: 55	Independent Study (preparation for course and review of materials): 30 hours	Independent Study (preparation for assessment, incl. completion of assessment): 40 hours
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Recommended Reading List	<ul style="list-style-type: none">• Digital Image Processing. Gonzalez and Woods. Prentice Hall (a good general purpose image processing textbook)• JPEG: Still Image Processing Standard. Pennebaker and Mitchell. Van Nostrand Reinhold. (a reference for JPEG)• Digital Video: An Introduction to MPEG2. Haskell, Puri and Netravali. Chapman and Hall (a reference for MPEG2)• Two Dimensional Image Processing, J Lim, Prentice Hall (for 2D signal processing)							
Module Pre-requisite	EE4C05/5C05 Digital Signal Processing (or equivalent)							
Module Co-requisite								
Module Website	https://frcs.github.io/4C8							

² [TEP Guidelines on Workload and Assessment](#)

Are other Schools/Departments involved in the delivery of this module? If yes, please provide details.

No

Module Approval Date

Approved by

Prof. Naomi Harte

Academic Start Year

September 2025

Academic Year of Date

2025/2026