Course Catalogue

Module Code	Semester	ECTS	SWS	Lecture	Tutorial	Lab
MECH-B-5-MRV-IMP-ILV	5	5	4	4	0	0
Course Name	Drive Systems					
Lecturer	D. T. McGuiness, Ph.D (Daniel.McGuiness@mci.edu) (4A-434c)					
Study Programme	Mechatronik Design Innovation					
Official Name	Image Processing			**Course Language**	English	
Lecture Prerequisites	The student should be comfortable with working with physical problems and have a basic understanding of material science along with calculus.					
Course Objectives	The goal of this lecture is to introduce you to image processing and its wide applications in industry We shall have a wide focus on the technologies and the methods which make image processing an essential discipline for engineers. The structure for this lecture is as follows.					
Primary Course Content	Lecture Homepage on GitHub | WebBook					
Secondary Course Content(s)	*Fundamentals of Image Processing* by Young I, *Computer Vision: Algorithms and Applications* by Szelisk R, *Feature Extraction and Image Processing for Computer Vision* by Nixon M. et., al, *Digital Image Processing* by Gonzalez R, *The Complete Guide to Industrial Camera Lenses* by Teledyne Lumener,					
Homework(s) and Project(s)	Personal Assignment (40) | Final Exam (60)					
Assessment Criteria	**Assignment Type**			**Effect**	**Count**	
	Personal Assignment			40		
	Final Exam			60		
	Sum			100		

Lecture Structure

Order	Topic	Units	Self Study
1	Mathematical Fundamentals	4	8
2	Perception	4	8
3	Camera	4	8
4	Image Formats	4	8
5	Cameras	4	8
6	Optics	4	8
7	Displays	2	4
8	Noise	4	8
9	Histogram Operations	4	8
10	Morphological Operations	4	8
11	Blurring Filters	2	4
12	Edge Detection	4	8
13	Convolutional Neural Networks - I	4	8
14	Convolutional Neural Networks - II	4	8
15	Convolutional Neural Networks - III	2	4
16	Project Showcase - I	4	8
17	Project Showcase - II	2	4
18	SUM	60	120

- Any major announcements will be made on SAKAI regarding any possible date/content/structural changes for the assignment(s), exam(s).
- Any lecture material will be posted at the lectures corresponding GitHub home-page. The link will be present on the lectures SAKAI homepage.
- If there are any questions regarding course content/exams/assignments please do not refrain from contacting me (Daniel.McGuiness@mci.edu).