

<b>Course</b>	<b>Course Name</b> : <b>Digital Image Processing</b>
	<b>Course Code</b> : <b>KM184723</b>
	<b>Credit</b> : <b>2</b>
	<b>Semester</b> : <b>7</b>

<b>Description of Course</b>	
Image processing is a subject that contains the basic concept of digital image processing and basic algorithms for image processing. Image processing techniques include enhancement, restoration, segmentation, image compression and mathematics morphology. In addition to this course will also discuss about the science of mathematics used for image processing, the Fourier transformation, and morphological mathematics.	
<b>Learning Outcome</b>	
ELO 6	[C4] Able to illustrate the framework of mathematical thinking in particular areas such as analysis, algebra, modeling, system optimization and computing science to solve real problems, mainly in the areas of environment, marine, energy and information technology.
ELO 7	[C5] Able to explain ideas and knowledge in mathematics and other fields to the society, in similar professional organizations or others.
ELO 8	[C5] Able to choose decisions and alternative solutions using data and information analysis based on an attitude of leadership, creativity and have high integrity in completing work individually or in a team
<b>Course Learning Outcome</b>	
1. Able to understand the concept and basic techniques of image processing. 2. Able to understand the fundamental algorithm and how to implement it with programming language. 3. Be able to apply the concept for more complex image processing applications individually or in groups.	
<b>Main Subject</b>	

<ol style="list-style-type: none"> <li>1. The basic concept of image processing.</li> <li>2. Image enhancement with spatial filtering.</li> <li>3. Image enhancement in the frequency domain.</li> <li>4. Restoration and image reconstruction (image restoration).</li> <li>5. Morphological image processing.</li> <li>6. Image segmentation (image segmentation).</li> <li>7. Color image processing.</li> <li>8. Image compression.</li> </ol>
<b>Prerequisites</b>
Object Oriented Programming. Elementary Linear Algebra.
<b>Reference</b>
<ol style="list-style-type: none"> <li>1. R. C. Gonzalez and R. E. Woods, “<i>Digital Image Processing</i>”, Third Edition, Pearson, 2008.</li> <li>2. John C. Russ, “<i>The Image Processing Handbook</i>”, Sixth Edition, CRC Press, 2011.</li> </ol>
<b>Supporting Reference</b>
<ol style="list-style-type: none"> <li>1. Gonzalez, Woods, and Eddins, “<i>Digital Image Processing Using MATLAB (DIPUM)</i>”, Prentice Hall, 1<sup>st</sup> Edition , 2004</li> </ol>