Department of Mathematics
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Course	**Course Name**	**: Digital Image Processing**
	Course Code	**: KM184723**
	Credit	**: 2**
	Semester	**: 7**

Description of Course
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 transfromasi, and morphological mathematics.

Learning Outcome	
PLO 3	[C4] Students are able to analyze simple and practical problems in at least one field of analysis, algebra, modeling, system optimizations and computing sciences
PLO 4	[C5] Students are able to work on a simple and clearly defined scientific task and explain the results, both written and verbally either on the area of pure mathematics or applied mathematics or computing sciences
PLO 5	[C3] Students are able to make use of the principles of long life learning to improve knowledge and current issues on mathematics

Course Learning Outcome
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.
Main Subject
1. The basic concept of image processing 2. Image enhancement with spatial filtering 3. Image enhancement in the frequency domain 4. Restoration and image reconstruction (image restoration) 5. Morphological image processing 6. Image segmentation (image segmentation) 7. Color image processing 8. Image compression
Prerequisites
Object Oriented Programming Linear Algebra Elementer
Reference
1. R. C. Gonzalez and R. E. Woods, “Digital Image Processing”, Third Edition, Pearson, 2008 2. John C. Russ, “The Image Processing Handbook”, Sixth Edition, CRC Press, 2011.
Supporting Reference
1. *Gonzalez, Woods, and Eddins, “Digital Image Processing Using MATLAB (DIPUM)",* Prentice Hall, 1st edition , 2004