

Course Code CSC403

**Pre-Requisite** 

CSC102

**Course Name** Digital Image Processing

Year of Study 4<sup>th</sup> / 7<sup>th</sup>

Level of Course BSc/1st Cycle

**Course Type** 

Compulsory

ECTS Credit 5

**Language of Instruction** English

Mode of Delivery On Campus

# **Course Objectives:**

The aim of the course is to introduce students to the basic principles of digital image processing, algorithms and its applications

## **Learning Outcomes:**

Upon completion of the course, students will be able to:

- Understand the characteristics of digital images and general signal processing techniques in images
- Choose the appropriate algorithms to perform various processes in digital images
- Implement various processes in digital images using the programming language C/Matlab
- Solve problems by designing their own algorithms.

#### **Teaching Methodology:**

Lectures 42 hours

Labs 30 hours

### **Course Content**

Dedicated sampling and quantification of sequences

Save and retrieve image files in popular formats

Image Enhancement - Volume Transformations

Filtering in the field and frequency

Fourier Transform (2D)

Interpolation and image resampling

Geometric image processing

Identify and subdivide image textures

Representation and processing of color images

Morphological image processing

Restore images and reconstruct image from views

Image compression

## **Assessment Methods:**

Final Exam

Mid-Term/Lab Exam

Assignments

# **Required Textbooks/Reading:**

Title	Author(s)	Publisher	Year
Digital Image Processing	R. Gonzalez and R.	Pearson	2018
	Woods		
FPGA-based implementation of Signal	John Wiley	Woods	2017
Processing Systems			