October 24, 2025

EE 4065 – Embedded Digital Image Processing
Homework 1

Due: November 7, 2025. 23:59 pm

- Form a GitHub repository for the course with your course partner. Do not share it with your friends.
- You will post your homework documents (report, codes, results) via this repository for grading.

Q1-) (40 points) Use the available code in the repository below (with appropriate modifications) for this question.

https://www.dropbox.com/scl/fi/16yvqgqonjd89ucfgntrs/Embedded-System-Design-with-Arm-Cortex-M-Microcontrollers-supplementary_material_zipped.rar?rlkey=flp9fefjly9jshi4ll8uyp3mz&dl=0

a- Form a grayscale image of your choice with appropriate size on PC. Store it as a header file. Then, add this header file to your new project and display some of the image entries in the memory of your microcontroller.

Q2-) (60 points) Apply the intensity transformations below to your image.

a- Negative image.
b- Thresholding the image
c- Gamma correction with gamma being 3 and 1/3.
d- Piecewise linear transformations for the part in b.

Check and your results by observing memory locations via the memory window under STM32CubeIDE.