

Instructions

- a) All plots/graphs should have suitable title, labels, axis scaling and (legends if any).
- b) Use “Publish” command of MATLAB to generate the pdf file inclusive of code and output figures. **Section 1 of the MATLAB code should contain Author’s name and ID number.**
- c) Refer to following link for using publish command -
<https://in.mathworks.com/videos/publishing-matlab-code-from-the-editor-101570.html>
- d) If you have report generator tool available, then you can make use of the same for report generation in MATLAB.

Lab Assignment -2

This assignment consists of 2 experiments to be performed as follows. Prepare a single MATLAB file (.m script) with sections named as “Experiment-1” and “Experiment-2”. All the user-defined functions should be included in the file (after the code of experiments). Use publish command to make the automated report. Name the file of lab session 2 as

L2_201#A#PS####G.pdf

Experiment-1) Consider the following signal.

$$x(n) = u(n-1) + \delta(n+1) \quad -2 \leq n \leq 2$$

Using the user-defined functions discussed in the session (and provided in the manual), find and plot the following signals. Make a grid of 3 rows and 1 column. Row 1 – Signal 1, Row 2- Signal 2 and Row 3 –Signal 3.

1. $x(-n)$
2. $x(n-2)$
3. $x(n) + x(-n)$

Experiment -2) Make a new **user-defined function** for finding cross-correlation of two sequences. Take the finite length sequences from user (use input command.) Plot the sequences using 3 rows and 1 column using subplot. Row 1- user input 1, Row 2- user input 2 and row 3 – Cross-correlation output sequence. Consider that user enters sequences of equal length.

Use the following formula, without the scaling.

$$r_{xy}[l] = \sum_{n=-\infty}^{\infty} x[n]y[n-l], \quad l = 0, \pm 1, \pm 2, \dots$$

Hint – You can explore the similarity between convolution and correlation. But you can not use the built-in function “conv” directly in your function.