**REPORT**

Zajęcia: Analog and digital electronic circuits

Teacher: prof. dr hab. Vasyl Martsenyuk

**Lab 1 and 2**

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**Topic:** Spectral Analysis of Deterministic Signals

**Variant 15**

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# 1. Problem statement:

The aim of the task is to synthesize a discrete-time signal using the Inverse Discrete Fourier Transform (IDFT) for the signal:

xmu = [6, 2, 4, 4, 4, 5, 0, 0, 0, 0].

A key aspect is the correct construction of the IDFT matrix.

1. Build the Fourier matrix WWW and index matrix KKK needed for DFT and IDFT.
2. Use matrix notation to compute the IDFT and reconstruct the time-domain signal.
3. Display the matrices WWW and KKK for verification.
4. Plot the reconstructed signal, showing its real and imaginary parts, and check its accuracy.

# 2. Input data:

**???????????????????????????????**

# 3. Commands used (or GUI):

## a) source code

## b) screenshots

## c) Link to remote repozytorium

# 4. Outcomes:

Results from console, screenshots etc.

# 5. Conclusions

For the reasons given, we conclude that ????????????