Al-Mustaqbal University College
Department of Medical Instrumentation Techniques Engineering
Class:3^{td}
Subject: Medical Communication lab.
Lecturer: Asst. Lect. Mays Khalid
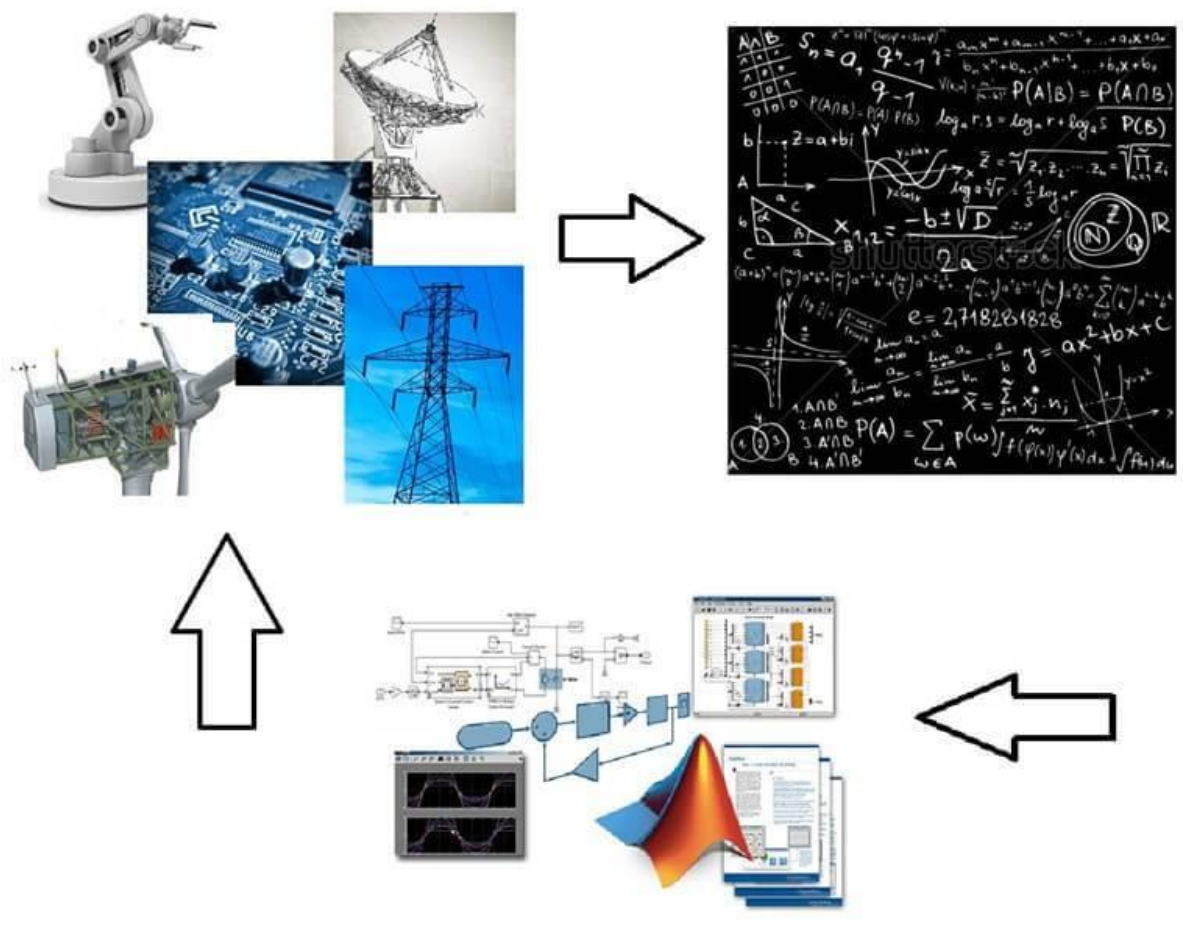Lecture: 1

What is MATLAB ?

MATLAB® **is a programming platform designed specifically for engineers** and scientists ==to analyze and design systems== and products that transform our world. The heart of MATLAB is the MATLAB language, a matrix-based language allowing the most natural expression of computational mathematics.

What Can I Do With MATLAB?

- Analyze data
- Develop algorithms
- Create models and applications

MATLAB lets you take your ideas from research to production by deploying to enterprise applications and embedded devices, as well as integrating with Simulink® and Model-Based Design.

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What is Simulink?

Simulink is a block diagram environment used to design systems with multidomain models, simulate before moving to hardware, and deploy without writing code.

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Why MATLAB and Simulink for Communications?

Leading engineering teams use MATLAB and Simulink to develop new 5G radio access technologies. You can simulate, analyze and test 5G, Wi-Fi, LTE, Bluetooth, satellite navigation, and communication systems and networks. Also, you can:

- Jointly optimize your digital, RF, and antenna components and models, improving your end-to-end system performance
- Optimize system components using machine learning, deep learning, or reinforcement learning techniques
- Design massive MIMO, millimeter-wave, and beamforming systems using antenna and antenna arrays
- Assess real-world wireless network performance and metrics on maps using indoor and outdoor propagation scenarios and channel models
- Automatically generate HDL or C code for prototyping and verify systems under test with over-the-air testing

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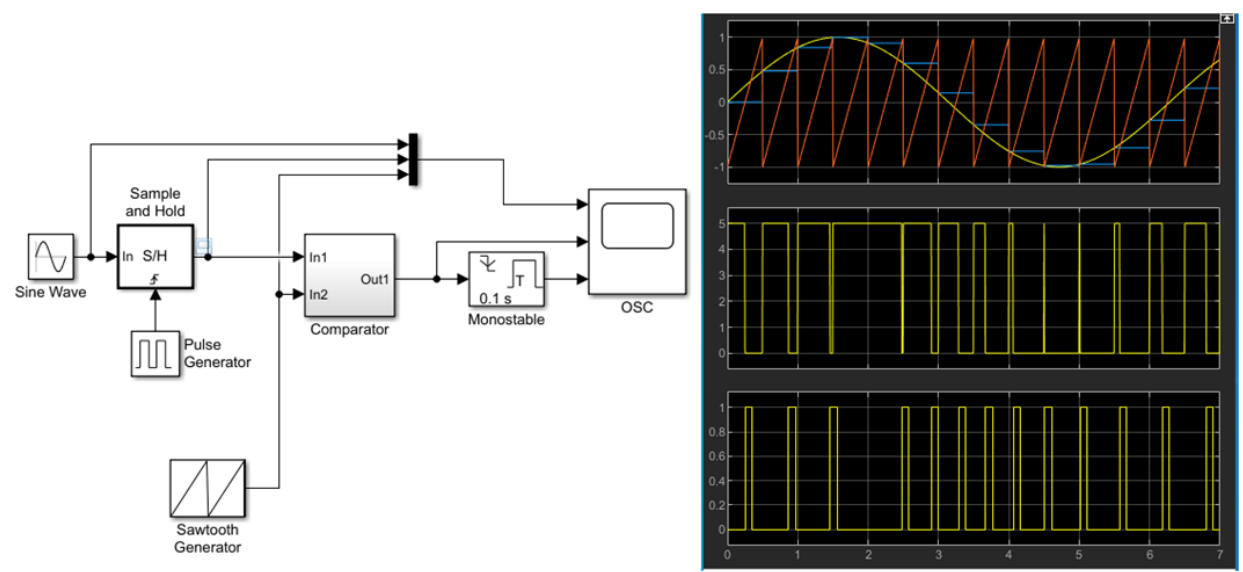## Examples :

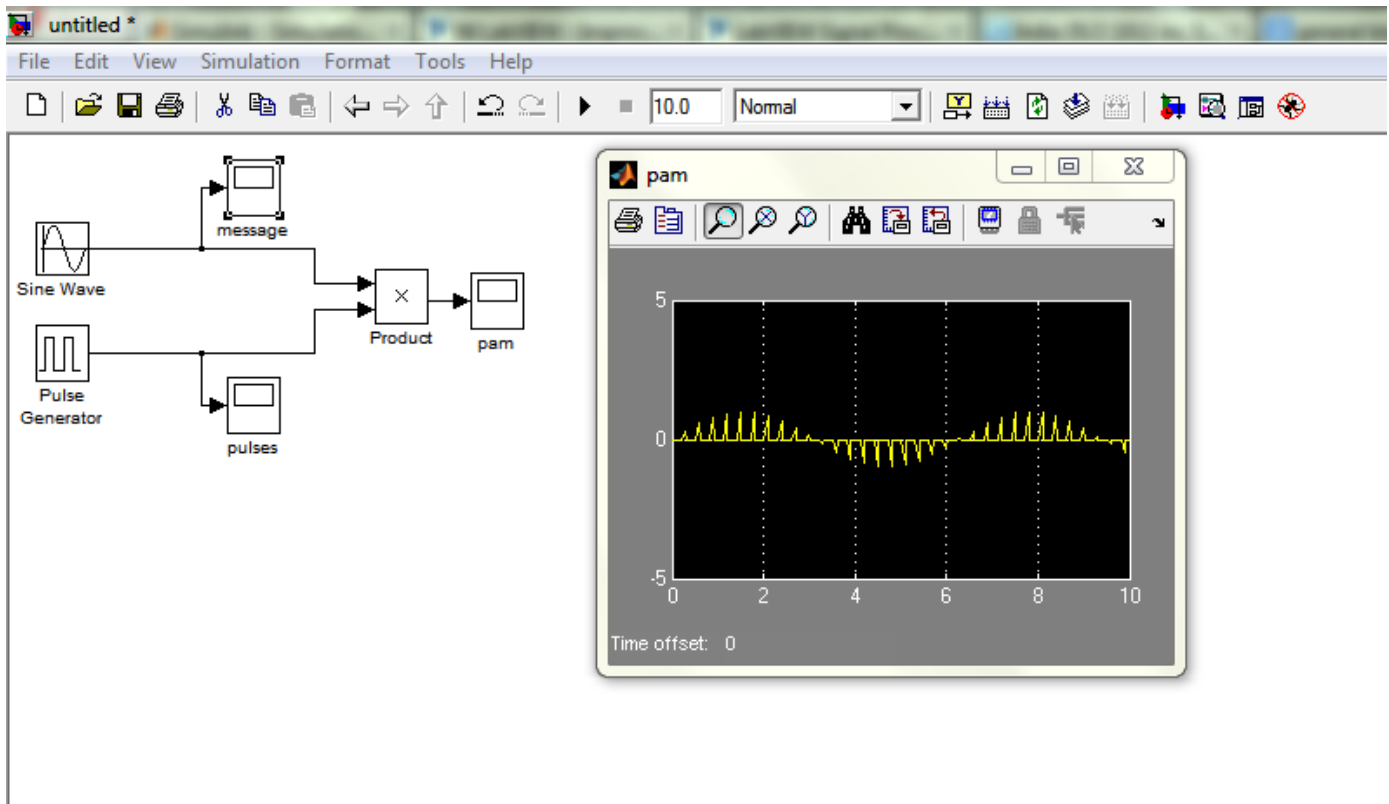
FM modulator, using direct method, using Simulink

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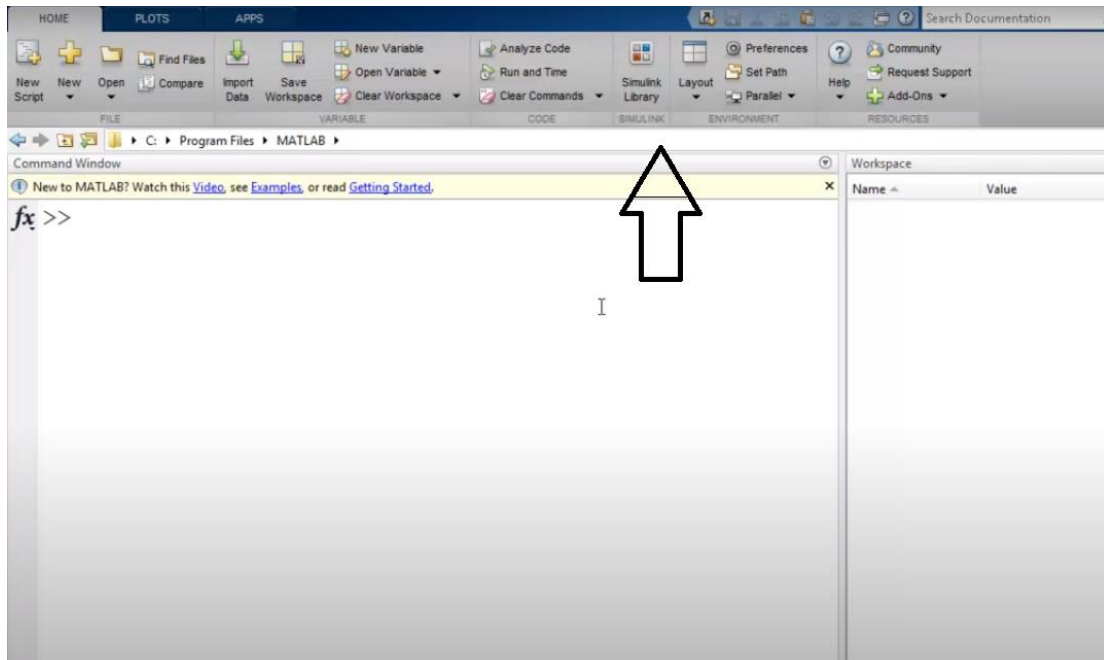Lecture: 1

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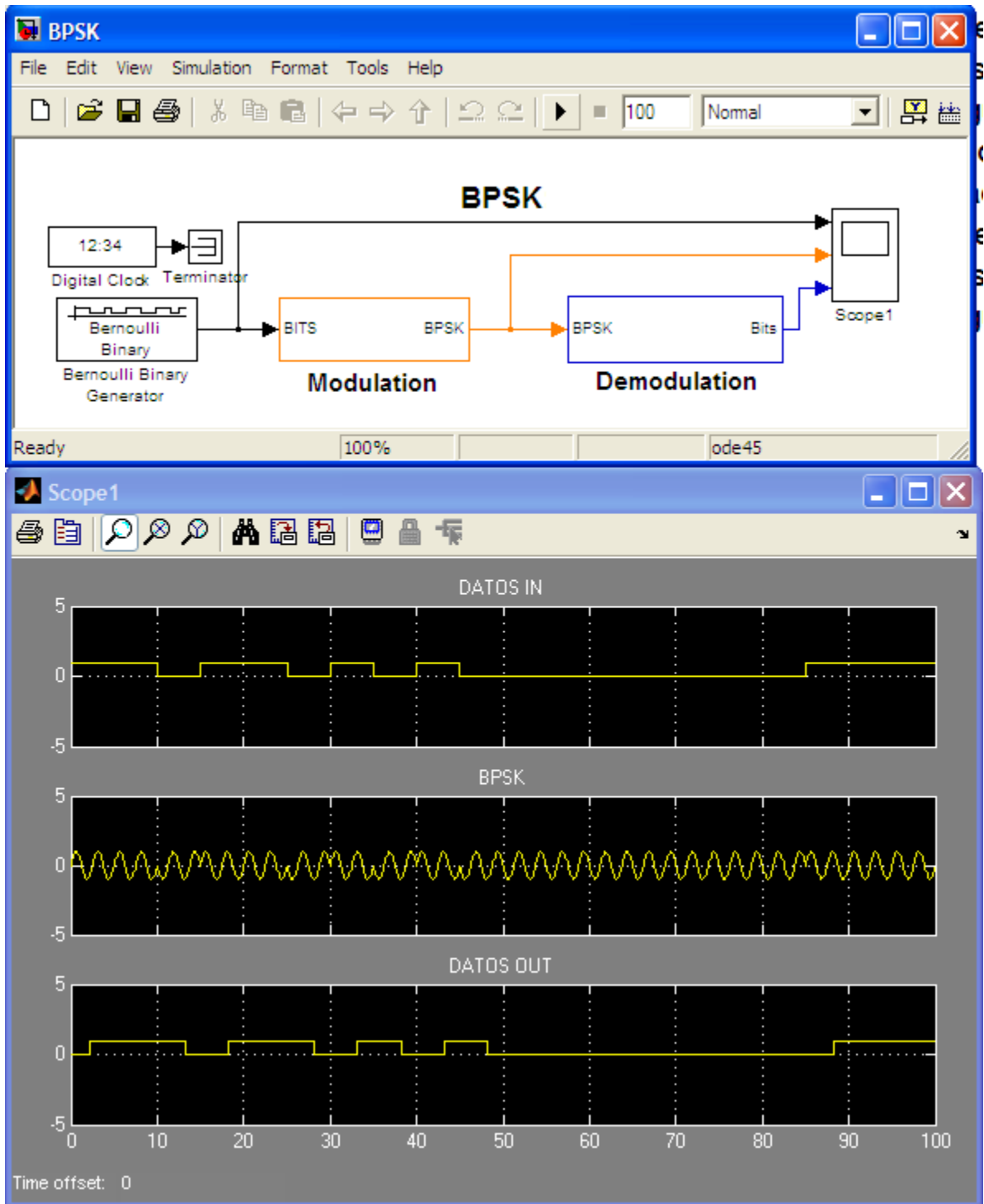
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How to start with Simulink ?

1- Select (Simulink library) from the menu toolbar

2- Or write (Simulink) in the command window

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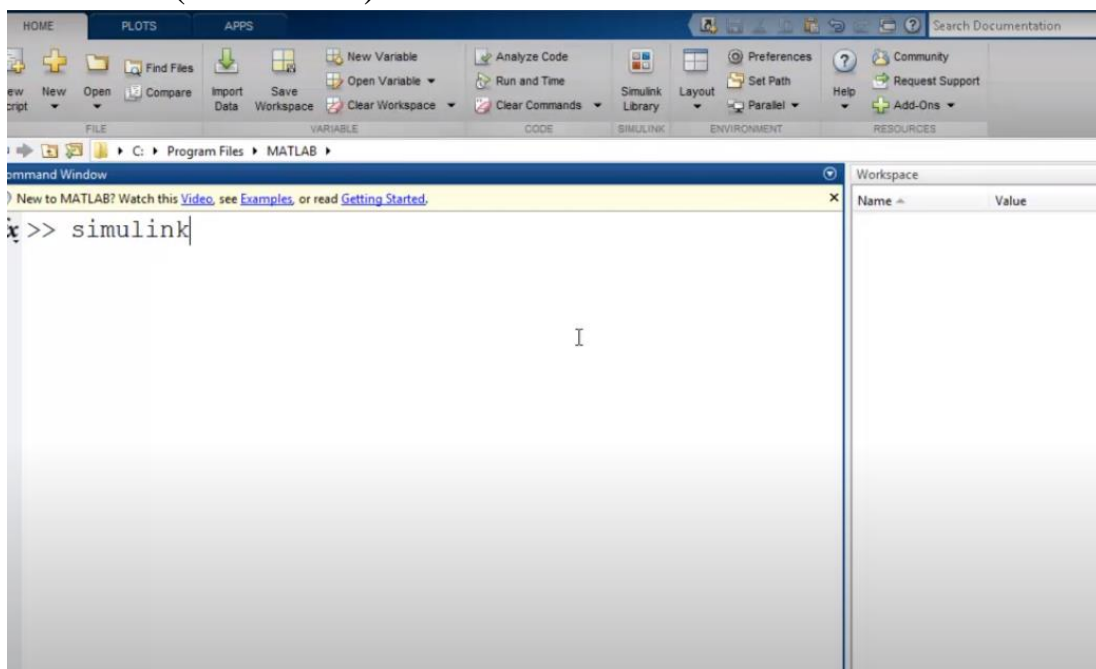Lecturer: Asst. Lect. Mays Khalid
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3- After opening Simulink library , we select the communication system library