

## Requirements

1. Download and install latest version of Scilab on desktop computer / laptop from <https://www.scilab.org/download/6.1.0> (preferred) or use it online on the cloud at <https://cloud.scilab.in/> (this will not have XCOS)
2. Standard installing procedure, no changes in checkboxes or radio buttons
3. Minimum system requirements - <https://www.scilab.org/download/system-requirements>

## Topics to be covered

1. General  
Simple arithmetic, equations, matrices, vectors, functions.
2. Basics  
periodic, non-periodic signals  
Step, Impulse and Ramp functions  
Convolution, step response, impulse response  
difference equation
3. Fourier  
Fourier transform, Frequency and Magnitude spectrum  
Fourier Series (Verbal explanation)
4. Communication  
AM, FM, PM (1 practical, 2/3 demo)
5. CMOS circuits (Basics, gates etc.)
6. Flip flops (1/2 practical, 2/3 demo)
7. RLC circuit frequency analysis
8. OpAmp gain, feedback
9. Filters  
Hamming, Hanning, Chebyshev (1 practical, 2/3 demo)  
poles and zeros, partial fraction expansion  
Removing noise from signal  
Z transform, inverse
10. Control System  
Stability analysis, root locus, feedback loops  
Nyquist criteria  
Bode plot