# Agenda

CoreEL Technologies (I) Pvt Ltd
CoreEL University Program Team

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## Day 1

| Time | Topic |
|---|---|
| **10:00 – 10:15** | **An Introduction to CoreEL & MathWorks** |
| **10:15 – 11:15** | **Understanding MathWorks Products**<br>• MATLAB R2018a Introduction<br>• New features & modifications in R2018a<br>• MATLAB software documentation<br>• Introduction and features of MATLAB toolboxes |
| **11:15 – 11:30** | **Short Break** |
| **11:30 – 13:00** | **MATLAB Programming basics**<br>• Data addressing<br>• Language fundamentals<br>• Operators, Functions & System objects<br>• Hands on: Matrix arithmetic, import & export of data, MATLAB scripting. |
| **13:00 – 14:00** | **Lunch Break** |
| **14:00 – 15:00** | **Model based design using Simulink**<br>• Introduction to mathematical & physical modelling<br>• Overview of Simulink block library.<br>• Introduction to solvers<br>• Introduction to Physical components library<br>Hands on: Design and implementing the mathematical equations in Simulink (Damper Spring Model) |
| **15:00 – 15:15** | **Short Break** |
| **15:15 – 16:15** | **Design and Implementation of Solar Cell Modelling**<br>• Introduction to Solar Cells And Array<br>• Design specifications from IEEE papers<br>• Implementation the solar cell model using Simulink<br>Hands on: Design and mathematical modelling of Implementation Solar Cells and Array in Simulink and compare the results. |

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## Day 2:

| Time | Topic |
|---|---|
| **10:00 – 11:30** | **Control System Design & Analysis**<br>• Learn the basics of Control System Toolbox<br>• Control System Design & PID Controller for Tuning<br>• Mathematical modelling of DC<br>• Hands on: Design and implementing of Mathematical modelling of DC motor in Simulink |
| | **Short Break** |
| **11:45 – 13:00** | **Design and Implementation of Buck and Boost Converter**<br>• Introduction to Buck and Boost Converter<br>• Design specifications from IEEE papers<br>• Implementation of Buck and Boost Converter using Simulink<br>Hands on: Design and mathematical modelling of Implementation Solar Cells and Array in Simulink and compare the results. |
| **13:00 – 14:00** | **Lunch Break** |
| **14:00 – 15:00** | **Physical Modelling with SIMSCAPE**<br>• Learning the SIMSCAPE language<br>• Physical Modelling<br>• Modelling Electro Mechanical Systems<br>• Utilities & Physical Units<br>**SIMSCAPE Power Systems**<br>Modelling electrical power systems using specialized components & algorithms Hands on Design of DC motor using Simscape |
| **15:00 – 15:15** | **Short Break** |
| **15:15 – 16:15** | **Computer Application in Power System Simulation**<br>• Load Flow Analysis Design Constratints<br>• Introduction to Power GUI<br>• Hands on session on Load Flow Analysis of 5 Bus Model<br>• Power GUI menu setting pertaining to parameters and preferences<br>Simulation of Transmission Line of Short Line Mode |

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# Checklist for Workshop:

**Hardware requirement:**

1. Lab computer / Laptop with internet connectivity
2. 1 machine for 2 participants
3. 64 bit machines
4. 4 Gb RAM
5. Windows 7 and upwards(Service Pack 1 )
6. Speakers to play video
7. Projector
8. Collar mike
9. White board with marker

**Software requirement:**

1. MATLAB and Simulink with all toolboxes

**Kindly note trail license can be generated one week prior workshop.**

**Profile of the presenter:**

**Pramod Kumar Naik**
Senior Application Engineer (Mathworks products)
CoreEL Technologies, Bangalore.

Post Graduated from VTU PG studies, VTU Belgaum in VLSI DESIGN .Graduated from VTU Belgaum in E&EE, he has 8 years of experience. He has published 22 papers in both Nation and International Journals.

**Manisankar**
Application Engineer (MathWorks products)
CoreEL Technologies, Bangalore.

Post Graduate Diploma from CDAC-NOIDA, in Integrated VLSI & Embedded Systems. Graduated from Anna University Coimbatore in ECE, he has 2 years of experience on MATLAB for Image processing, Image Acquisition and Computer Vision.He has worked as MATLAB Developer for one year in Spiro solutions Pvt Ltd, Chennai.