

# Online Winter Faculty Development Programme

## Intricacies of Analog & Mixed Signal design

February 17 - 28, 2025 (04:00 PM-08:00 PM) live streaming

Jointly Organized by

NIT Warangal



IIITDM Jabalpur



IIT Roorkee



NIT Patna



MNIT Jaipur



and hosted by  
IIIT Nagpur



In association with  
Electronics and ICT Academy

Pandit Dwarka Prasad Indian Institute of Information Technology, Design and Manufacturing, Jabalpur

### Schedule and Course Contents

- Basic MOS Device Physics, Amplifiers- differential amplifiers, frequency response of amplifiers- common source/gate, Cascode, CMRR, Gilbert cell, Miller effect, Noise in amplifiers, current mirrors, OpAmp- multistage, OTA, stability & frequency compensation.
- Sample and Hold Circuits: Basic S/H circuit, effect of charge injection, compensating for charge injection, bias dependency, bias independent S/H, D/A Converter: – General considerations, Static non-idealities and Dynamic non-idealities; Current-steering DAC – Binary weighted DAC, Thermometer DAC, Design issues, Effect of Mismatches.
- A/D converter: – General considerations, static and dynamic non-idealities. Flash ADC – Basic architecture, Design issues, Comparator and Latch, Effect of non-idealities, Interpolative and Folding architectures. Successive Approximation ADC; Pipeline ADC. Over sampling ADC – Noise shaping, Sigma-Delta modulator, PLLs: Basic Phase-Locked Loop Architecture.
- Voltage Controlled Oscillator, Divider Phase Detector, Loop Filter, The PLL in Lock, Liberalized Small-Signal Analysis, Second-Order PLL Model, Limitations of the Second-Order Small Signal Model, PLL Design Example.

### Coordinators

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### RESOURCE PERSONS

- Prof. Sreehari rao patri, NITW
- Prof Gjendranadh, IITH
- Prof Saurabh Saxena, IIT Madras
- Prof Kapil Jainwal, IITH
- Dr Chitra, IIT Kanpur
- Prof Nagendra, IITM

### Registration Details

Registration link – Please fill in the registration form using the following link:

<https://forms.gle/GcEGxbJ9d1xSQTj98>

Registration fee: INR 500/-

Last Date for Registration: February 15 2025

### Contact Details

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