National Institute of Technology Rourkela

Departmental Seminar

Seminar Title	: Microwave Filter Design Kit: A CAD Tool for Graduate Students
Speaker	: Dr. Rakesh Sinha
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Venue	: Seminar Room, EE-205
Date and Time	: 24 Jan 2025 (06:00 PM)
Abstract	: Contribution: This paper introduces a self-contained, user-friendly Filter Design Toolkit, offered as freeware, tailored to facilitate graduate students in the design and analysis of filters for diverse systems. The toolkit is accompanied by a concise user guide and a survey of alternative technologies. Background: Filter Design, a fundamental aspect of most system designs, involves preprocessing input signals for complex computations. This critical step often overwhelms students, potentially dissuading them from engaging in electrical and electronics projects. Existing solutions, whether commercial or technologically advanced, demand substantial expertise for effective utilization. Intended Outcomes: The Microwave Filter Design Kit aims to address this challenge by providing a standalone, freeware solution that is approachable for novices and requires minimal operational experience. The kit furnishes circuit diagrams to facilitate the physical design of filters, thereby offering a user-friendly alternative to existing options. Application Design: The methodology employed by this toolkit centers on Loss Insertion. A unit-low-pass filter is initially designed, and this configuration is subsequently transformed to achieve the desired response. The overarching goal is to simplify the intricate process of filter design for graduate students, fostering greater accessibility and engagement in the realm of electrical and electronics projects.