NITTTR BHOPAL

EEE-26/2024-2025
Digital Filter Design Techniques and Tools
24-03-2025 to 28-03-2025
NITTTR Bhopal

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Rationale

Digital filters are the most essential building block of any Digital Signal Processing (DSP) system. Digital signal processing (DSP) techniques, including digital filter design, are crucial in various industries such as telecommunications, audio processing, biomedical engineering, and military applications, etc., Equipping faculty with expertise in this area ensures graduates are prepared for industry demands. The sound knowledge of the filters helps in developing the filters used in practical and industrial applications. The course aims to equip faculty members with the knowledge and skills required to teach digital filter design effectively and to integrate it into their interdisciplinary research and also in the curriculum.

Programme Outcomes

•Gain a comprehensive knowledge of digital filter designing.
•Suggest the appropriate Filter Design Techniques for the specific.
•Implement a designed filter using MATLAB.
•Upgrade problem-solving skills to address design challenges and optimize filter performance.

Programme Content

Introduction to Digital Filters, Advantages of Digital Filters over Analog Filters, Classification of Digital Filters: FIR vs IIR, Basic concepts: Difference Equations, Impulse Response, Frequency Response, Common applications of Digital Filters, Characteristics of FIR Filters, Design specifications: Passband, Stopband, Ripple, Attenuation, FIR Filter Design using Windowing Methods, Introduction to FIR Filter Design Tools: MATLAB, Frequency Sampling Method for filter designing, Practical examples and hands-on exercises using MATLAB, Characteristics of IIR Filters, Design specifications for IIR Filters, - Design of Digital Filters for Practical Applications

Target Group

Faculty of Electronics and allied Engineering disciplines

Coordinator & Co-Faculty

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Expert