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Departmental Seminar

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Seminar Title	: Conference Return Seminar on 'Advancing Health and Environmental Safety with a Nickel-Based Electrochemical Sensor for Aspirin Detection'
Speaker	: Mr. Prakash Kumar (522ch1006)
Supervisor	: 7696328680
Venue	: New Seminar Hall
Date and Time	: 30 Jan 2025 (11.00 A.M.)
Abstract	: The development of a highly sensitive electrochemical sensor for the detection of aspirin has significant implications for both clinical diagnostics and environmental monitoring. This study introduces a sensitive electrochemical sensor for aspirin detection using a nickel (Ni) metal foil (3 mm x 1 mm) as the working electrode, Hg/HgO as the reference electrode, and Pt mesh as the counter electrode. X-ray Diffraction (XRD), Field Emission Scanning Electron Microscopy (FESEM), and Raman spectroscopy confirmed the presence and purity of Ni on the electrode. The developed sensor demonstrated high sensitivity ( $14,250 \mu\text{A}/\text{mM}\cdot\text{cm}^2$ ), a low limit of detection (LOD) of $0.67 \mu\text{M}$ , and a linear range from $0.67$ to $3.99 \mu\text{M}$ , highlighting its potential for precise aspirin monitoring. This Ni-based sensor offers rapid detection, making it valuable for clinical diagnostics and environmental applications to detect aspirin in biological and water samples. Future work will aim to enhance sensor stability and explore compact designs for real-time, on-site aspirin monitoring, facilitating broader applications in healthcare and environmental safety. Keywords: Electrochemical sensor; Aspirin; Nickel; Sensitivity and LOD.