
Registration Seminar

Seminar Title	: Detection of Left Ventricular Hypertrophy using Artificial Intelligence and Data Driven ECG Analysis
Speaker	: Gayathiri Rr (Rollno : 523bm1009)
Supervisor	: Sivaraman J.
Venue	: BM 140, Seminar Hall
Date and Time	: 07 Apr 2025 (3:15 pm)
Abstract	: Left Ventricular Hypertrophy (LVH) is a significant structural heart disorder related to increased cardiovascular risks. It often arises due to hypertension, ischemic heart disease, and other cardiac disorders, acting as both a risk marker and a precursor to Left Ventricular Systolic Dysfunction (LVSD) and Heart Failure with Reduced Ejection Fraction (HFrEF). While echocardiography is the preferred diagnostic tool for LVH, its non affordability and limited accessibility make electrocardiography (ECG) a more practical option for large-scale screening. However, conventional ECG-based diagnosis methods, such as the Sokolow-Lyon and Cornell criteria, often lack sensitivity, leading to impending underdiagnosis in many patients. This study aims to improve LVH detection by developing an ECG-based AI model that increases accuracy and reliability. Moreover, it investigates LVH in patients with co-existing heart conditions and explains how echocardiographic parameters correlate with ECG indicative features of LVH, specifically in the Indian population, where varied physiological and clinical components may influence diagnostic accuracy. A novel algorithm-based scoring system will also be proposed and compared with existing scoring techniques to assess its effectiveness. By integrating Artificial Intelligence techniques and statistical analysis, this research seeks to overcome the limitations of traditional ECG criteria and provide a more accessible and scalable solution for LVH detection. Preliminary results reveal that the AI model significantly improves LVH detection, demonstrating higher accuracy and sensitivity compared to traditional criteria. These findings suggest that AI-driven ECG analysis can facilitate early diagnosis, optimize clinical decision-making, and enhance patient outcomes, particularly in resource limited settings where echocardiography is not readily available