

## **Title: Frequency based Portable Particulate Sensing: System and Frequency Estimation**

Maryam Shojaei Baghini, Professor, Department of Electrical Engineering, IIT-Bombay

**Abstract:** Portability is one of the driving forces for the design of the engineering systems where sensing, signal conditioning and data acquisition are mainly implemented on the portable measurement system while data analysis and information extraction is taken care by another platform. For the systems which are designed for relatively high sensitivity and high resolution (e.g. ppm level measurements) accurate extraction of the measured value in the presence of non-ideal effects such as amplitude and phase noise is a key factor. This talk provides an example of a designed and prototyped portable system for particulate sensing deploying frequency estimation techniques to achieve 0.1ppm RMSE resolution.