13-EC523 **ARRAY SIGNAL PROCESSING**

SYLLABUS
Spatial Signals, Signals in space and time. Spatial frequency, Direction vs. frequency. Wave fields. Far field and Near field signals. **Sensor Arrays**, Spatial sampling, Nyquist criterion. Sensor arrays. Uniform linear arrays, planar and random arrays. Array transfer (steering) vector. Array steering vector for ULA. Broadband arrays. **Spatial Frequency,** Aliasing in spatial frequency domain. Spatial Frequency Transform, Spatial spectrum. Spatial Domain Filtering. Beam Forming. Spatially white signal. **Direction Of Arrival Estimation**, Non parametric methods - Beam forming and Capon methods. Resolution of Beam forming method. Subspace methods - MUSIC, Minimum Norm and ESPRIT techniques. Spatial Smoothing.

TEXT BOOKS
1. Dan E. Dugeon and Don H. Johnson.," Array Signal Processing: Concepts and Techniques. Prentice Hall.
2. Petre Stoica *and Randolph L. Moses*. "Spectral Analysis of Signals. Prentice Hall.