

EEE.9-2.8 Radar and Remote Sensing

Course contents: * Introduction. * Radar function. * Antennas for radar and target angle. Phased arrays. Rotation and stabilization systems. Target angle measurement. * Radar equation and target radio cross-section. Backscattering coefficient and target trace. Target size measurement.* Scattering from simple targets. Scattering from infinite cylinder, sphere, and conductive plate. * Scattering from multiple targets. SW1-SW5 type targets. SNR for complex targets. Simulation of scattering signals. * Detection theory and radar signal. Probability for single pulse target detection. * Specialized radar systems. Frequency modulation radar. Concurrent phase radar. Early warning radar. Surveillance radar. * Radar receivers. Matched filter receiver. Radar pulse uncertainty function. * Passive sensors. Black and gray body radiation * Image synthesis radar. Linear antennas. SAR type radars. * New technologies and applications. Time-space radar signal processing. MIMO radar. Microwave radar.