Work plan and Methodology:

The photodielectric effect is due to space charge formation in dielectric. There is an important role of temperature in photodielectric. At the low temperature the photo capacitance and dark capacitance decreases with temperature. But at a higher temperature dark capacitance increases and photo capacitance continues to decrease. The observations have been made both in light and dark with AC field of variable frequency. Photo capacitance and dark capacitance both decreases with frequency. For the preparation of sample, the two or three basic material (MgTiO$_3$ and ZnO) are taken in different ratio and ground properly in order to get homogeneous mixture and then fired in a cylindrical furnace at 800$^0$ C to 1000 $^0$ C in controlled atmosphere. The heated material is suddenly quenched at room temperature and again ground in order to get microcrystalline form of the sample for the measurement purpose. The cell is fabricated in the form of parallel plate capacitors. The small quantity of sensitive material is mixed with the solution of polystyrene and is then placed on a polished aluminum plate and kept in a bell jar in benzene atmosphere for few hours. When the layer is almost solidified, the plate is taken out from the jar. A conducting plate is placed over the surface of layer. To make the glass plate conducting, deposit a thin film of SnO$_2$ (Tin Oxide) over it. The photo dielectric effect is controlled by the intensity of illumination, field frequency and temperature. The capacitance increases with increasing the intensity of illumination. The effect of field frequency, effect of intensity and effect of temperature will be studied for photoconducting properties of mixed system having two different base materials (MgTiO$_3$ – ZnO) and the cell is prepared in the form of parallel plate capacitor. The effect of temperature, voltage, intensity, and wavelength will also be studied during research work and
for electroluminescence; the effect of frequency and spectral response will be plotted with respect to wavelength and brightness.