

## **Minor Research Project**

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**MRP(s)-983/10-11/KLMGO22/UGC-SWRO**

**TITLE OF THE PROJECT -**

**OPTICAL STUDIES OF THIN FILMS OF ZnSe&CdSe.**

### **SUMMARY.**

Thin films of CdSe and ZnSe of various thicknesses have been deposited onto clean glass substrates using thermal evaporation technique at room temperature. Ceramic thin films are in wide use. The relatively high hardness and inertness of ceramic materials make this type of thin coating of interest for protection of substrate materials against corrosion, oxidation and wear. Cadmium selenide is used as a blue light source in light-emitting diodes and diode lasers. It is also used as infrared laser gain medium and as an infrared optical material. From the optical absorbance spectrum of the prepared sample, optical band gap is determined and is found to be 2.997 eV for CdSe film of thickness 3400 Å and 2.8054 eV for ZnSe film of thickness 3400 Å. The present study indicates that the thermal evaporation technique is successfully employed for the preparation of high quality Cadmium Selenide thin films. This technique is inexpensive and convenient. It is found that the value of absorbance varies with film thickness. The characteristics of the film are influenced by the rate of evaporation, pressure during deposition, thickness of the coating, temperature of the substrate and residual atmosphere. Another advantage of this method is that evaporation yields a large number of films of uniform thickness. Some of the applications include their use as sensing elements in gamma ray sensors, solar cell elements, and dyes.