ABSTRACT

NiO is a p-type semi-conducting material with intriguing properties. It has a bandgap of 3.6 eV and has cubic structure. It has many applications in electronics field and many other fields as well such as in ceramic structure and optical filters and p-type transparent conducting films. It has green and black colour in physical appearance. It has melting point of about 600 °C. In this work NiO is deposited on Si (100) substrate by a method called DC magnetron sputtering. The structural, optical and electrical properties of thin film have been studied. These films represent the cubic structure of NiO. The structural property of film exhibited better crystallinity at 150 W DC power, 400 °C annealing temperature with 2 hour annealing time. The crystallite size increased by increasing the annealing time but further increase in annealing time don't increase the better result. The UV-vis spectroscopy of reflectance has been studied to shown the result. Greater the annealing time greater the intensity of peaks has been seen in the results. It has also seen that an un-annealed film did not show good peaks.