Diluted magnetic semiconductors (DMS) have attracted a great deal of attention due to their potential applications in Spintronics. Transition metals doped Indium Oxide (TM-doped $\text{In}_2\text{O}_3$) is nominated to be a promising DMS material. $\text{In}_2\text{O}_3$ is a transparent wide band gap, n-type semiconductor and crystallizes in a complex cubic bixbyite structure with 80 atoms in a unit cell. Therefore, compared to other host matrices, it would be a big challenge to achieve ferromagnetism in this matrix. In this research, the structure and magnetic properties of $\text{In}_2\text{O}_3$ powder co-doped with different impurity concentration of Iron (Fe) and Gadolinium (Gd) were investigated. These powders were prepared using solid state reaction method and the structural characterization was performed using X-ray diffraction (XRD). The magnetization was measured in a SQUID magnetometer. Room temperature ferromagnetism has been observed with distinctive coercive field of 1085Oe. The zero field cooled and the field cooled magnetization measurements (Zfc/Fc) show substitutional behaviors for all the samples and there is no sign for a formation of magnetic nanoparticles.