Experimental

The indium tin oxide (ITO) and silicon dioxide (SiO₂) films were deposited using rf magnetron sputtering. Prior to the deposition, the as-purchased PES substrates were rinsed subsequently in deionized water and ethanol solution in ultrasonic bath. The deposition of SiO₂ films was carried out under an equal Ar (10 sccm) and O₂ (1 sccm) gas flow, with pressure of $1 \times 10^{-3}$ torr and working power of 150 W. The deposition of ITO films was carried out using a commercial sintered 100 mm ITO target containing 90 wt.% of In₂O₃ and 10 wt.% of SnO₂, under an equal Ar gas flow of 10 sccm. The optical transmission measurement was made using a UV-visible-near infrared (UV/Vis/IR) spectrophotometer. The crystallinity of ITO films were characterized by X-ray diffraction (XRD). The surface morphology of the ITO films were observed by the atomic force microscopy (AFM).