

**THE PROPERTIES OF ZINC OXIDE WITH
GRAPHENE OXIDE ON DIFFERENT SUBSTRATE**

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**Final Year Project Report Submitted in
Partial Fulfilment of the Requirements for the
Degree of Bachelor of Science (Hons.) Physics
in the Faculty Of Applied Sciences
Universiti Teknologi MARA**

JANUARY 2020

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ABSTRACT

THE PROPERTIES OF ZINC OXIDE WITH GRAPHENE OXIDE ON DIFFERENT SUBSTRATE

In this research, the structural and optical properties of Graphene Oxide (GO) with Zinc Oxide (ZnO) thin film were successfully deposited on various substrates including glass, silicon, indium tin oxide (ITO) and polyethylene terephthalate (PET) by solution immersion method. In this project, the structural and optical properties of the samples were studied by using X-ray diffraction (XRD), Fourier-Transform Infrared (FTIR) Spectroscopy, Ultraviolet-Visible (UV-VIS) Spectroscopy and Raman Spectroscopy. The XRD result revealed that the samples have a wurtzite structure as the peaks dominated by ZnO (0 0 2). The presence of C-O, C=O and C-H compounds on all substrates on FTIR spectroscopy contributes to the GO peak. The highest absorbance of GO/ZnO thin film samples is observed for ITO substrate while the lowest absorbance of GO/ZnO thin film is PET substrate. Last but not least, Raman scattering findings observed that all the samples have a high crystalline quality of the produced GO with ZnO thin films on various substrates.