



The College of Graduate Studies and the College of Engineering Cordially Invite You to a

**Master Thesis Defense**

Entitled

*BIOSENSOR DEVICES BASED ON GRAPHENE AND 2D MATERIALS*

by

Suhada Poovathy

Faculty Advisor

Dr. Amine El Moutaouakil, Department of Electrical and Communication Engineering  
College of Engineering

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Abstract

Nanomaterial offered new improvements and developments to the bio sensing field due to their unique physical and chemical properties. Unique and exceptional electronic properties, such as the ultrahigh surface-to-volume ratio and the excellent electrical properties of the 2D materials like in graphene, made these materials promising for future smaller and faster electronics, but extensive amount of research is still needed. This thesis is concerned with the study of integration of 2D material graphene in the development of sensitive and rapid biosensors. The main objective of this thesis is to understand features and characteristics of graphene, evaluate the scope of graphene in electronic bio sensing, and the design and analysis of biosensors based on graphene. A field effect transistor was fabricated with a graphene as channel material using top gate technology.

**Keywords:** Nano materials, 2D materials, Graphene, Nano-biosensors, GFET,