



Professors	Prof. Mohamed Aboul-Dahab
Project Title	<b>Millimeter-Wave (MMW) Automotive Radar</b>
Abstract	<p>Collision Avoidance and the detection of objects in the environment is an important task for an automated mobile vehicle. This could be achieved by using a radar system mounted on the vehicle. This radar operates in the EHF band (30-300 GHz) which is called the millimeter- wave (MMW) range, More specifically the automotive radar operates within the range 77-81 GHz . MMW radar systems are divided into pulsed and continuous wave systems, which are in turn subdivided into frequency modulated continuous wave (FM-CW) and spread spectrum systems. The 77 GHz FM-CW radar systems for example, allow objects to be detected within a range of 1 to 150m. At the same time, their distance and speed relative to the host vehicle—and with the right number of antennas, also their angle to the longitudinal axis of the vehicle—are determined . It is worth mentioning that the following automotive manufacturers are known to be including automotive radar devices on vehicles: Daimler-Benz, BMW, Jaguar, Nissan, Toyota, Honda, Volvo and Ford. Fujitsu, an electronic component manufacturer, is known to be producing semiconductor devices specifically for automotive radar systems. The MMW radar can be integrated with other systems in the vehicle to give an “intelligent cruise control system”</p> <p>The objective of this project is to</p> <ol style="list-style-type: none"> <li>1. design and simulate MMW automotive radar</li> <li>2. implement and test some of the basic modules of the radar</li> </ol>
Required Classes	
Links	
Category	

# COLLEGE OF ENGINEERING & TECHNOLOGY- Cairo

Department: Electronics and Communications Engineering

Feb. 2016-2017 Graduation Projects



Professors	Prof. Khaled Shehata
Project Title	<b>Modern Instrumentation and Control Systems of Nuclear power Plants.</b>
Abstract	<p>The objective of this project is the Implementation of Digital Instrumentation and Control Systems (I&amp;C) for Nuclear Power Plants (NPPs) using a field-programmable gate array (FPGA –technology): Benefits and Solutions .</p> <p><b><u>The Proposed Methodology:</u></b></p> <ul style="list-style-type: none"><li>• General concept of I&amp;C Systems for NPP</li><li>• FPGA technology for NPPs I&amp;C System</li><li>• Implementation of I&amp;C projects using FPGA based I&amp;C Platform</li></ul>
Required Classes	Digital Circuits and Logic Design
Links	<a href="http://www-pub.iaea.org/MTCD/publications/PDF/TRS387_scr.pdf">http://www-pub.iaea.org/MTCD/publications/PDF/TRS387_scr.pdf</a>
Category	



Professors	Prof. Mohamed Hasan and Assoc. Prof. Mahmoud A Abdalla
Project Title	<b>A Compact ultra wide band Filter with Notching for Wireless Applications</b>
Abstract	<p>The project discusses the aspects of UWB technology and the concept on which it is based. The project aims to design, simulate, fabricate and measure a planar ultra wide band (frequency range of 3.1 GHz to 10.6 GHz) filter. The filter should be able to notch undesired frequencies within the filter passband. The designed antenna should be a low profile with small cost, simple in installation as required for many modern applications.</p> <p>The project is scheduled to the following stages:</p> <ol style="list-style-type: none"><li>1. Understanding of the different microwave transmission lines and matching techniques.</li><li>2. Design of different types of band pass filter.</li><li>3. Understanding possible notching techniques.</li><li>4. Design verifications using circuit simulator and electromagnetic full wave simulations.</li><li>5. Practical realization of the filter in microstrip technology.</li><li>6. Filter response measurements</li></ol>
Required Classes	
Links	
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Feb. 2016-2017 Graduation Projects



Professors	Dr. Mohamed Abaza
Project Title	<b>Free-Space Optical Communications Hardware Demonstrator</b>
Abstract	<p>Summary Free-space optical (FSO) communication has been the subject of ongoing research activities and commercial attention in the past few years. Such attention is driven by the promise of high data rate, license-free operation, and cheap and ecologically friendly means of communications alternative to congested radio frequency communications.</p> <p>In this project, a hardware demonstration will be implemented with a laser transmitter and photodiode receiver using intensity modulation and direct detection (IM/DD) technique.</p>
Required Classes	EC 522 optical communications course is a must to register in this project.
Links	
Category	