



COLLEGE OF ENGINEERING & TECHNOLOGY

Department: Electronics and Communications Engineering, Cairo

Graduation Project Description Form

Project Supervisor(s): Dr. Abdelmegid Allam

Project Title: Analysis and design of implanted antennas for liver cancer diagnosis

Duration from 9/2013 ___till 7/2014 _____

Product Category

Algorithm___ Hardware___ Software___

Standards:

Safety: UL, CE_____ IEEE _____ FCC___

Other _____

Practical Realization Form

PCB _____ Firmware__ Embedded CPU Kit (ARM, ..etc): _____

PC Software _____ Ready-made Package___ DSP Kit__ FPGA Kit_

VLSI Schematics __ VLSI Layout ___ VLSI Silicon (ASIC)_____



COLLEGE OF ENGINEERING & TECHNOLOGY

Department: Electronics and Communications Engineering, Cairo

Graduation Project Description Form

Language

VHDL/Verilog Matlab C/C++/Java _____

Productization

Finished Product Form:___ Possible Commercialization _____

Amount of funds needed for buying components: _____

IEEE GOLD Made-In-Egypt/Engineering Day: _

ITAC (ITIDA) or NTRA Funding Application: _

Testing

Functional___ Simulation___ Parameters___ Final Hardware___ Other:

Lab Test Setup

EMC _____ Environmental_____ Microwave _____ Analog Lab_____

Other:

CAD Tools (*No unauthentic software is allowed*):



COLLEGE OF ENGINEERING & TECHNOLOGY

Department: Electronics and Communications Engineering, Cairo

Graduation Project Description Form

Elective Classes Required:



COLLEGE OF ENGINEERING & TECHNOLOGY

Department: Electronics and Communications Engineering, Cairo

Graduation Project Description Form

Abstract

Project contents:

Objective: understanding of implanted antennas. Design, analysis, fabrication and measurements of a novel work to be published in journal and conferences. Publish an article in IEEE conference and attending the conference in USA or Europe to defend your novel work. To fulfill these tasks the work includes the following:

Why implantation

What is an implanted antenna?

Type of implanted antennas

Challenges facing implanted antennas: position, material, size, power supply, processing time, biological compatibility

Biological phantoms of human body for invasive testing and measurement

Preparation and constitutions of the liver phantom

Design and simulation of an antenna using HFSS or CST suitable for liver implantation

Antenna fabrication

Measurement of some parameters in free space

Measurement of some antenna parameters in biological human phantom

Measurement of some antenna parameters inside a rat or rabbit if needed

Comparison between the simulation and measured results

NOTE: the software used are CST or HFSS and MTALAB



COLLEGE OF ENGINEERING & TECHNOLOGY

Department: Electronics and Communications Engineering, Cairo

Graduation Project Description Form

References and Links