College of Engineering

Syllabus

EENG 4097 - Internship

Qorvo, Inc.
Summer 2020

Contact Information and Office Hours:

Internship Supervisor:	: Mr. Young
E-Mail	: paul.young@qorvo.com
Office	: 500 W Renner, Richardson, TX 75080
Office Phone	: (972) 994-8200
Office Hours	: Monday - Friday 8:00 - 5:00
Internship Hours	: 40 Hours per week
Dates	: 5/18/2020 – 8/20/2020

Texts and Other Materials

All required text books, reference materials, and computer software will be provided by Qorvo.

Course Description

Throughout the course of this internship, engineering knowledge, RF theory, and signal analysis will be applied towards correlating wafer level phase data with phase data of completed Spatium blades, thereby increasing the production efficiency of completed Spatium amplifiers. The project to be completed during this internship is designed and evaluated by Mr. Young, Assembly Process Engineering Manager at Qorvo.

Course Requirements and Evaluation

Intermediate Reports (15% each) - 45%

Wafer Phase vs. Blade Phase Data Analysis - 40%

Final Report and Presentation - 15%

Objectives/Student Learning Outcomes

1. RF and Phase Analysis of Complex Systems
    a. Student will gain a general understanding of RF theory.
    b. Student will gain in-depth experience in complex RF and phase analysis.
    c. Student should gain a general understanding of RF design considerations.
2. Semiconductor Fabrication
    a. Student will gain a general understanding of wafer production.
    b. Student will gain a general understanding of metrology and wafer level testing methods.
    c. Student should gain in-depth experience in analyzing wafer die characteristics.
3. Simulation and Testing of RF Systems
    a. Student will gain in-depth experience in using RF modeling software.
    b. Student will develop an ability to apply models and simulations in developing theories.
    c. Student shall gain skills in developing testing programs and procedures.
4. Presentation and Final Report (End of Course Report)
    a. Student will gain experience with professional report writing.
    b. Student will gain experience in taking engineering test data and applying it in a method that is understood and received by others who were not directly involved in said project.
    c. Student will gain experience in presenting a project to both peers and those in management positions.

Program Learning Outcomes

Program outcomes related to this course (as identified in the WTAMU catalog and by ABET Student Outcomes criteria 1-7):

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors

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3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Policies and Responsibilities

Attendance Policy:

- An internship work schedule shall be finalized prior to the first week of the summer semester.
- 20 – 40 hours per week will be required in order to complete the proposed project during the course of the internship.

Weekly Reports:

- Brief reports will be required each week to communicate progress toward the completion of the proposed project.

Safety Training:

- All required safety training shall be supplied and administered Qorvo.

Required Safety Equipment:

- Safety Glasses with Side-shields
- Appropriate hearing protection in loud work environments

Tentative Schedule

Spatium Project Timeline			
	Task	Start	Finish
	Phase Data Internship Project	Mon 6/15/2020	Fri 8/21/2020
1.0	**Project Initiation**	Mon 6/15/2020	Mon 6/15/2020
2.0	**Wafer and Die Level Data Overview**	Mon 6/15/2020	Fri 6/19/2020
2.1	Introduction to Wafer Production	Mon 6/15/2020	Tues 6/16/2020
2.2	Introduction to Wafer/Die Data	Wed 6/17/2020	Fri 6/19/2020
3.0	*Intermediate Report #1* - 6/22/2020		
4.0	**Wafer Level Phase Data Analysis**	Mon 6/22/2020	Wed 7/1/2020
4.1	Die Phase Data Analysis	Mon 6/22/2020	Wed 7/1/2020
5.0	**Blade Level Phase Data Analysis**	Thurs 7/2/2020	Fri 7/17/2020
5.1	Blade Build	Thurs 7/2/2020	Friday 7/10/2020
5.2	Blade Charateristic Testing	Mon 7/13/2020	Fri 7/17/2020
5.3	Blade Phase Data Analysis	Mon 7/20/2020	Fri 7/24/2020
6.0	*Intermediate Report #*2 - 7/20/2020		
7.0	**Die and Blade Phase Data Correlation**	Mon 7/27/2020	Tues 8/4/2020
7.1	Data Correlation		
8.0	*Intermediate Report #3* - 8/10/2020		
9.0	**Presentation and Final Reporting**	Wed 8/5/2020	Thu 8/20/2020
9.1	Final Report Development	Wed 8/5/2020	Tues 8/11/2020
9.2	Presentation Development	Wed 8/12/2020	8/20/2020
10.0	**Project Report and Presentation**	TBD	