ECE Advising: Getting Your Questions Answered
James A. Bain

The Oracle at Delphi
Outline

• Logistics of the advising and mentoring process

• Objectives of the advising and mentoring process

• Case studies in advising and mentoring
Logistics of Advising Process

• Fall Sophomore Year
  – Take 18-200: Emerging Trends in ECE
  – Receive advisor assignment
  – Complete advising preparation worksheet
  – Meet with advisor (possibly more than once)
  – Select classes for Spring 05

• Spring Sophomore Year
  – Meet with advisor (possibly more than once)
  – Request/select a faculty mentor
  – Meet with faculty mentor
  – Select classes for Fall 06

• Junior and Senior Years
  – Meet with faculty mentor as desired
  – Select classes for each semester
  – Plan for post-graduation: internships, jobs, fellowships, grad schools, etc.
Sophomore faculty advisors

Jim Bain  Shawn Blanton  Dave Greve  Diana Marculescu
Jose Moura  Priya Narasimhan  Dave O’Halloran  Ed Schlesinger
Peter Steenkiste  Tom Sullivan  Elias Towe
Undergraduate Program Staff

**Suzie Laurich-McIntyre** - jmpeters@ece.cmu.edu
HH 1118, 8-6995
**Director of Alumni and Student Relations**
Structures relationships with students during and after ECE, student organizations, profession societies, alumni events

**Janet Peters** - jmpeters@ece.cmu.edu
HH 1110, 8-3666
**Assistant for Undergraduate Education**
Monitors student academic progress, handles procedural and policy information and information on Co-op, IMB, Double Majors and Minors, Career Center, Health Center, etc.

**Bruce Krogh**
**Associate Department Head**

**Carin Hawkins** - jmpeters@ece.cmu.edu
HH 1109, 8-2496
**Undergraduate Program Assistant**
Assists associate department head in class scheduling, waitlists, etc.
Preparing for your first advising appointment

When meeting with your faculty advisor for the first time, it is essential that you be as prepared as possible to make the most of your advising session. The preparation can be divided into three categories: Think, Investigate, and Plan.

Bring these completed sheets to your first appointment!

Think

- What are your areas of interest?

- Are you thinking of completing an Additional Major/Minor? Y N If Yes, What?

- Are you thinking of doing any internships? Y N If yes, when?

- Are you thinking of doing a Co-Op? Y N If Yes, When?

- What are your post-graduation goals? IMB MS elsewhere PhD Industry Other

- What time constraints are you facing (work, extra-curricular activities, family, friends, etc.)

Investigate

- Look at the requirements and options for the ECE degree at http://www.ece.cmu.edu/users/shared/primer/index.php
- Find out what the requirements are for any Additional Major(s)/Minor(s)

Plan

- List all requirements for ECE and any Additional Major(s)/Minor(s)
- Fill out plan for remaining semesters
- See if plan is reasonable, given constraints you face
- Modify plan as necessary (go back to Think stage if needed)
# Academic Plan

**Name:** __________________________  **Date:** __________  **Advisor:** __________________________

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*Updated 09/04, JP & SLM*
18-200  Fall 2004

The Emerging Trends in Electrical and Computer Engineering

Hosted by  Jimmy Zhu, ABB Professor of Engineering

September 1 - 8, 2004

Fri, Aug 27, 2004 -- Lecture slides and quiz posted

Lecture slides and quiz posted in Course Document folder.

Course Documents
Myths about meeting with your advisor

• Myth I: Advisors are judging you, so don't say anything stupid... ...even if that means that you say nothing

• Myth II: Advisors have all the answers

• Myth III: Advisors are looking to criticize your performance... ... so avoid them if things aren’t going well

• Myth IV: Advisors are looking to criticize your performance... ... so you don’t need to see them if things are going well
Objectives of Advising Process

Treat students such that they would **ENTHUSIASTICALLY** advise their loved ones to enroll in ECE at CMU.
Top 10 Reasons for Intensive Advising

1. Our students sometimes need some questions answered
2. Our students sometimes need some reassurance
3. Our students want to feel heard and connected
4. Our students may not know all the questions they have
5. Our students are not aware of all of their opportunities
6. Our students don’t know all of the faculty members
7. Our students benefit from thinking and planning ahead
8. Our students have varying ways in which the want to receive information
9. Our students are human beings who need preparation for life
10. We want to know our students
Why look to your advisor for answers ...

why not ... ?
or

Alex Trebek
(host of Jeopardy)
Galadriel

Gandalf
Actually, advisors give ADVICE not answers...

The Oracle at Delphi

Know Thyself
Think of advising as a resource

Think, Investigate, Plan

• Initiate contact
• Be patient but persistent with your advisor
• Come prepared with questions
Case studies in advising & mentoring

Megan Hyland
ECE Junior

Advisee as sophomore
Interested in CE
Moved on to mentor

Not my advisee as sophomore
Currently my mentee
Some detailed discussions about double major

Warun Bubna
ECE Junior

Wantanee Viriyasitavat
ECE Junior

Advisee as sophomore
Interested in signal processing
Introduced to Kumar
Moved on to mentor

Not my advisee as sophomore
Currently my mentee
A few conversations so far

Sirisha Pillalamarri
ECE Junior

Electrical & Computer ENGINEERING
Case studies in advising & mentoring

Olivia Tsai  
ECE Senior

Summer project  
Recommendation letters  
Career and grad school advice

Jim Salvia  
ECE Senior

Academic year projects  
Recommendation letters  
Career and grad school advice
The ultimate mentoring relationship

Using High Permeability Material to Improve On-Chip Inductors

Jim Salvia
Junior - Electrical and Computer Engineering

Dr. James Bain
Electrical and Computer Engineering

Dr. C. Patrick Yue
Electrical and Computer Engineering

Data Storage Systems Center

Electrical & Computer Engineering
A thin film of Ni$_{80}$Fe$_{20}$ will be deposited onto the sample inductors.

A shadowmask ensures that the sputtering process will affect only the desired components.
Undergraduate research project (cont’d)

Encasing the Chip and Mask

The chip and mask will be held in place using an aluminum frame that has been designed to mount inside a thin film deposition system.

Stainless steel mask covering a sample chip, held in place by an aluminum frame.

This recess holds the chip snuggly.

The frame also fits into a standard mask aligner, guaranteeing a precise and repeatable alignment.
Undergraduate research project (cont’d)

The RF Measurement Equipment

Agilent Technologies Microwave Vector Network Analyzer

- Functional range of 45 MHz to 50 GHz
- Measures S-parameters to characterize arbitrary one-port or two-port networks

Cascade Microtech RF Probe Station

- Allows for precise alignment of RF probes with 100 µm pads
- Vacuum chuck holds samples rigidly for repeatable measurements
**Interpreting the Inductor Measurements**

- **Rs increases with frequency due to skin effect**
- **Rs increases with frequency due to skin effect**

The addition of magnetic material is expected to double the device’s inductance and Q.

Parasitic capacitances and resistances should not be significantly affected by the permalloy.

**Measured inductance before deposition**

**Expected inductance after deposition**
Summary

• The ECE advising system is designed to provide you with resources

• Advisors are assigned and will help connect you with mentors

• Mentors will be in one area of your interest and will guide you as juniors and seniors

• The more we know about you and the more you know about the department, the more effectively we can help you find answers

• Ultimately, YOU are going to provide your own answers NOT get them from someone else