Chapter 1: Keys to Success

1.1 You can do It

Poor students can succeed. Good students can fail. Your relative level of intelligence does not determine your success rate in college. When you think your classes are easy, you should do additional research, or study more to make the class harder. The main difference between a good student and a bad student is effort.

1.2 What is success?

Success is the achievement of something desired, planned, or attempted. Everyone has goals. Everyone in this classroom probably has a goal something along the lines of

*Earn an Engineering Degree from Oregon State University*

How can you expect to get somewhere, if you don’t know where you want to go? Goals give you something to measure against, goal give your life a direction. Here are some example goals:

- Conduct Materials and Devices research
- Obtain a MECOP Internship
- Earn a Double-Major
- Get a Job
- Earn a Degree
- Earn a good GPA
- Enter Graduate School
- Work on Independent Projects
- Join an On-Campus Club
- Enter Pro-Engineering school.

1.3 Strategies for Strengthening your Commitment

Work to clarify your goals. Learn as much as you can about engineering. Prepare a road map for the goals you want to achieve. Don’t let adversity stop you. For example, think of all the advantages engineers today have over ones 50 years ago. We have calculators, CAD software, and the Internet. If you are forced to drop a class though, remember that the cut off week is week 7, any later and you get an ‘F’ instead of a ‘W’.
The Three Keys to Engineering Success:

- Effort: Work Hard
- Approach: Work Smart
- Attitude: Think Positively

2 Models for Viewing your Education

How do you view your education? What defines your education? Is it the skills you learn, or the experiences you have?

2.1 Attributes Model - ABET

ABET, The Accreditation Board for Engineering and Technology, defines a set of standards a student graduating from an ABET accredited program should be able to meet.¹

ABET 2008-2009 Engineering Criteria:

a) an ability to apply knowledge of mathematics, science, and engineering
b) an ability to design and conduct experiments, as well as to analyze and interpret data
c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
d) an ability to function on multidisciplinary teams
e) an ability to identify, formulate, and solve engineering problems
f) an understanding of professional and ethical responsibility
g) an ability to communicate effectively
h) the broad education necessary to understand the impact of the engineering solutions in a global, economic, environmental, and societal context
i) a recognition of the need for, and an ability to engage in life-long learning
j) a knowledge of contemporary issues
k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
l) Work Hard

You will notice in the course description page for ECE111, there are letters in the Course Objectives section that correspond to these goals.

2.2 Employment Model

Another way to look at your education is the employment model. It is important to tailor your education to the job that you want. If you want to design Intel’s next great computer chip, you probably do not want to focus your electrical engineering degree in the Robotics and Control track.

2.3 Astin’s Student Involvement Model

It is important to balance the time you spend working or studying with the time you spend relaxing. Don’t push back on due dates: it is better to do a few hours of studying every night, instead of

¹These values taken from http://www.abet.org/Linked%20Documents-UPDATE/Criteria%20and%20PP/E001%2008-09%20EAC%20Criteria%2012-04-07.pdf

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pulling an all-nighter right before that big project is due. If you treat College like an 8 to 5 job, it can be much easier to handle. Follow the 60 hour rule:

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\frac{60 \text{ hours} - \text{Work}}{3} = \text{Credits}
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Be careful about pushing this number, the experience of your professor is that pushing the magical 60 hour limit leads to a drastic reduction in work quality.