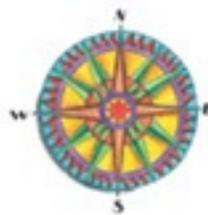# GREAT JOBS

FOR

Engineering Majors

Geraldine Garner

Second Edition

GREAT JOBS

FOR

Engineering Majors

Geraldine Garner

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This book is dedicated to Jerry Garner. The great love of my life!

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I would like to acknowledge the inspiration of the engineering students who have participated in the Cooperative Engineering Education (Co-op) Programs at Virginia Tech and Northwestern University. They all have made and implemented decisions about their engineering careers early in their college experience, and they have experienced the rich diversity that the field of engineering has to offer. They are unique undergraduate students, and it continues to be personally rewarding to learn of their professional successes in the field. Some have become leaders of industry and others will take their place as leaders in the years to come.

Special thanks must also go to engineering Co-op employers, both large and small, of Virginia Tech and Northwestern University. This very special group of employers recognizes the value of participating in the engineering education of successive generations of engineering students. They do so by providing the special supervision and progressive levels of experience that transform students into engineers. The individual interest and personal concern that these employers take in each student is quite incredible to observe. Without their guidance and support more students would have to find their way into the engineering profession through trial and error.

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ENGINEERING: A DEGREE FOR THE FUTURE

Y ou have chosen engineering as your college major and you may have also selected a specific engineering discipline. Unlike your friends in liberal arts, you *are* an engineer! Your concentration, specialization, or minor within engineering may further define your interests in the field. Nonetheless, you probably still face questions such as "What can I do with my degree?" "What are the career paths that I can follow?" and "How do I get there from here?"

While others may be saying "you have it made," "you can write your own ticket," and "the employers are only interested in engineers!," you may feel some degree of frustration, even bewilderment, in how to answer the questions above.

The good news is that your degree in engineering will provide a base from which you can build a wide range of opportunity to pursue your goals and dreams both now and in the future. But a word of caution—engineers do not always receive the special guidance and advice needed to make the transition from engineering student to engineering professional.

This phenomenon tends to happen for two major reasons. First, there is a popular myth that engineers have it made in the job market. After all, the majority of employers coming to the career services office are looking for engineers. Second, because most employers that come to career services are looking for engineers, these offices must have in place techniques and efforts to assist those in majors that are less often recruited. Unfortunately, when it comes to job search techniques and career planning, one size does not fit all, especially for engineers!

Techniques developed to assist liberal arts majors are not always appropriate for engineers. For example, liberal arts majors have the challenge of convincing employers that they possess generalized skills, such as organizational ability, the ability to work under pressure, communication skills, and so forth. All of these skills have the potential to be of value to prospective employers. On the other hand, engineers must quickly document and demonstrate that they have the specific technical skills demanded by their field and/or the positions for which they apply. For example, engineering majors must document and demonstrate their knowledge and experience in utilizing such things as statistical modeling software, computer aided design programs, and up-to-date programming languages. For engineering majors, these skills are not up for speculation.

In addition, industry's increased reliance on résumé databases means that engineering managers are searching the database using "keywords" that are very objective. Managers typically enter criteria, such as the engineering major required, the specific software applications needed on the job, and the years of related experience in the field. Engineering candidates must make sure that these are well documented on the résumé or they will not come to the attention of the hiring managers.

Another difference is the career paths available to engineering majors. Liberal arts career paths tend to be amorphous and individual. By contrast, many engineering employers offer both specific and customized career paths for entry-level engineers. Consequently, engineering employers have different expectations of their job candidates. This book is designed to help you meet those expectations.

It has been said that "Spectacular achievements are always preceded by unspectacular preparation." As an engineering major, you know the true meaning of those words. Those nights in the lab! The unending problem sets! While the starting salaries and the number of offers might be "spectacular" to family and friends, it is the rigorous and time-intensive (unspectacular) preparation that actually provides the foundation for achievement in a wide variety of careers, both in the field of engineering and outside of it.

While other majors may have to search and search for an opportunity, some engineers will have many options from which to select. That may sound wonderful, but it is not always easy, unless you know yourself, know the job market, and know the quality of life you want to have.

Today, engineers are not just in the manufacturing facilities of America. Engineers are in medical school and law school. They work in banks and insurance companies. They teach and they consult in areas ranging from

infrastructure to computer networking. Your options are almost limitless and the choices can be challenging to make.

Nonetheless, it is worthwhile to prepare well to find your place in this myriad of opportunities. The preparation will take time and commitment on your part. However, the results should be rewarding!

The best advice is to take it one step at a time. This book will begin by focusing on you. What are your goals, your interests, and your values? What are your personal strengths, and what are the technical skills that you have to offer?

As you progress through the book you will begin to focus on "what is out there." What is it? How do you prepare for it? And, what do you have to do to advance? As your self-knowledge and your knowledge of your field increases, you will begin to identify professional areas of interest for you. This will allow you to target those opportunities that are a good match for you at this point in time and that provide the basis for growth and development in the future.

Always keep in mind that the focus of this book is the career paths that are available to people who have majored in engineering. The paths are sufficiently broad in scope to provide great opportunities for you to find a good fit between your personal strengths, goals, and values and the environments in which engineers work. Career satisfaction is highly correlated to the fit between the person and the work environment, and career success is related, in part, to that satisfaction. Therefore, the process is very worthwhile.

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PART ONE

THE
JOB SEARCH

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THE SELF-ASSESSMENT

Self-assessment is the process by which you begin to acknowledge your own particular blend of education, experiences, values, needs, and goals. It provides the foundation for career planning and the entire job search process. Self-assessment involves looking inward and asking yourself what can sometimes prove to be difficult questions. This self-examination should lead to an intimate understanding of your personal traits, your personal values, your consumption patterns and economic needs, your longer-term goals, your skill base, your preferred skills, and your under-developed skills.

You come to the self-assessment process knowing yourself well in some of these areas, but you may still be uncertain about other aspects. You may be well aware of your consumption patterns, but have you spent much time specifically identifying your longer-term goals or your personal values as they relate to work? No matter what level of self-assessment you have undertaken to date, it is now time to clarify all of these issues and questions as they relate to the job search.

The knowledge you gain in the self-assessment process will guide the rest of your job search. In this book, you will learn about all of the following tasks:

- Writing résumés
- Exploring possible job titles
- Identifying employment sites
- Networking

- Interviewing

- Following up

- Evaluating job offers

In each of these steps, you will rely on and often return to the understanding gained through your self-assessment. Any individual seeking employment must be able and willing to express these facets of his or her personality to recruiters and interviewers throughout the job search. This communication allows you to show the world who you are so that together with employers you can determine whether there will be a workable match with a given job or career path.

HOW TO CONDUCT A SELF-ASSESSMENT

The self-assessment process goes on naturally all the time. People ask you to clarify what you mean, you make a purchasing decision, or you begin a new relationship. You react to the world and the world reacts to you. How you understand these interactions and any changes you might make because of them are part of the natural process of self-discovery. There is, however, a more comprehensive and efficient way to approach self-assessment with regard to employment.

Because self-assessment can become a complex exercise, we have distilled it into a seven-step process that provides an effective basis for undertaking a job search. The seven steps include the following:

1. Understanding your personal traits

2. Identifying your personal values

3. Calculating your economic needs

4. Exploring your longer-term goals

5. Enumerating your skill base

6. Recognizing your preferred skills

7. Assessing skills needing further development

As you work through your self-assessment, you might want to create a worksheet similar to the one shown in Exhibit 1.1, starting on the following page. Or you might want to keep a journal of the thoughts you have as you

Exhibit 1.1

SELF-ASSESSMENT WORKSHEET

STEP 1. Understand Your Personal Traits

The personal traits that describe me are:
(Include all of the words that describe you.)

The ten personal traits that most accurately describe me are:
(List these ten traits.)

STEP 2. Identify Your Personal Values

Working conditions that are important to me include:
(List working conditions that would have to exist for you to accept a position.)

The values that go along with my working conditions are:
(Write down the values that correspond to each working condition.)

Some additional values I've decided to include are:
(List those values you identify as you conduct this job search.)

STEP 3. Calculate Your Economic Needs

My estimated minimum annual salary requirement is:
(Write the salary you have calculated based on your budget.)

Starting salaries for the positions I'm considering are:
(List the name of each job you are considering and the associated starting salary.)

STEP 4. Explore Your Longer-Term Goals

My thoughts on longer-term goals right now are:
(Jot down some of your longer-term goals as you know them right now.)

STEP 5. Enumerate Your Skill Base

The general skills I possess are:
(List the skills that underlie tasks you are able to complete.)

The specific skills I possess are:
(List more technical or specific skills that you possess and indicate your level of expertise.)

General and specific skills that I want to promote to employers for the jobs I'm considering are:
(List general and specific skills for each type of job you are considering.)

STEP 6. Recognize Your Preferred Skills
Skills that I would like to use on the job include:
(List skills that you hope to use on the job, and indicate how often you'd like to use them.)

STEP 7. Assess Skills Needing Further Development
Some skills that I'll need to acquire for the jobs I'm considering include:
(Write down skills listed in job advertisements or job descriptions that you don't currently possess.)

I believe I can build these skills by:
(Describe how you plan to acquire these skills.)

---

undergo this process. There will be many opportunities to revise your self-assessment as you start down the path of seeking a career.

STEP 1 Understanding Your Personal Traits

Each person has a unique personality that he or she brings to the job search process. Gaining a better understanding of your personal traits can help you evaluate job and career choices. Identifying these traits and then finding employment that allows you to draw on at least some of them can create a rewarding and fulfilling work experience. If potential employment doesn't allow you to use these preferred traits, it is important to decide whether you can find other ways to express them or whether you would be better off not considering this type of job. Interests and hobbies pursued outside of work hours can be one way to use personal traits you don't have an opportunity to draw on in your work. For example, if you consider yourself an outgoing person and the kinds of jobs you are examining allow little contact with other people, you may be able to achieve the level of interaction that is comfortable for you outside of your work setting. If such a compromise seems impractical or otherwise unsatisfactory, you probably should explore only jobs that provide the interaction you want and need on the job.

Many young adults who are not very confident about their attractiveness to employers will downplay their need for income. They will say, "Money is