TABLE OF CONTENTS:

Aerospace Engineering ........................................... 1
Biomedical Engineering ........................................ 30
Civil Engineering ............................................... 39
Computer Engineering ......................................... 85
Computer Science ............................................. 103
Electrical Engineering ......................................... 124
Environmental Engineering ................................... 141
General Engineering .......................................... 161
Industrial Engineering ....................................... 184
Manufacturing Engineering ................................. 236
Materials Engineering ....................................... 246
Mechanical Engineering ..................................... 276
Software Engineering ....................................... 357
MS Engineering .............................................. 360
Aerospace Engineering

Informational Interviews - Alex Chin

Alex Chin
Cal Poly - B.S. in Aerospace Engineering with concentration in Astronautics, June 2011

Employer:
National Aeronautics and Space Administration, Edwards, California

Title:
Aerospace Engineer

How long in current position:
Since August 2011

Description of overall job duties and responsibilities:
I work in the aerostructures research branch at NASA's Dryden Flight Research Center. The aerostructures branch focuses on a wide variety of topics that include static and dynamic loads analysis, advanced sensor and measurement system development, and structural testing, to name a few. I specifically work in the structural dynamics research group. Our goal is to support NASA's aeronautics research mission directorate to develop lighter and more fuel efficient aerospace vehicles. My duties include model development and using tools to perform flutter, aeroservoelastic, and optimization analysis. I also work closely with the controls research branch to find ways to actively suppress adverse aeroelastic phenomena due to using lighter structures in flight. I am also working on mass properties testing of new space vehicles developed by commercial space flight companies in support of NASA’s commercial crew and cargo program.

What is a typical day like?
On a 'typical day' I come into the office and work on coding or model development. Various project and technical meetings may be scattered throughout the day related to projects I am working on. In addition to the normal routine, there are many perks to working at an organization such as NASA, and especially at Dryden Flight Research Center. Most of the time, the research vehicles we are working on are parked at the center. It is
easy to take a stroll from your desk to the hanger to see with your own eyes the vehicle you are supporting. World-class experts are very accessible to provide technical guidance and help on your work. The center often hosts special guests such as astronauts, aerospace leaders, or even celebrities for seminars and colloquiums. As a government employee, you are also in a unique position to work with industry and academia in research and development activities.

**What personal qualities or abilities are important to being successful in this position?**

You should be good at communicating with people, have a solid technical background, and have decent organizational skills.

**What technical skills are important to being successful in your job?**

The ability to learn new technical skills and know where to look or who to ask if you need information is very important. In my specific technical area, I am using almost everything I learned from school. Applied mathematics, controls, structures, aerodynamics, design, technical writing, and even elements of systems engineering have come across my desk. The key is to know that you have seen a lot of these concepts before and you should be able to know where to look for more information. You also learn a lot on the job, so you must be good at teaching yourself these skills and asking for help when needed. Fortunately, at NASA there are plenty of resources and experts to help you in your job.

**What part of this job do you find most satisfying?**

Knowing that I am serving my country and humanity in helping to develop the next generation of aerospace vehicles. There is a lot of pride in this job to work in research and development and seeing projects you are working on showcased in news and magazines.

**What part of this job do you find most challenging?**

My job is very technically challenging. At times I feel overwhelmed on how much I still need to learn and understand to support on-going research.

**What type of training was offered for your position?**

Although budgets continue to get tighter at NASA, if you require training, NASA will support it. Even after my short time at NASA so far, I have taken several short courses to learn new technical skills or software I am using for work. NASA also offers many leadership development and management courses throughout the year. In the past year, I also had opportunities to travel to other NASA centers such as Langley Research in
Hampton, VA and Johnson Space Center in Houston, TX to attend workshops and seminars.

What advice would you give to students thinking about majoring in Aerospace?

You should major in aerospace engineering because you have a passion for airplanes or spacecraft. I found that people choose aerospace engineering because they know where they would like to apply their engineering knowledge going into college. However, do know that while mechanical, electrical, and computer engineers can go into aerospace industries, it is not always so easy for aerospace engineers to go into other engineering fields. That being said, I have no regrets choosing aerospace engineering because I had a focused goal on what industry I wanted to work in as a career.

What are possible career paths/promotional opportunities from your current position?

There are many different career development opportunities at NASA. As a new hire in a technical field, NASA offers an accelerated promotion path up to the GS-13 level which is higher than most places in the federal government. Beyond this level, NASA offers management and technical promotion opportunities based on skills and experience. Working for the federal government, and especially NASA, provides a lot of flexibility and mobility to pursue opportunities within the center, agency, and at other federal locations. Extended details and training are not uncommon to allow employees to develop their careers. Once excellent program I plan to apply for in the future is NASA's graduate studies program. This competitive program allows employees to leave for a year to pursue full time graduate studies in their field. NASA will pay for all tuition costs and you still get your full salary!

Is there any other advice you would like to share?

While you are in college, make sure you get involved in different clubs and organizations to get experience. Summer internships and Co-Ops are some of the best ways to get on the job experience. These internships allow you to learn new skills and help you realize what you would like and not like to do as a career. Even experience that does not seem to be related to your major can be valuable. Do not burn bridges and be sure to maintain cordial relationships with your classmates and professors. They may be your future references, colleagues, and professional contacts one day!
Informational Interviews - Alicia Robertson

Alicia Robertson

Cal Poly - M.S. + B.S. in Aerospace Engineering, March 2006

Employer:

Lockheed Martin Space Systems - Sunnyvale, CA

Title:

Mechanical Engineer
How long in current position:

11 months as of July 2006

Description of overall job duties and responsibilities:

I am in an aerodynamics group and we support several different projects rather than being assigned to one specific project. We use wind tunnel test, CFD, and other computer codes to determine the aerodynamic forces and moments to support several different programs.

What is a typical day like?

My hours are flexible within reason, as long as I put in all of the required hours, complete my work and am available for any group meetings I might have. I spend most of the day working at my computer. I work throughout the day with some of the other engineers in my group, asking each other questions and checking data. Occasionally, depending on the project I am working on, there will be a meeting with people from the other groups working on the project in the same context to make sure we are all on the same page and to keep track of our progress. Sometimes I work with those engineers to ensure that I have the data I need from them and am using it properly and vice versa.

What personal qualities or abilities are important to being successful in this position?

- Problem Solving - It is important to be a good problem solver; you will be asked to do many things you didn’t learn in school and need to have the confidence and the ability to tackle those problems. Being open to learning new things and trying something new is absolutely necessary.
- Learning - You have to be ready and willing to learn new things. It is also important not to be afraid to ask questions because there are so many people with so much experience who have a lot to offer.
- Communication - Effective communication is essential, both written and verbal.
- Professionalism - As a newer and younger employee, maintaining a professional demeanor is important as well.

What technical skills are important to being successful in your job?

I use different CFD software packages and gridding programs. My background in that area
from the work on my thesis was very helpful. I also use Missile Datcom and many other similar programs. Many of the tools used by my group are specific to our group and can’t be learned beforehand, but understanding the basic background of aerodynamics is an important technical skill so you can understand the tools when you do learn to use those. Many engineers in the groups around me use IDEAS. Computer programming skills are also a big bonus. Even if they aren’t required, they make many tasks easier and make you more marketable within the company.

What part of this job do you find most satisfying?

I find being given responsibilities on a project as the only representative of my aerodynamics group most satisfying because all of the work is up to me, but I know that there are more experienced people in my group who are willing to help if I need it.

What part of this job do you find most challenging?

I find it most challenging to work with other engineers who sometimes are very closed minded and either won’t share their ideas or won’t listen to yours. Working with people who can’t communicate their thoughts and ideas well is also a challenge.

What type of training was offered for your position?

I have attended two different training sessions that were provided by the makers of some of the software programs that my group uses. Those were very helpful. Much of my training comes from interacting and listening to what the more experienced people have to offer.

What advice would you give to students thinking about majoring in Aerospace Engineering?

Be proactive in your education and career. You always get out what you put in. Don’t wait until it’s too late. Also, there are so many different jobs that can stem from an Aerospace Engineering background so don’t limit yourself; you can find a way to apply it in a way that interests you.
What are possible career paths/promotional opportunities from your current position?

As an engineer, there are opportunities to stay on the technical side, either in my current position or in any number of other technical positions. There are also opportunities for the right candidates to progress toward the leadership side and prepare for more of a management track. That could still mean managing technical projects, but regardless at such a large company, you really can do whatever you want if you can find an open position. Many of the employees, even those who have been here for several years, have held several different positions in their time.
**Informational Interviews - Blaine Bisquera**

**Blaine Bisquera**

Aerospace Engineering, Concentration; Aeronautical Engineering, Graduation Date; June, 2008

**Employer:**

HITCO Carbon Composites, Inc

**Title:**

Estimating Engineer

**How long in current position:**

1 Year, 2 months

**Description of overall job duties and responsibilities:**

Receive, review and interpret customer bid packages. Job duties include review of all incoming bid packages, including all documents and 3D models/drawings, presenting data packages to the upper level executives and president of the company, providing technical assistance to Engineering for the estimation of package and assistance with final submittal of documents to the customer.

**What personal qualities or abilities are important to being successful in this position?**

Need to have good communication skills and be able to think on your feet and provide technical assistance/feedback to upper level executives.
What technical skills are important to being successful in your job?

A broad understanding of aerostructures and composite manufacturing techniques.

What part of this job do you find most satisfying?

Interaction with upper level executives/management and direct interaction with customers.

What advice would you give to students thinking about majoring in Aerospace Engineering?

Be interested in the subject at hand and do more outside of the classroom. Be involved in clubs and what is going on in industry. Most importantly try to get an internship.
**Informational Interviews - Chheang Yang**

**Chheang Yang**

Cal Poly - M.S. in Engineering, with specialization in Engineering Management + B.S. in Aerospace Engineering, June 2005 (Joint BS/MS Program)

**Employer:**

Lockheed Martin - Sunnyvale, CA

**Title:**

Systems Engineer

**How long in current position:**

Three months as of August 2005
Description of overall job duties and responsibilities:

- Developing and documenting requirements
- Coordinating with other subsystems

What is a typical day like?

The day begins around 6:30am when I arrive at the office. It really begins before 6:00am when I get up and get ready, but I arrive at the office around 6:30am. I'll spend the early parts of the morning answering emails sent throughout the evenings. Next it's prepping for meetings throughout the day, going to meetings, and finally when there's the opportunity to be at the desk, writing / finishing up documentation.

What personal qualities or abilities are important to being successful in this position?

I think one of the most important abilities is communication. Systems engineers must interface with many different disciplines and of people of all levels within the organization. Explanations and questions must transcend all barriers. Questions must be asked in such a way that the answer would be exactly as was sought. The same with answers; answers must be in a language that the receiver will understand.

What technical skills are important to being successful in your job?

As a systems engineer, it's not necessary to have an in-depth understanding of all these technical skills, but it's very important to have an understanding of each of these skills. It's important to have a basic background in each of these skills—ProE, physics, programming, thermal, structures, fluids, aerodynamics, electrical engineering, etc. The more knowledge, the better. As the old saying goes, "Knowledge is power."

What part of this job do you find most satisfying?

I find that I am most satisfied when I am able to help someone understand something, or help someone find the answer to their question. It's also nice to have people complying with requirements you developed.
What part of this job do you find most challenging?

The most challenging part of the position has been to get caught up with a program. I jumped onto this program many years after it was started. There’s been so much already done in the program and I’m just now getting my feet on solid ground. The hardest part is trying to figure out how everything all fits, all the while explaining to others who’ve been here for a while, how it all fits. There are thousands of acronyms for this program and I’ve only got a feel for maybe a quarter of them.

What type of training was offered for your position?

Everyone was super helpful, but there wasn’t any real systems engineering training. I was able to ask others how things were done and ask how to do things, but there wasn’t “training.” There was an orientation thing, but that was orientation to the organization, and not job training.

What advice would you give to students thinking about majoring in Aerospace?

Follow what you want to do. If it’s systems, go for it. Also, don’t stop learning. Take every class you can, regardless if it pertains to your major. Knowledge is power. And most importantly, enjoy your time while in college. The real world will always be here. You’ll have the opportunity to jump into it any time you want. You’ll never have the opportunity to jump back into the “college world.”

What are possible career paths/promotional opportunities from your current position?

Possible career paths are endless. Personally, I will try to find my way to the top of the “corporate ladder.” At Lockheed, you can choose a technical path or a leadership path. I’m confident that I’ll be taking the leadership path. I’m not sure what’s in store for the future, but I hope I’ll be traveling down this leadership path.
Dan Salluce

Cal Poly - M.S. + B.S. in Aerospace Engineering, March 2004 (Blended Program)

Employer:

Northrop Grumman Corporation - El Segundo, CA

Title:

Lead Simulation Engineer

How long in current position:

Three years as of September 2006

Description of overall job duties and responsibilities:

I oversee development of all guidance navigation and control simulation tasks for a major government funded program. I have a small team which develops simulation models and develops control laws. I also run a simulation lab not unlike the Cal Poly Flight Simulator project.
What is a typical day like?

I get in at 9:00 am; attend a couple meetings, spend about two hours on the phone; four hours emailing; four hours writing code, running simulations, or performing actual engineering. I spend a lot of time communicating. I leave work at around 7:00 or 8:00 pm on most days. Sometimes I will stay at home for a couple hours in the morning and reply to emails and coordinate activities.

What personal qualities or abilities are important to being successful in this position?

One must have patience, be good at communicating, and really know how to work independently. I think independence on the job is a real enabler for new engineers. I try to model my work habits after those older engineers who seemed to be most successful. They all seem to be able to solve problems on their own or at least navigate through a lot of information to find the resources they need to educate themselves on a topic. I work with interns, junior engineers, and even some senior engineers(!) from other universities who still give up or come back to me with questions when assigned a task with which they are unfamiliar. This usually happens before he/she even attempts to do some research on his/her own. Leveraging the fact that Cal Poly teaches students to learn by doing goes a very long way—try not to forget that.

What technical skills are important to being successful in your job?

A good understanding of dynamics, flight principals like aerodynamics and controls, and lots of Matlab are key. If you are an “aircraft” or “spacecraft” person, don’t be afraid to take a class in the other concentration—it might go a long way.

What part of this job do you find most satisfying?

I get to work with astronauts on piloted simulations out at Johnson Space Center—this is highly rewarding although very taxing.

What part of this job do you find most challenging?

I find it hard to do the more administrative stuff like filing forms and following company processes—I lose interest and find myself doing a poor job.

What type of training was offered for your position?

All kinds, but it is best if you go in knowing what you like and what areas you want to focus on. Although you could walk in to a Catia (CAD) position only knowing a little,
Northrop Grumman will train you from the ground up. You most likely wouldn’t like it though unless you knew this was an area you were interested in. MBA programs, after hours sessions, all kinds of opportunities exist. I heard that the health center was even teaching stress-relieving self-massage at one point.

**What advice would you give to students thinking about majoring in**

Really try to work on a project outside of class and get exposed to industry as much as possible. It helps to be exposed to the “real world” and not just think your professors and academia present the only “right” way to do things. In my opinion, people who say you don’t really need to hone/develop skills in college and that you just have to learn to learn are dead wrong. You will really shine in a new job in aerospace if you come in on day one prepared to work without detracting from the performance of others by asking tons of questions. If you like your thermal classes now, focus on that and at least have something you can claim you like/and are good at on your resume. This will go a long way. I’m tired of reading resumes where people come in to an interview and say “I’ll do anything”. In reality this rarely is the case. Most junior engineers will find that although they will say that to get in the door, within months they will find themselves complaining to their friends about how boring their job is.

**What are possible career paths/promotional opportunities from your current position?**

It is a huge company, so there are all kinds of paths. Some people go to the more entry-level manager position (these are less technically inclined usually) while others go on to be fellows or specialists in engineering.
Informational Interviews - Daniel Iverson

Daniel Iverson

Cal Poly - B.S. in Aerospace Engineering, March 2005
University of Southern California - M.S. in Industrial & Systems Engineering, May 2008

Employer:
The Boeing Company - Seal Beach, CA

Job Title:
Systems Engineer - Software Integration, Verification, and Validation

How long in current position:
1 year, 3 months as of April 2008
Description of overall job duties and responsibilities:

My overall job duties and responsibilities include the integration, verification, and validation (IV&V) of software system concepts, interfaces, and requirements by inspection, analysis, test, and demonstration to assure that the system architecture and design concepts satisfy the intent of the customer requirements. This includes developing and documenting the validation plan, monitoring, evaluating and approving the verification results, and coordinating resolution of anomalies.

What is a typical day like?

A typical day includes attending meetings in the morning, doing peer reviews of technical documentation, attending more meetings in the afternoon, heading into the lab to execute a few test procedures, documenting the results of those test procedures, attending late meetings, and finally grabbing a bite to eat on my way home.

What personal qualities or abilities are important to being successful in this position?

Collaboration, communication, project management, and systems thinking are all important. Ultimately, having the ability to work well with all kinds of different people on all kinds of different tasks is the key to being successful.

What technical skills are important to being successful in your job?

Analytical skills, database management experience, engineering analysis/processes, requirements writing, and test program design are all important technical skills for this job.

What part of this job do you find most satisfying?

I enjoy problem solving and providing technical solutions to a wide range of problems. It is especially satisfying to work with other engineers to develop solutions that are imaginative, thorough, and consistent.

What part of this job do you find most challenging?

The most challenging part of this job is getting past all the bureaucracy and slow processes that are required to get things done. The biggest adjustment for me coming out of college was learning to slow down to the corporate pace.
What type of training was offered for your position?

Training is unlimited at Boeing. From mandatory things like export awareness and ethics to voluntary things like Excel and Access "lunch and learns", there are lots of opportunities to learn new skills and refine old ones.

What advice would you give to students thinking about majoring in Aerospace Engineering?

Be absolutely sure that Aerospace is your true passion. If aircraft and/or spacecraft are only a subset of your interests, then I would suggest a more general field such as mechanical or systems engineering.

What are possible career paths/promotional opportunities from your current position?

In most engineering companies, you can continue up the ladder in the technical arena, or you can jump into a leadership/management type role. Either way, it helps to seek out a mentor, or get involved in a job rotation program so that you can figure out what you like to do.

Is there any other advice you would like to share?

Take advantage of all the time and opportunities you have at Cal Poly. Working isn't always bad (especially not on payday), but it's never as fun as college was.

Daniel Iverson - Informational Interview completed April 3, 2008
Informational Interviews - Justin Maneely

Justin Maneely

Cal Poly - B.S. in Aerospace Engineering, June 2007
Concentration, Astronautics: Propulsion and Orbital Mechanics

Employer:
Aerojet

Job Title:
System Engineer

How long in current position:
3 years

Description of overall job duties and responsibilities:

System Engineers at Aerojet are responsible for requirements definition and management, risk assessment and management, and system integration. We ensure that good system engineering processes are followed (over the entire product life cycle) no matter what the program or end product is. We also oversee the processes relating to trade studies and milestone reviews.
What is a typical day like?

A typical day for me involves working with each of my design groups (there is one for each component of the rocket engine) - coordinating between them and ensuring that their designs are on track to meet the system requirements. I maintain the requirements and risk databases. I also help coordinate risk assessments and trade studies.

What personal qualities or abilities are important to being successful in this position?

Good communication skills and good team working skills. Computer skills are also a must. Also need to have good presentation skills, as there are many design reviews along the way. It's also good not to take things personally when rocks get thrown at your work - it's always best to get something out there and let your peers review it, rather than slaving away in your cube and trying to get things perfect before you share them.

What technical skills are important to being successful in your job?

A good understanding of all aspects of rocket engines. A good understanding of what makes a good requirement, and the design process over a product's entire lifetime.

What part of this job do you find most satisfying?

satisfying = The best part is because system engineers are involved over the entire product's lifetime, I get to work on projects where I'm there at the beginning coming up with concepts and ideas on what we want to make and I'm there at the end when we actually get to make hardware and smoke and fire. I also enjoy working with all the design groups and coordinating between them - I basically get to decide what they have to design.

What part of this job do you find most challenging?

At times the coordination between all of the groups can be tough - as they want to dig in as much as possible, when that may not be appropriate at the current level of design. It can be like herding cats.

What type of training was offered for your position?

As far as on the job training (or training once I was hired), I took a class on the software we use to manage requirements (DOORS). I've also had training on six sigma tools and processes. As far as training in college, I just took concentration classes within my major that I found interesting and tailored my job search around that.
What advice would you give to students thinking about majoring in Aerospace Engineering?

If you don't like working hard - don't become an aerospace engineer. It's a lot of work. A lot of work. If you would rather be lazy and not work super hard everyday, go to film school. But if you don't mind working to your potential, and you like working on technologies that can have a big affect on our world, become an aerospace engineer.

What are possible career paths/promotional opportunities from your current position?

Basically you have two options: climb the technical ladder and become an expert on some technical aspect, or climb the managerial ladder and become an expert on some process.

Is there any other advice you would like to share?

When you're choosing your career path, remember that the bottom line is you'll want to be happy. If you can find a job that you truly enjoy and look forward to going to everyday, you've found your path - don't be afraid of changing your path if you're not happy!
Nick Georgiades

Cal Poly - B.S. in Aerospace Engineering, Concentration: Astronautics, June 2011

Employer:
The Boeing Company

Title:
Systems Engineer

How long in current position:
2 months

Description of overall job duties and responsibilities:
System requirements development and analysis, system analysis support, and interface control.

What is a typical day like?
Lot's of reading, writing, communicating between subsystems, and meetings.

What personal qualities or abilities are important to being successful in this position?
Big picture thinking, asking good questions, thinking about problems in different points of views

What technical skills are important to being successful in your job?
Understanding engineering concepts, ideas, and vocabulary. Being able to read schematics, block diagrams, basic software developing knowledge.
What part of this job do you find most satisfying?

Working with real systems from the beginning to the end of the system life. That and the opportunities for traveling and networking in house.

What part of this job do you find most challenging?

Thinking outside of my academic background. I work in marine systems, and the environment that the systems operate is different than what we were taught in school. It helps though, because it means I’m conscious of the fact that I don’t know much. It’s a good reminder to always ask questions and find out more about what you don’t know.

What type of training was offered for your position?

Very little, some online courses, but mostly left to find my own way to solve problems.

What advice would you give to students thinking about majoring in Aerospace Engineering?

Be open minded about where you think you’ll end up working, just because you major in aerospace doesn’t mean you have to go work on airplanes or spacecraft. Aerospace engineering conditions the student to thinking about big complex systems that have a lot of different parts, and there’s a lot of those out there that are never supposed to leave the ground.

What are possible career paths/promotional opportunities from your current position?

Seemingly limitless. Boeing offers in house transfers between various positions, as long as you are qualified. They also offer educational opportunities to help you become qualified. And then I could switch into management if I wanted to within a few years. Or I could stay where I am and work up to become a lead technical specialist in systems engineering.

Other Advice

Just because it seems like there aren’t many jobs doesn’t mean they aren’t there. Sometimes you have to look in the most unlikely places to find one.
Paul Riley
Cal Poly - B.S. in Aerospace Engineering, June 2008

Employer:
General Electric - Cincinnati, OH

Title:
Engineer, Edison Engineering Development Program (EEDP)

How long in current position:
Since July 2008

Description of overall job duties and responsibilities:
I work for GE Aviation (formerly GE Aircraft Engines), a part of General Electric Company
(NYSE: GE). GE Aviation is the world’s leading designer and manufacturer of commercial jet engines, as well as a leading supplier for jet engines for military and business/general aviation aircraft. Some of our engines include the GE90, used on the Boeing 777; the CF6, found on the Boeing 767 and 747; the CF34, found on Embraer and Bombardier regional jets; and the GEnx, found on Boeing’s new 787 Dreamliner and 747-8 Intercontinental. GE Aviation also has a growing Aviation Systems business that supplies key mechanical, electrical, and avionic subsystems to airframers like Boeing and Airbus, as well as to engine manufacturers. I was hired into GE’s Edison Engineering Development Program (EEDP). The EEDP is GE’s technical leadership and training program for engineers, and is present in GE’s other nonaviation businesses, including GE Energy, GE Healthcare, and GE Water & Process Technologies. As part of the program, I am responsible for completing three 6-10 month rotational assignments in different engineering organizations across GE Aviation, and for completing my master’s degree in an engineering field. I am currently in my first rotation, and will be rotating out of it in early May 2009. Master’s degree coursework is completed using two modes. The first mode is completing traditional graduate level coursework at a university. EEDP engineers stationed at GE Aviation’s Cincinnati headquarters complete coursework at either Ohio State University or University of Cincinnati in the fields of either aerospace, mechanical, electrical, or materials engineering. GE provides Edison engineers two quarters off of work to take classes full-time. The second graduate coursework mode is GE’s three-course Advanced Course in Engineering (ACE) sequence. Edison engineers must successfully complete these three classes. These courses are taught during the workday by GE engineers, and are geared specifically toward jet engine design. A different topic is covered each week, and each week the instructor is the GE Aviation industry expert in that particular subject. There is a homework assignment each week that must be completed outside of business hours, and a 20-40 page report detailing your analysis is due every week. I’m currently halfway done the first ACE course, which is the longest of the three; it runs for 35 weeks.

What is a typical day like?

• I usually arrive at the office at 8:00 AM, sometimes earlier if necessary. After responding to any e-mail I received after I left work the previous day, I start working on my projects. For my first rotation, I have been assigned to the Energy Systems & Technology group, a part of GE Aviation’s Advanced Technology & Preliminary Design department. This group in many ways functions as a link between GE Aviation and its subsidiary GE Aviation Systems. The group used to be called Electric Power & Thermal Systems, so as you can imagine my group does a lot with electric power extraction from the engine and engine thermal management system development. One project I am working on is electric power extraction from the LEAP56 engine. LEAP56 is the engine GE is designing with the French company Snecma for the next generation of narrow-body aircraft. LEAP56 will replace the CFM56, which is the most successful and popular jet engine in aviation history; the CFM56 powers all Boeing 737s (as the result of a single-source agreement negotiated with Boeing), and the bulk of all Airbus A319, A320, A321, and A340-model aircraft. (CFM International is the legal entity formed by the 50/50 joint venture of General Electric Company and Snecma.) For this project, I work closely with Snecma engineers in France, and I have a phone conference with
them at least once a week.

- The other big program I am working on right now is tool development for the Air Force under the HiPEAC (High Powered Electric Aircraft) contract. Specifically, I am working on developing Simulink libraries that can be used to model an aircraft’s thermal management system in transient and steady-state modes.
- At the end of the day (~5 PM), I stop work on business-related tasks and transition to working on my ACE homework. While we write individual reports to turn in every week, we do solve the problems in groups of four people. I usually go to the building where a couple of the other engineers in my group work, and we work there on solving the problem. I usually get home sometime between 9:00 and 10:00 PM, and will work for a few more hours, and typically go to bed between midnight and 1:00 AM.

What personal qualities or abilities are important to being successful in this position?

If you are in GE’s Edison program, you definitely must be motivated since there is a lot of work you must complete on your own outside of business hours. You also must be a fast learner and flexible since you’re only in a certain rotation for a limited amount of time, and you want to be able to make the most of it. Additionally, don’t be afraid to ask others if you need clarification about something you don’t understand. The other engineers at GE know you have no experience and are more than willing to help you, but you have to ask! Being a good communicator is also essential. I work regularly with engineers at other companies who I have never met and I’ve only spoken with them over the phone. Since the phone is basically our only mode of communication and I don’t have the luxury of being able to go over to their cubicle to speak with them in person, it is important that I am clear on the phone. Additionally, if we exchange any documents such as PowerPoint presentations, they MUST be well written and clear!

What technical skills are important to being successful in your job?

For my current rotation, being competent in MATLAB/Simulink (especially Simulink) is very important. Having a basic understanding of conduction and convection heat transfer is also very important. Additionally, it’s helpful to be able to understand and know how to analyze data. My group conducts tests on engine components relatively frequently, and being comfortable with data reduction is a plus.

What part of this job do you find most satisfying?

The part of this job that is most satisfying is the opportunity it has given me to learn about things I hadn’t before known anything about. Just learning about all of the considerations that go into designing, testing, analyzing, repairing, and manufacturing GE’s jet engines has really been eye-opening. I could never imagine doing a job where I’m doing the same thing everyday year after year. Because I’m constantly learning, I’ve
developed a lot of interest in things I hadn’t before considered (such as heat transfer analysis and turbine design). I also find it really satisfying to work in a company like GE where employee integrity is paramount. I value the emphasis that the company puts on engineering ethics and product safety. I have absolutely no qualms about flying on an airliner powered by a GE engine.

**What part of this job do you find most challenging?**

The most challenging part of this job is working with other engineers who lack communication skills. It can be very challenging trying to facilitate understanding and ensure analysis has been done correctly when the engineer you are working with cannot articulate effectively his method, approach, or ideas. It can also be difficult sometimes staying awake in my cubicle in the afternoon when I’ve been up late the night before working on ACE homework!

**What type of training was offered for your position?**

All Edison engineers are required to complete three specific training classes. These classes are Introduction to Geometric Dimensioning and Tolerances, Six Sigma Green Belt training, and Jet Engine Teardown School (JETS). So far, I’ve only completed JETS. In JETS, you and three other people spend a week completely tearing down and reassembling a CF34-8E engine. This is a great opportunity to get up close to engine hardware, and to see firsthand various engine components that you may have heard about but had never seen. In addition to these classes, GE offers a wealth of other training classes that employees are free to take with approval from their managers. These classes include things like ANSYS training, CFX training, Engine Life Analysis Methods, and Introduction to Rotating Parts Design.

**What advice would you give to students thinking about majoring in Aerospace Engineering?**

It is a very demanding and time intensive field, so be prepared to put in the work!

**What are possible career paths/promotional opportunities from your current position?**

GE heavily emphasizes a strong technical foundation, and generally Edison engineers work for 7-10 years in an engineering functional group after coming off program before being taken seriously for another role. Generally, there are three different career paths available at GE: technical leadership, organizational leadership, and business leadership. The technical leadership path entails the progression from engineer/lead engineer to Staff Engineer to Senior/Principal Engineer to Consulting/Chief Engineer. Organizational leaders include people like engineering section/sub-section managers and the general manager of engineering departments like Advanced Technology & Preliminary Design, Combustion Center of
Excellence, Airfoils Center of Excellence, and Product Development & Delivery. The business leadership path is generally accessible to people who’ve held a role as an organizational leader. Business leaders would include people like program managers (e.g. GE90 Program Manager), Vice President of Sales, Vice President of Engine Services, Vice President of Engineering, Vice President of Human Resources, and President/CEO. These individuals are frequently corporate officers of the General Electric Company as well. GE Aviation’s current vice presidents of marketing and engineering and the current president/CEO are all former Edison engineers.

Is there any other advice you would like to share?

Don’t sell back your engineering textbooks—you’ll need them as reference materials. In the real world, the vast majority of problems (at least in jet engine design) do not have a closed-form solution. Everything requires an iterative solution; being skilled at recognizing when this is the case and at using tools like Excel and MATLAB to implement an iterative solution is essential. If you are ever presented with the opportunity to learn new software like ANSYS, CFX, or Unigraphics, take advantage of it as this will make you more marketable, and save you a lot of time when you first start work. Realize that MATLAB is a valuable tool, but that it is not the only tool that can be used to solve many problems. The athWorks’ business model is to give software licenses to universities essentially for free so that students become well versed in (and dependent on!) MATLAB. (The professors at Cal Poly have helped The MathWorks by pushing MATLAB hard!) The MathWorks, however, charges companies ~$10,000 for a corporate license. Even large conglomerates like GE can’t afford this price, so the number of MATLAB licenses available to the company is limited. My position specifically requires MATLAB because I’ve been tasked with developing a tool specifically for Simulink; however there have been many times when I haven’t been able to access MATLAB because all of the floating licenses are checked out by other employees. MATLAB is great, but once you leave academia be aware that it will be beneficial to be well versed in another program like Excel or MathCAD that has some of the same functionality.

Paul Riley - Career Profile completed December 9, 2008
Enzo Silipo

Cal Poly - M.S. in Engineering, Specialization in Biomedical Engineering, June 2007
UC Davis - B.S. in Mechanical Engineering and Materials Science, December 2001

Employer:


Job Title:

Sr. Technical Service Specialist

How long in current position:

Two years as of April 2009
Description of overall job duties and responsibilities:

I attend implants of our pacemakers, ICDs (Implantable Cardioverter Defibrillator) and CRT (Cardiac Resynchronization Therapy) devices, where I am responsible for testing and evaluating the efficacy of the systems as well as appropriately programming the various parameters of each implanted device. I also check patients to ensure that their devices are functioning appropriately. There are times when I get called into the E.R. to troubleshoot devices and assess if the device is functioning appropriately or not.

What is a typical day like?

With this job there is no typical day. One day I may be driving from hospital to hospital performing implants, while the next day may be spent checking people’s devices, ensuring that they are properly programmed and functioning appropriately. I have had 2 hour days and I have had 16 hour days--it just depends on what is scheduled and what pops up last minute. Flexibility is key to being able to survive in this job.

What personal qualities or abilities are important to being successful in this position?

A strong work ethic, self driven, adaptable, thinking “outside the box”, and being personable are key qualities to success in this industry. These qualities can be applied to everything in life and not limited to career.

What technical skills are important to being successful in your job?

Technical skills range from problem solving, basic human anatomy, basic pharmacology, familiarization with pacing and ICD algorithms, and understanding of EKG’s and EGM’s.

What part of this job do you find most satisfying?

The impact that we have on the quality of life is the single most satisfying portion of my job. These devices have the ability to make significant differences to an individual’s well being as well as give some a second chance at life.

What part of this job do you find most challenging?

The sales aspect of the job can be very challenging but very gratifying as well. Creating new relationships with the customer and proving yourself technically is very important and can take years. Also, a single technical mistake is enough to shatter any confidence and trust built up through the years. This can be very stressful at times, but obtaining respect and trust from the customers can be very rewarding.
What type of training was offered for your position?

Training occurred in a classroom setting at our sales headquarters in Austin, TX, in the cathlabs at the hospitals (training on the job), and online educational modules offered by the company. Because our company releases many new products throughout the year, online training is primarily used to keep the field force up to date. We also have larger product launches where the company will host an event at various cities throughout the US.

What advice would you give to students thinking about majoring in Biomedical Engineering?

Nothing prepares students for a real life work environment like a co-op or an internship. These opportunities allow students experiences that cannot be attained in a classroom or a lab. I think it is an invaluable opportunity to see what they like and/or what they don’t like about their chosen profession.

What are possible career paths/promotional opportunities from your current position?

Working in the field has given me a significant level of visibility within the company and it is not uncommon to go from a sales job to an “in-house” position. The field position prepares people well for many divisions, such as Marketing, Research, Management, Engineering, etc.

Is there any other advice you would like to share?

Be sure that you love what you do. Once a job becomes a “job,” all desire to exceed expectations and succeed dissipates. You spend most of your life working, it may as well be something you have fun with and enjoy.

Enzo Silipo – Informational Interview completed April 7, 2009
Rudolph Zacher

Cal Poly, M.S. in Engineering with a concentration in Biomedical Engineering, December 2008, B.S. in Biomedical Engineering, December 2008 (Blended Program)

Employer:

Alcon Laboratories, Inc. - Irvine, CA

Job Title:

Mechanical R&D Engineer

How long in current position:

Seven months as of May 2009

Description of overall job duties and responsibilities:

I am a research and development engineer for new devices for cataract surgery. I work specifically on parts that contact with the cornea when performing cataract surgery with the goal of decreasing patient injury and surgical time.
What is a typical day like?

Depending on the projects status, I work with the design of surgical components, followed by prototyping, then creating and performing testing for prototype evaluation. Along with this, there are a number of smaller projects that pop up increasing my knowledge and experience with Alcon. I spend a decent amount of time working with vendors for product development.

What personal qualities or abilities are important to being successful in this position?

Effective communication skills are huge in a big company like Alcon. I have been complimented on communication skills and eagerness to work and work well. A positive attitude day-to-day is huge and will help you in the long run. The easier you are to work with, the more people will want to work with and help you. It is also important to be able to effectively learn new tools, and have the ability to determine and accomplish specific goals without wasting time on tangent paths.

What technical skills are important to being successful in your job?

Pro-Engineer, drafting, machining, and understanding of material properties

What part of this job do you find most satisfying?

Seeing promising results when testing my prototypes is very satisfying. Being in early R&D, a lot of times we don't know what to expect with our prototypes. But when we get great results, projects are really satisfying.

What part of this job do you find most challenging?

Organizing and executing multiple projects seamlessly and productively. There are a lot of things going on and you can't let any of them slip behind.

What type of training was offered for your position?

Pro-Engineer, machine shop, eye anatomy, and whatever else is needed.

What advice would you give to students thinking about majoring in Biomedical Engineering?

Use your electives effectively. Biomedical engineering gives you some freedom in
choosing classes. Make sure you target some of them for what you want to do when you start working. After a few years I realized I wanted to work in R&D, so I wanted to show my proficiency with mechanical engineering. I picked up classes or projects to develop my design and machining capabilities, which enabled me to end up in R&D.

What are possible career paths/promotional opportunities from your current position?

I look forward to taking on project management for future development within the first year or two.

Is there any other advice you would like to share?

GO TO THE JOB FAIR. I was approached by an engineer at Alcon (who would become my boss) when I was a junior and wasn’t expecting anything out of the friendly conversation. It led to a quality engineering co-op which opened the door for a later internship in R&D at Abbott. That internship then opened the door for R&D when I returned to Alcon. Take advantage of the opportunities in front of you.

Prior to interviewing for a job, briefly go over notes for EVERY engineering/science class you have taken to lightly refresh your knowledge. When asked about classes or subjects, you will impress your interviewers by just throwing out a few terms you know something about. If you are interviewing for R&D, make sure you know your statics, free body diagrams, and fluids. Technical questions and actual problems are commonly asked.

Rudolph Zacher - Informational Interview completed May 13, 2009
Vikramaditya (Vik) Mediratta

Cal Poly - M.S. & B.S. Biomedical Engineering, September 2011
Concentration: Mechanical Engineering, Tissue Engineering & Clinical Sciences

Employer:

St. Jude Medical, Inc., Southwest Region

Title:

Field Clinical Engineer

How long in current position:

4 years

Description of overall job duties and responsibilities:

Establishment and conduct of IDE clinical studies at investigative sites for FDA approval of St. Jude Medical Class III cardiac rhythm management, radio frequency ablation, structural heart and neuromodulation medical devices. Work with investigative site to ensure protocol compliance and act as the medical liaison in facilitating study start-up, enrollment and data collection. Additionally, assist the investigator with patient-related procedures.
What is a typical day like?

The job requires approximately 50-60% travel to clinical investigative sites for management of clinical studies. The rest of the time is spent in-office working on clinical and regulatory documentation for study start-up and technical training on new medical devices and journal reviews for advanced cardiovascular treatments and procedures.

What personal qualities or abilities are important to being successful in this position?


What technical skills are important to being successful in your job?

Clinical study (specifically IDE, NTA, PAS) regulations as per FDA compliance. Cardiovascular anatomy & physiology. EKG analysis. Fundamental and advanced knowledge of electrophysiology, cardiac rhythm management with device therapy, and heart failure treatment.

What part of this job do you find most satisfying?

Patient interaction and patient treatment. Additionally, investigative site training for brand new studies.

What part of this job do you find most challenging?

Continuous travel, time management and knowledge accumulation from a fire hose. We have approximately 100 studies occurring simultaneously and we are required to be an “expert” on our designated studies. This means countless hours of training and studying among a variety of diseases, procedures and treatments. Lastly, electrophysiologists are some of the hardest personalities to work with.

What type of training was offered for your position?

Mentorship with senior Field Clinical Engineer. In-house training by SJM Education department on fundamental cardiology, electrophysiology, SJM products, electroanatomical mapping with SJM mapping systems, and cardiac rhythm management with SJM device therapy.
What advice would you give to students thinking about majoring in Biomedical Engineering?

Engineering is not easy - if it were, everyone would do it...so be prepared to work hard but have fun with it. Focus on a specific speciality of engineering - mechanical, electrical, computer, materials, etc. to ensure you have a technical skill. Balance your courseload in order to give yourself time to manage and succeed in difficult classes. Stay involved with extra-curricular activities but manage your time well and get your work done first. Remember, work hard first so you can play harder later. Stay focused and stay motivated. Try not to think of it as "studying," but rather think of it as an opportunity to learn and master something new. Engineers are the innovators towards a better tomorrow and that should be a very inspiring perspective.

What are possible career paths/promotional opportunities from your current position?

Continued promotion towards Sr. Field Clinical Engineer status (approximately 5-8 year career path). Transfer towards field clinical management or clinical study management. Advancement in education in medicine and public health.

Is there any other advice you would like to share?

Success with whatever endeavour you pursue revolves around three basic concepts: 1. Skill - you must practice and refine the skill involved in your craft, 2. Industriousness - in order to achieve the former, you must work hard to be good at what you do. Simply, there is no substitute for hard work, and 3. Enthusiasm - you should be passionate and love what you do. These concepts are the cornerstones to help build and achieve success and peace of mind. Best of luck!

May students contact you directly with questions?

Yes. My email is vikmed95@gmail.com
Civil Engineering

Informational Interviews - Benjamin Crawford, PE

Benjamin Crawford, PE

Cal Poly - B.S. in Civil Engineering, June 2002
Concentration: Geotechnical and Water Resources

Employer:

Blackburn Consulting - Modesto, CA

Job Title:

Project Manager/Owner

How long in current position:

Two years as of January 2008

Description of overall job duties and responsibilities:

Duties include marketing, managing projects, mentoring and managing staff, performing
complex and not so complex engineering calculations, writing proposals, dealing with invoices, maintaining clients, managing subconsultants, writing and reviewing reports.

**What is a typical day like?**

During a typical day I will perform engineering calculations, put together proposals and reports, and maintain client relationships.

**What personal qualities or abilities are important to being successful in this position?**

The ability to think clearly and communicate well.

**What technical skills are important to being successful in your job?**

AutoCAD, writing, math, upper division engineering classes.

**What part of this job do you find most satisfying?**

Interactions with clients and marketing.

**What part of this job do you find most challenging?**

Interactions with clients and management.

**What type of training was offered for your position?**

Management and leadership training.

**What advice would you give to students thinking about majoring in Civil Engineering?**

Focus on writing and communicating. Take an extra writing and communication class if you have the option. Be active socially during college. It is not about the grades once you get out of school--it is about your ability to get along and work with others.

**What are possible career paths/promotional opportunities from your current position?**

Principal/Vice President.
Is there any other advice you would like to share?

It is never as easy as it is while you are in school, so enjoy it!
Chris Williams
Cal Poly - B.S. in Civil Engineering, June 2005

**Employer:**  
Nasland Engineering - San Diego

**Title:**  
Design Engineer

**How long in current position:**  
7 months as of March 2006
Description of overall job duties and responsibilities:

On a daily basis, I design and draft civil plans for land development projects. This includes grading, utility, site, street improvement, erosion control, and conceptual plans. We also do a lot of report composition including, water quality, storm water and drainage reports. A major part of my job is coordination between architects, owners, engineers and subcontractors.

What is a typical day like?

On any given day I work on three to four projects. Most of the day is spent on design and drafting. I spend about an hour each day on the phone and answering emails. About three times a month I visit sites to take pictures and note anything that is slowing or could potentially stop a project from construction.

What personal qualities or abilities are important to being successful in this position?

A task-oriented person will succeed in this job--one who sets goals and deadlines and works hard to meet them. Also someone who can learn by experience and communicate clearly.

What technical skills are important to being successful in your job?

Since we do our own drafting, AutoCAD Land Desktop is important to know. It is important to know hydrology and hydraulics (water resources) and being able to calculate slopes (geometry).

What part of this job do you find most satisfying?

Knowing that my work will actually produce a structure or development which will be around for my grandchildren to see. Oh yeah--real paychecks are not that bad either.

What part of this job do you find most challenging?

Sometimes I get frustrated with the unforeseen tasks a seemingly simple task can produce. You get a job you think will take an hour and, as you get into the design, more complicated issues arise and create a lot of work.

What type of training was offered for your position?

Nasland provides a training program yearly; however, I started a few weeks after it
concluded for the year. It is a trial by fire, you just learn by doing and asking questions.

**What advice would you give to students thinking about majoring in Civil Engineering?**

Don’t be discouraged by all the hard classes. You have to take them so you have the basis to understand and work through the problems you will encounter in real engineering practice. So as long as you are passing, take time to go to the beach and have fun.

**What are possible career paths/promotional opportunities from your current position?**

I now understand that there are two main career paths in civil engineering, the lifetime designer or the manager. Some people enjoy making things work right and some want to put them together. Eventually I would like to become a project manager because I like dealing with people and making things happen.
Informational Interviews - Deanna Charlene Townsend

Deanna Charlene Townsend
Cal Poly - B.S. in Civil Engineering, June 2005

**Employer:**

Kimley-Horn and Associates - Phoenix, AZ

**Title:**

Analyst

**How long in current position?**

15 months as of June 2006
What is a typical day like?

I have been involved with Intelligent Transportation System planning projects as well as design projects. My typical day is generally focusing on one of two directions: a plan set submittal for a design project, or a report submittal for a planning project. Currently I am working on developing a strategic plan for the state of Idaho for ITS systems and locally here in Phoenix we are designing a freeway management system including cameras, signs, ramp metering, and fiber interconnect. My days have all been different, never the same project twice.

What personal qualities or abilities are important to being successful in this position?

Having the drive to always learn more is the most important thing at my company. Always wanting to know more than you already know and take on more responsibilities to grow more as a professional engineer and business person. My company truly values taking initiative as well, being able to foresee needs and respond to conflict before it arises.

What technical skills are important to being successful in your position?

Basic knowledge in math, AutoCAD, Microstation can be learned, and fundamental design knowledge of civil engineering projects such as ITS, structural, transportation, traffic, and environmental. It’s also important to learn the current trends in each field.

What part of this position do you find most satisfying?

I feel like I’m actually doing something important here. The freeway management system I’m working on right now will interconnect three cities via a fiber optic network and provide cameras for monitoring the major highway near the new Cardinal stadium when the Superbowl comes here in 2008.

What part of this position do you find most challenging?

Every day presents something else to learn and grow from. A lot is challenging, but I understand it’s something that I have to work through or else I won’t succeed. I haven’t hit anything yet that I couldn’t handle or didn’t know what resources I could use to handle it correctly.
What type of training was offered for your entry-level position?

I jumped right in on projects. I was offered training, but because of one class I took at Cal Poly (Intelligent Transportation Systems) I was able to jump right in on three projects. Now I am the point of contact for all of the project team members within the firm on those three projects because of what I learned in that class and the experience I’ve had here since.

What advice would you give to students thinking about majoring in Civil Engineering?

Civil Engineering is a technical position that will always be desired wherever you go. I would encourage anyone to be a civil engineer because of the numerous fields within the major you can be a part of and still have a broad picture and broad knowledge of the rest of the studies.

What are possible career paths/promotional opportunities from your current position?

From my current position as Analyst that all EIT’s (Engineer-in-Training) are hired in at, I will be taking my California P.E. (Professional Engineer) exam in the next year. The two directions that are given to an engineer at Kimley-Horn are technical expertise or project management. I have chosen to go the project management route where I will begin to market my skills and project experience to our current and potential clients. I have been very active in client relations in the past year and enjoy being personally accountable for the quality and success of a project.

Deanna Townsend - Informational Interview completed August 11, 2006
Informational Interviews - Greg Kump

Greg Kump

Cal Poly - B.S. in Civil Engineering, June 1999

Employer:

Nasland Engineering - San Diego

Job Title:

Civil Engineer

How long in current position:

4 years as of May 2008

Description of overall job duties and responsibilities:

Commercial and residential development including grading/drainage plans, erosion control plans, pipeline plan & profiles, utility connection (sewer, water, storm drain) plans. I also do specifications and construction management.
What is a typical day like?

I answer emails from clients, draft my designs in AutoCAD, submit them to the client/governing agency for review, and meet with contractors to discuss design issues or questions that come up.

What personal qualities or abilities are important to being successful in this position?

Communication, certification, computer skills (AutoCAD), strong technical writing skills, and flexibility.

What technical skills are important to being successful in your job?

AutoCAD

What part of this job do you find most satisfying?

Diversity in the projects that I work on during a normal work week.

What part of this job do you find most challenging?

Getting criticism on my work.

What type of training was offered for your position?

Weekly design classes.

What advice would you give to students thinking about majoring in Civil Engineering?

Get as many internships as possible so you can find out what type of civil engineer you want to be before entering the working world. Get involved in clubs at Cal Poly and become an officer because this shows that you have drive when it comes to going above and beyond just going to school.

What are possible career paths/promotional opportunities from your current position?

Engineering Manager
Is there any other advice you would like to share?

Get involved in club(s) while you are in college and find your passion in life.
Greg Kump - Informational Interview completed May 29, 2008
Informational Interviews - Jarred Burrows

Jarred Burrows

Cal Poly - B.S. in Civil Engineering with concentration in Geotechnical, June 2012

Employer:

Drill Tech Drilling and Shoring, Antioch, California

Title:

Project Engineer

How long in current position:

2 Months as of October 2012

Description of overall job duties and responsibilities:

Assist my project engineer in his daily tasks.

What is a typical day like?

I show up between 6:30am and 7:30am based on when I feel like showing up. I then stay for about 10 to 11 hours until the work is done.
What personal qualities or abilities are important to being successful in this position?

Self motivation and concentration on details are very important. Staying organized and on-top of your work is an absolute necessity. Getting behind is almost a death sentence.

What technical skills are important to being successful in your job?

All of my geotechnical and structural courses along with mechanics of materials are used at least once a week. The ability to do research and to find solutions to problems is the best set of skills to bring to work with me.

What part of this job do you find most satisfying?

I enjoy seeing the product being built each day.

What part of this job do you find most challenging?

Construction is a fast-paced environment and there is almost no room for mistakes.

What type of training was offered for your position?

I have direct, on-the-job mentor-ship from a licensed professional engineer.

What advice would you give to students thinking about majoring in Civil Engineering?

I would say to do it because you like it, not because you think you'll make money. My field isn't a money making bonanza.

What are possible career paths/promotional opportunities from your current position?

I can become a project engineer, but I don't really care about "promotional" opportunities, just a larger paycheck.
Jason Piazza
Cal Poly - B.S. in Civil Engineering, June 2007

Employer:
URS Corporation - Seattle

Job Title:
Graduate Airport Civil Engineer

How long in current position:
1.5 years as of Jan. 2009

Description of overall job duties and responsibilities:
During the winter and spring months, I am designing pavement sections, taxiway, runway, and apron geometry, drainage systems and other engineering tasks associated with airside
civil responsibilities. I also help the project engineers put together specification and contract documents, write sections of the design reports, and help with any other job tasks that the project engineers need. During the summer and fall months, I perform construction inspection on the airport projects we have designed during the summer and winter. Additionally I work with the geotechnical department and go to job sites and do exploratory boring, soil sampling, and some design calculations.

**What is a typical day like?**

On a typical day I work on one or two projects in the design phase and perform engineering calculations. I also assist the project engineers and senior engineers with various tasks that may come up with projects that aren’t located in this state such as design submittal reviews or sketches. During the summer months, I might find myself out on the construction site doing inspection or quality assurance.

**What personal qualities or abilities are important to being successful in this position?**

I would say the biggest thing is the ability to work with a team and self initiative. There are quite a few times where a person will have to look up or research the answer to some questions. These could be a specification or how things work. Asking questions of people you work with is a great skill too. Most people are very willing to help you either with an answer they know or being able to point you in the right direction.

**What technical skills are important to being successful in your job?**

AutoCAD is used quite frequently in the work place. Also simple geometry for finding slopes, pipe inverts, and grading is needed. Taking upper division classes in subjects that interest you are great too. Being able to communicate effectively in the work place is a skill that is essential. This is the one thing that they don’t stress or teach enough in school.

**What part of this job do you find most satisfying?**

I really enjoy working on airports because I love airplanes. Working the construction part of the job is quite fun because the planes are moving around on the airside while you are out there. I also enjoy knowing that what I am designing will be there for people to see later on.

**What part of this job do you find most challenging?**

The unknown is challenging. Sometimes clients will change what they want right before
the project is due.

**What type of training was offered for your position?**

When I got here, the company started me out on small projects and then worked me toward larger ones. People were always willing to help if I asked them. There are many learning modules and training seminars to go to that people can choose from.

**What advice would you give to students thinking about majoring in Civil Engineering?**

Take a wide variety of classes in Civil Engineering. You never know what may spark your interest. During your senior year take some more specialized classes in subjects you like. Getting an internship is helpful to because you get to experience what really goes on. The way projects are completed in the workplace is much different than how they are done in school.

**What are possible career paths/promotional opportunities from your current position?**

I can either go on to become a project engineer or a project manager. The company works you up the ladder and provides you with more training if you switch to the project manager path. I think I want to become a project manager because you have client interaction and still get to work on the projects.

**Is there any other advice you would like to share?**

Have fun in school because it is never the same when you get out. It also isn’t all about the grades. Become well rounded and enjoy college. If anyone has questions, feel free to contact me: jason_piazza@urscorp.com

Jason Piazza - Alumni Career Profile completed February 9, 2009
**Informational Interviews - Jimmy Dang**

**Jimmy Dang**

Cal Poly - B.S. in Civil Engineering, March 2005

**Employer:**

Kennedy/Jenks Consultants - San Francisco, CA

**Title:**

Senior Staff Engineer

**How long in current position:**

One Month as of July 2006 (previous year with a general contractor)

**Description of overall job duties and responsibilities:**

Currently I am in charge of designing a grading and drainage plan for the City of Napa for their Water Treatment Plant. I am also working on an alignment for a recycled water
pipeline for the City of Redwood City. My day is usually spent in front of the computer using AutoCAD and Land Desktop. These are very useful tools to help with design work. I do lots of research, reading, and thinking from all perspectives. As an engineer, you have to be able to see things from many points of views.

**What is a typical day like?**

I get to work around 7:00 to 7:30am. I make my tea and fire up the computer. I then start looking at plans and start to think. I draw some alignments or some rough sketches of how I want my drawing to look. Then the computer work starts. Lunch rolls around at about 12 and I eat at many of the wonderful restaurants located in downtown San Francisco. I head back to work around 1pm and leave at 4pm. We have flex hours here, so you can come in whenever you want and leave whenever you want as long as you get your work done.

**What personal qualities or abilities are important to being successful in this position?**

In order to be in design, you have to be extremely organized and detail oriented. When doing a design, you have to please the client and the designs that you put out need not only to be a good design but also have to be aesthetically pleasing. This is not only in the design but also on the sheets themselves. So if you ever had a yearbook class or a journalism class where you did some layout, then that will definitely help.

**What technical skills are important to being successful in your job?**

AutoCAD. Lots of it. When taking your intro to CAD course, be sure to pay attention; it will help you in the long run if you can retain the information gathered from that class. AutoCAD skills are one of those things where the saying “use it or lose it” goes very far. If you don’t use it on a regular basis, then it might be harder to remember. But in the long run, it will all come back to you.

**What part of this job do you find most satisfying?**

It is very gratifying to know that what you are doing is yours. The design you put out has all been done by you, and you alone. There are definitely design checks and suggestions that can be made to a design because a design is never perfect. But all in all, you find a sense of accomplishment once the project is complete.

**What part of this job do you find most challenging?**

The challenging parts of the job are definitely the iterative processes you have to go through to come up with a very good design. It takes a lot of time to make changes and could affect many others in the company who are working on the same project because
designing takes lots of thought and time.

**What type of training was offered for your position?**

I was offered a two-week course in AutoCAD and Land Desktop training. Those classes really helped me understand the program and the potential it has to help as a design tool. When I was with a contractor, most of the training had to do with management skills which has helped me grow into an engineer who has a decent perspective on the design side as well as the construction side of things.

**What advice would you give to students thinking about majoring in Civil Engineering?**

Pay attention to your upper division classes. Also, be sure to retain the knowledge you learn. It may not seem apparent once you get into the work field that you are using calculus or anything, but you’ll be amazed at how much terminology is used from your classes.

**What are possible career paths/promotional opportunities from your current position?**

From my current position, I am slated to test for my professional engineering license in about a year or two. At that time, I will be very marketable and will start managing my own projects. I can either go the technical route, where you essentially learn and become an “expert” at what you want to know; this can be grading and paving, hydraulic modeling, corrosion specialist, and other design aspects. This will entitle you to give seminars or consult for companies and clients that need your expertise. Or, you can choose to go the management route where you will run a team of designers and meet with the client more and build more customer relations. This route is more business like, but at least you have a choice.
**Informational Interviews - Joe Fernandez**

**Joe Fernandez**

Cal Poly - M.S. in Engineering, Specialization in Transportation Planning and Master of City and Regional Planning, Specialization in Transportation Planning, December 2004

**Employer:**

[Fehr & Peers Associates](#) - Walnut Creek, CA

**Title:**

Transportation Engineer

**How long in current position:**

Two years as of January 2007

**Description of overall job duties and responsibilities:**

Project manager for a variety of small to medium sized projects (<$100k), including traffic impact studies, environmental impact reports, parking studies, and traffic signal
designs. Project Engineer for large, complex projects, such as regional travel forecasting, freeway operations analysis, and transit ridership model development.

What is a typical day like?

I typically work on about three or four projects each day. My time is split between doing technical analysis, report writing, and meeting with clients. I have a high degree of flexibility to work on the projects I want, when I want to.

What personal qualities or abilities are important to being successful in this position?

In addition to the basic technical skills common to most engineers, communication skills (both written and oral) are paramount. It is necessary to communicate complex topics to people with a variety of backgrounds.

What technical skills are important to being successful in your job?

If you are interested in design, AutoCAD is helpful. Familiarity with standard traffic analysis software such as Synchro, Traffix, Vissim, TransCAD, TP+, etc. is also a plus, but not necessary. Most important is a strong interest and enthusiasm in the field.

What part of this job do you find most satisfying?

Guiding the transportation development/policy process before infrastructure is built. Creating solutions that affect thousands of people daily. Working on both planning and engineering projects.

What part of this job do you find most challenging?

Balancing technical work with political/policy decisions that often consider many non-technical factors. And everyone thinks they are a transportation expert.

What type of training was offered for your position?

Lots of one-to-one training in the first few weeks, then continuing training throughout the year (we have a well developed internal training program— I typically take two to three full days worth of formal training a year, and numerous additional lunchtime seminars).
What advice would you give to students thinking about majoring in civil (transportation) engineering?

Take as many transportation classes as possible, as soon as possible. Get a summer internship in the transportation field--try both the public and private sectors. Drop me a line, I’d be happy to chat with you (925.930.7100 or j.fernandez@fehrandpeers.com).

What are possible career paths/promotional opportunities from your current position?

There are a variety of career paths available. Some people (like me) prefer to be generalists, working on a wide variety of transportation projects with the goal of opening up an office. Others prefer to specialize in one technical area, and focus on R&D within that area. The company/profession accommodates a diverse group of goals, from business development to technical/research opportunities.

Joe Fernandez - Informational Interview completed January 19, 2007
Josue J. Vaglienty

B.S. in Civil Engineering, June 2003

Employer:

RBF Consulting - Irvine, CA

Title:

Design Engineer

How long in current position:

2.5 years (as of February 2006)

Description of overall job duties and responsibilities:

As a Design Engineer, my duties include design of transportation / public works projects that vary in size and scope. I am responsible for the preparation of design plans, estimating quantities and their respective costs, preparing scopes and fees for proposals, coordinating with all parties involved, and adhering to municipal, county, state and
federal standards and guidelines.

**What is a typical day like?**

No day is the same as the previous. At my stature, I spend most of the day discussing approaches to a particular design problem and executing them. Coordination with other engineers or departments also takes some time, but it is nevertheless important. I attend project meetings regularly to address the status of a project and to discuss ideas. Regardless of what I do on a particular day, there is always something new.

**What personal qualities or abilities are important to being successful in this position?**

We exchange information with external and internal clients (other departments within our firm) on a daily basis, so it is important to communicate effectively and know who your audience is when you address them.

**What technical skills are important to being successful in your job?**

AutoCAD/LDT and Microstation/In-Roads are the main software packages we utilize for design. We also use a wide array of analytical software for other functions relating to traffic, hydrology/hydraulics, and roadway analysis.

**What part of this job do you find most satisfying?**

The most gratifying part about my job is that you see the project from its initial planning stages to the final end product. When it is actually built and fully functional you get to see how your ideas were put into place.

**What part of this job do you find most challenging?**

The majority of the projects I work on are public in nature, meaning that the decisions made are those that take into account the taxpayers and all other stakeholders. Sometimes, decisions change frequently so we have to constantly modify or shift our scope of work. Sometimes funding may run out, and the project is abbreviated. Sometimes the project is enlarged which requires additional resources. As an engineer you have to adapt and acknowledge that changes will in fact occur.

**What type of training did you receive for this position?**

Technical training including CADD was very beneficial. You only scratch the surface when you take in a classroom environment. When you actually use it in practice, you will learn exponentially. All graduate level engineers also receive in orientation to our company to
instruct them on how the different departments contribute to RBF.

**What advice would you give to students thinking about majoring in CE?**

I would recommend that they visit a private firm/public agency where they can see for themselves what a Civil Engineer does. Although there are various branches and specialties, you still get a general idea of how they approach their job every day.

**What are possible career paths/promotional opportunities from your current position?**

In general there are two career paths an individual can take. One direction heads into a project management-type role where you oversee the coordination of the project, communicate with the client, and review schedules and budgets on a frequent basis. The other direction is a project technical manager-role where you focus on technical aspects of a project such as adherence to state/local standards, design approaches, and appropriate software to analyze problems.
Informational Interviews - Kellie A. Marshall

Kellie A. Marshall

Cal Poly - B.S. in Civil Engineering, August 2003

Employer:

Federal Energy Regulatory Commission - Portland, OR

Title:

Civil Engineer

How long in current position?

1.5 years as of July 2005

What is a typical day like?

There are two types of typical days in my job. Office days where you sit at a desk and write reports and letters, read project files and review incoming project analyses. On occasion we do in-house analysis and keep up-to-date on current policies and federal regulations. The other days are in the field doing dam inspections. Depending on the size of the project, I will spend two hours to several days inspecting all the different aspects of the project structures. We put on our hard hats and steel toe boots and walk around as much of the project as accessible and take notes and photographs to document the status of the project and monitor for signs of weakness.
What personal qualities or abilities are important to being successful in this position?

Writing skills are the best skill to have in this position because the majority of the work we do is writing reports. Communication skills are also very important when talking to the licensee and other dam safety officials.

What technical skills are important to being successful in your position?

Depending on what area you chose to concentrate in (Hydrology, Geotechnical, Structures) there are different computer programs we use to analyze data and review reports. All this is learned on-site by yourself with help of others and occasionally in-house formal training is given.

What part of this position do you find most satisfying?

Knowing that what I do affects the lives of the public living downstream of the dams we inspect.

What part of this position do you find most challenging?

I’m constantly learning about dams, the various features and how they all work together. At Cal Poly, they don’t offer a dam design class so in a way it was like learning a totally new subject from scratch. It’s been challenging but definitely very exciting and fulfilling.

What type of training was offered for your entry-level position?

One of the greatest things about working for the government is that they send you to a lot of training. I have been to several dam safety seminars learning about state of the practice and have been to a HEC-RAS training as well as many inspections with experienced engineers.

What advice would you give to students thinking about majoring in Civil Engineering?

It’s a very diverse field of study and many different areas to work in.
What are possible career paths/promotional opportunities from your current position?

My position starts out at an entry-level position and every year for four years I move up to the next level until I reach the top level where I will remain unless I move up into a management position. I will also have the opportunity to move jobs throughout the government and keep my governmental status (retirement and health benefits). The government is also paying for my Master’s Degree which is a nice perk that will help me in the future should I decide to leave the work of government life and venture into private practice or consulting.

Kellie Marshall - Informational Interview updated 9/18/07
Luke McNeel-Caird

Cal Poly - B.S. in Civil Engineering, March 2003

**Employer:**

Fehr & Peers Transportation Consultants, Roseville, CA

**Title:**

Senior Transportation Engineer

**How long in current position:**

One year as a Senior Transportation Engineer (almost four years total). I first worked with Fehr & Peers as an intern in 2002 and was hired as a full-time engineer in April 2003. Since starting with Fehr & Peers, I have been promoted several times to the second level of a senior engineer.

**Description of overall job duties and responsibilities:**

I manage the daily activities of various transportation-related projects, from evaluating transportation issues of large land developments to analyzing roadway corridors and interchanges. Project management includes maintaining regular contact with clients, including phone calls and meetings; overseeing and collaborating with junior and senior
engineers; and ensuring projects are on budget and on schedule. As part of project management, I facilitate the marketing of future potential projects, which involves writing proposals, contacting clients regarding leads, attending conferences and events with existing and potential clients, and coordinating with colleagues on prospective opportunities. I also mentor junior engineers on technical aspects, work-life balance, and personal development.

What is a typical day like?

Fehr & Peers offers a collaborative environment that allows me to interact daily with junior engineers, other senior engineers, associates, and principals (typically owners of the firm). As a project manager, a typical project includes securing a lead from a client, preparing a proposal that addresses the transportation issues, coordinating the timeline and necessary resources with other staff, working with others to complete the project while staying on schedule and within budget, attending meetings and communicating project process and results with the client, and producing reports that summarize the project results. I typically work on several projects each day that involve any one of these elements, which ultimately culminate with a successful project. Within the office I also provide leadership and technical expertise to junior and senior engineers on a daily basis for projects I am directly and indirectly involved, including reviewing analysis and reports, providing input/insight on solution approaches, and discussing personal development. As a senior engineer, I consult regularly with associates and principals within the Roseville office (eight are located in Roseville) and other offices, as they provide their expertise and mentor me to continually enhance my personal development.

What personal qualities or abilities are important to being successful in this position?

We are consultants who provide solutions to our clients and communities, and the ability to solve problems is one of Fehr & Peers’ goals as a transportation consulting firm. Therefore, an ability to critically think about issues and develop solutions is one of the most important qualities necessary for this position. Other qualities include the ability to take risks and take on work that pushes you outside of your comfort zone. Individuals who succeed at Fehr & Peers are enthusiastic about transportation and have a great interest in learning about their profession. Since Fehr & Peers is a consulting firm, oral and written communication skills are also important in our work. The company invests a substantial amount of time to help individuals grow and mature with experience in these areas.

What technical skills are important to being successful in your job?

A degree from a well respected university (Cal Poly is certainly that) that covers the basics of math and physics is an important first step to becoming a transportation engineer. The technical skills learned on the job ultimately make a person a good consultant. The skill set required to becoming a good consultant require an ability to
problem-solve; a willingness to dig into a question without a text-book solution, to think outside of the box, to move outside of your comfort zone, to risk that your first few ideas might actually be wrong, to keep trying. At Fehr & Peers, we use a number of software programs to analyze and assess transportation issues. To analyze isolated intersections, we use Highway Capacity Software, Traffix, and Synchro. To analyze entire systems, we use micro-simulation programs (SimTraffic, Paramics, Corsim, and VISSIM) and travel demand forecasting software (MINUTP/TP+/Viper/Cube, TransCAD, and VISUM). In addition to these software programs, staff within Fehr & Peers develop internal post-processing and stand alone tools and software programs as a resource for projects.

What part of this job do you find most satisfying?

When I joined Fehr & Peers four years ago, I most enjoyed learning the technical aspects of transportation engineering related to travel demand forecasting and micro-simulation models using various computer software programs. Since becoming a project manager with less time to use the technical software programs, becoming a great consultant has been the most satisfying aspect of my job. As a consultant, I meet with clients to discuss their needs and problems and then use the resources at Fehr & Peers to provide solutions to those problems. The interaction with the public sector is fascinating. I meet with representatives from local City and County agencies, regional agencies such as Caltrans, individual developers, and other industry professionals such as architects, environmental firms, and land use planning firms. It is satisfying to know that as a transportation engineer I am an integral part of a project’s ultimate success.

What part of this job do you find most challenging?

The most challenging parts of the job are staying on top of the ever-changing environment that we work in and continually providing solutions that meet current challenges to clients. The resources and recognized national experts at Fehr & Peers provide the sources for a lot of information in addition to my own investigations. Fortunately, I’m motivated to keep myself informed because I find it rewarding to provide clients with immediate answers and solutions related to transportation issues.

What type of training was offered for your position?

Fehr & Peers offers numerous informal and formal mentoring programs. Informally, the office is a great collaborative environment where everyone is encouraged to ask questions or have internal meetings to discuss anything from simple assumptions to complex situations. Formally, Fehr & Peers offers training programs through the Fehr & Peers University, which encourages and provides 40 hours of training to each staff member each year. Programs include topics on technical innovations to written and oral communication to project management and marketing activities. We also have a formal mentoring program where a junior engineer is paired with a senior staff member of their choosing from a different office (Fehr & Peers has approximately 150 staff in 11 offices throughout the west coast). This program was beneficial in my career as I transitioned from the technical aspects of our work to a project manager; especially since my mentor had
extensive experience and is one of the owners of the firm.

What advice would you give to students thinking about majoring in Civil Engineering?

I think the most important first step is to seek out someone who does this as a career and talk with them about what they do and how they got to where they are now (similar to the questions in this forum; in fact you can contact me at (916) 773-1900 or l.mcneel-caird@fehrandpeers.com if you would like). Next, after you decide to enter the Civil Engineering program, research the types of employment opportunities and firms. Then, ideally, participate in an internship program, and work with the public and private sector during your summer breaks. I did this, and, luckily, my last internship was with Fehr & Peers. I enjoy my work here even more now than when I was an intern.

What are possible career paths/promotional opportunities from your current position?

Fehr & Peers has several career paths available, from a technical niche to marketing leader to office manager. Fehr & Peers grants promotions based on individual performance and collaboration, starting from engineer to associate to principal with varying levels. Fehr & Peers has no predetermined path to success. Each individual must determine what most interests him or her and where he or she excels, and these factors will ultimately lead to success in the firm. Some people are interested in accelerated career paths, while others focus on other aspects, and Fehr & Peers accommodates each individual’s goals. From my current position in project management and as a senior transportation engineer, my potential career path is still open, with my goal of ultimately becoming an associate and then a principal with the firm.

Informational Interviews - Michael Todd Shick

Michael Todd Shick

Cal Poly - B.S. in Civil Engineering, December 2005
Specialization: Structural Engineering

Employer:

M.E. Designs - Paso Robles, CA

Job Title:

Proprietor

How long in current position:

2.5 years as of September 2007

Description of overall job duties and responsibilities:

Civil & structural engineering, marketing, accounting, project management, office
What is a typical day like?
Calling clients, calling governing jurisdictions and authorities, project engineering, plan production, using many kinds of software, job site visits/inspections, billing clients, and cleaning toilets.

What personal qualities or abilities are important to being successful in this position?
Hard worker, tenacious personality, confidence, solid skill set.

What technical skills are important to being successful in your job?
Autodesk Products (Civil 3D, Architecture), Heasted Methods products, Risa Technology Products, Enercalc, MS Office.

What part of this job do you find most satisfying?
Happy clients and the nice pay checks.

What part of this job do you find most challenging?
Advancing my skills as an engineer.

What type of training was offered for your position?
I spent six years working for other employers.

What advice would you give to students thinking about majoring in Civil Engineering?
If you want to be a structural engineer, consider architectural engineering. If you are leaning toward other disciplines of civil engineering, then stay with civil engineering.

What are possible career paths/promotional opportunities from your current position?
Obtain more employees and possibly earn a paid vacation :)
Is there any other advice you would like to share?

Work hard! The sky really is the limit. There are many available positions out there, but very few good people to choose from. Also, there are a lot of companies willing to pay you very little for something they are willing to charge clients a lot of money for. Have your mindset on establishing your own business. It takes a lot of work, a lot of discipline...but with computers, PDA’s, Quickbooks, etc...it’s not as difficult as you might think. The world is starving for people who know their job. Once you decide on being one of these people, you will already be ahead of the pack!

*Michael Todd Shick - Informational Interview completed November 7, 2007*
Informational Interviews - Patrick MacDonald

Patrick MacDonald
Cal Poly - B.S. in Civil Engineering, December 2010

Employer:
KPFF Consulting Engineers - San Francisco, Ca.

Title:
Civil Designer

How long in current position?
One Year as of March 2012

Description of overall job duties and responsibilities:
Use AutoCAD Civil 3d to create sections, profiles, alignments, and surfaces. Find earthwork quantities in Civil 3d, and do general 2d drafting in AutoCAD Civil 3d.

What is a typical day like?
Typically, I work under the guidance of the project engineers who have more experience than I do, and I do what they tell me to do. This usually means that I need to work in AutoCAD, perform calculations, email clients, send out plans, and do whatever is necessary to be productive at work.

What personal qualities or abilities are important to being successful in this position?
It is important that you are a hard worker, and have good communication skills. Also, it is helpful if a person is on time everyday, and doesn't miss work very often.
What technical skills are important to being successful in your position?

AutoCAD Civil 3d with particular emphasis on the Civil 3d aspects of AutoCAD.

What part of this position do you find most satisfying?

I enjoy contributing to the office as much as possible. Meeting deadlines on time, and getting good results is always nice.

What part of this position do you find most challenging?

At this moment I find creating grading plans the most difficult because if one grade has to change, it often leads to many grades changing.

What type of training was offered for your position?

My coworkers are always teaching me how to do new things, or giving me advice on how to solve a problem.

What advice would you give to students thinking about majoring in Civil Engineering?

Now, that I have graduated from college, I can definitely say that it was worth spending all the long hours studying for all the difficult classes. At times, I found the course work to be a bit overwhelming, but I really enjoy my job. My job is a lot more fun than school ever was for me. Don’t get me wrong, I enjoyed my time at Cal Poly, but school stressed me out a lot more than work ever has.

What are possible career paths/promotional opportunities from your current position?

Generally speaking, the more experience you have in the Civil Engineering industry leads to more money and responsibility.

Is there any other advice you would like to share?

Having good computer skills and learning AutoCAD Civil 3d in college really helped me get my first job out of school.
May students contact you directly with questions?

Yes. My email is patrick.macdonald@kpff-sf.com

Patrick MacDonald - Informational Interview completed February 19th, 2012
Informational Interviews - Shalyce Irgens

Shalyce Irgens

Cal Poly - B.S. in Civil Engineering, June 2005

Employer:

Kimley-Horn and Associates - San Diego

Job Title:

Engineering Analyst

How long in current position:

3 years as of May 2008

Description of overall job duties and responsibilities:

Aviation airside design (taxiways, runways, aprons, etc.)

What is a typical day like?

Lots of computer time, drafting, designing. I am involved with a lot of progress meetings with clients. Long days and lots of deadlines.

What personal qualities or abilities are important to being successful in this position?

Determination, willingness to ask questions, ability to take constructive criticism, perfection
What technical skills are important to being successful in your job?
AutoCAD, Microstation, InRoads, Land Desktop, and writing skills

What part of this job do you find most satisfying?
The most rewarding part of this job is to see a design built.

What part of this job do you find most challenging?
Long, repetitive hours.

What type of training was offered for your position?
In-house on-the-job training on the software needed for the job.

What advice would you give to students thinking about majoring in Civil Engineering?
Get an internship as early as possible to determine if this is truly the right career for you. It is very different than school. I would definitely recommend construction management courses whenever possible.

What are possible career paths/promotional opportunities from your current position?
From my current position I would become a project manager.
Shalyce Irgens - Informational Interview completed June 2, 2008
Tania Cristina Falero, P.E.

Cal Poly - B.S. in Civil Engineering, March 2005

Employer:

Summit Engineering, Inc. - Santa Rosa, CA

Title:

Project Engineer

How long in current position:

Three years as of June 2008

Description of overall job duties and responsibilities:

Grading and utilities design, hydrology reports, utilize Land Desktop Development for design calculations, supervise CAD standards improvements, client interaction, and project management. Most of the work we do is for wineries and high-end residences.
What is a typical day like?

Depending on how many projects I'm working on, it varies between working on grading or utility plans, hydrology reports, coordinating with the clients/consultants, coordinating with our drafters, site visits, and attending meetings.

What personal qualities or abilities are important to being successful in this position?

Good organization and communication skills are key to success.

What technical skills are important to being successful in your job?

AutoCAD or LDT (Land Development Desktop), Excel, Word, and basic math (geometry).

What part of this job do you find most satisfying?

I love how Summit treats their employees. We have the 9/80 schedule (which means we get every other Friday off), good training, and a great atmosphere.

What part of this job do you find most challenging?

Dealing with design changes from other consultants/clients, effectively communicating with others to make sure everyone's on the same page, construction assistance.

What type of training was offered for your position?

I was sent to a three-day Civil 3D workshop in San Francisco (a civil design component of AutoCAD, LDT). I'm constantly learning something new every day.

What advice would you give to students thinking about majoring in Civil Engineering?

If you study and work hard, you will get through it just fine.

What are possible career paths/promotional opportunities from your current position?

Project Manager. There are a lot of advancement opportunities at Summit.

Tania Falero - Informational Interview completed June 6, 2008
Trisha Coffey

Cal Poly - M.S. in Civil and Environmental Engineering + B.S. in Civil Engineering, August 2003 (Blended Program)

**Employer:**

Ensitu Engineering - Morro Bay, CA
(www.ensitu.com)

**Title:**

Project Engineer

**Length of Employment:**

2.5 years as of October 2005
Overall job duties and responsibilities:

I work for a small firm (total of seven people including a part time employee) so I wear a lot of hats. I design small decentralized wastewater systems for commercial and residential properties in areas with no centralized sewer system. I also do grading, stormwater pollution prevention and erosion control plans for these properties. I deal with clients (usually property owners, architects, or property managers), other engineers, and regulatory agencies on a daily basis.

What is a typical day like?

Come in at 8:00am, put my dog in the kennel under my desk, check emails, and answer emails for an hour or so. Get coffee. Since our projects are smaller than projects at larger firms, I usually have 5 to 15 projects that I am working on at any given time. We do all of our own CAD, so I balance my days between the computer, phones or working on reports to regulators about projects. I usually leave around 5:00pm.

What personal qualities or abilities are important to being successful in this position?

Flexibility and adaptability.

What technical skills are important to being successful in your job?

AutoCAD and Land Desktop, CE 440, Wastewater Engineering, Geotechnical Engineering

What part of this job do you find most satisfying?

Our clients are stellar, lots of fun. I enjoy interacting with clients and meeting new people. We have a super laid back environment at work and I work with some great people.

What part of this job do you find most challenging?

The technical aspects. There is so much to know. I paid attention in school, but school is really just the tip of the iceberg on what you should know as a successful engineer. Types of pumps, water flow measuring devices, all the different types of valves and when to use them, sampling equipment, etc. There is just so much to know.
What type of training was offered for your position?

On the job training only. I shadowed my boss for the first couple of months and I really just learn by doing and asking a lot of questions.

What advice would you give to students thinking about majoring in Civil Engineering?

Don’t forget to have a little fun in college, maybe study abroad, do something cool.

What are possible career paths/promotional opportunities from your current position?

This job has really opened my eyes to realize owning your own engineering firm is not an unattainable goal.
Computer Engineering

Informational Interviews - Brian Morris

Brian Morris
Cal Poly - B.S. in Computer Engineering, March 2003

Employer:
Green Hills Software - Santa Barbara, CA

Title:
Systems Software Engineer

How long in current position?
Two years, two months as of August 2005
What is a typical day like?

At least in my group, the day is almost entirely self-organized; there are almost no meetings, and coordination with my manager is done on an as-needed basis (either when I am looking for more to work on or when he has something else for me to do). In my two years with Green Hills, I have worked on a wide variety of projects, from development of firmware that runs on our custom hardware to a Perl-based hardware manufacturing testing system to diagnosing, fixing, and sometimes assembling custom hardware. As I am responsible for a few parts of our codebase now, there are also some customer incidents that get directed to me too.

What personal qualities or abilities are important to being successful in this position?

Independent, hard-working and self-managing, but also the ability to coordinate with others to resolve problems, design new things, etc.

What technical skills are important to being successful in your position?

Programming: C, occasionally C++, occasionally Assembly (for various architectures), VHDL/Logic Design Electrical engineering (circuits, basics, etc.)

What part of this position do you find most satisfying?

Working on a variety of interesting and challenging projects. I am making direct use of my degree, which is very cool. I enjoy both the variety of things I've been able to work on (which isn't necessarily representative of a normal position at Green Hills) and the specific projects, such as working on the boot code for the next version of our hardware, as I have been doing for the past couple weeks.

What part of this position do you find most challenging?

One of the more challenging aspects for me, now that I've been there for two years and have accumulated a long list of “to do's,” is organizing and prioritizing everything I have to do. As I said, much of your own management is left up to you. On the technical side, we (the product that my group produces) interact with a wide variety of products from other companies (processors, for instance) and making sense of their documentation, especially when it's wrong or incomplete, can be challenging.
What type of training was offered for your entry-level position?

There was no "training period" per-se. When I first started, I was given an initial project and part of its purpose was to get me acquainted with our tools, our codebase, and anything else I needed to know. What I didn't already know I have picked up along the way.

What advice would you give to students thinking about majoring in Computer Engineering?

The industry has been, and in some ways still is, experiencing a fallout from the dot-com era. Things had been shifting towards higher level programming, web development, etc. While there is still a place for that, it has created a shortage of engineers interested and trained in lower-level systems. Computer Engineering is (and hopefully will continue to be) geared towards this lower-level hardware-software boundary. Anyone interested in this should pursue Computer Engineering. Green Hills, for one, is looking for people who know how to program well in C/C++ (not Java, PHP, Flash, etc.), and experience or interest in hardware, though not required, is a plus.

What are possible career paths/promotional opportunities from your current position?

At Green Hills, the president/CEO wrote some of the original code for our products. Everyone from him down to me is an engineer. Moreover, there are only two people between myself and our president, so there is very little management overhead, and even the managers still perform engineering duties. Thus, there isn't much room to move "up," but there are opportunities in management of smaller groups, or potentially larger groups. I have a variety of opportunities for the projects I work on, and our company as a whole is trying to grow faster than we've been able to find qualified people, so there is no shortage of work to be done. There are opportunities to move to another group to work on a different product. There are also other opportunities outside of engineering. There have been cases of people moving from product engineering to sales, marketing, field work, and even recently someone moved to accounting. If you are interested and qualified, that's what counts.
Informational Interviews - Eric Nakaki

Eric Nakaki
Cal Poly - B.S. in Computer Engineering, December 2005

Employer:
Retail Anywhere - Atascadero, CA

Job Title:
Quality Assurance Engineer / Implementation Specialist

How long in current position:
One year as of September 2007

Description of overall job duties and responsibilities:
Manual testing of product, generation of automated testing for product, running automated testing on product, documenting test cases, documenting bugs, system testing entire system, customer point of contact, customer deployment support, product deployment, and more.

What is a typical day like?
My typical day consists of documenting the requirements of the customer and configuring the product for them. It also entails making sure the configuration is working properly and deploying it to their systems. When time allows, all forms of testing of the product as well.

What personal qualities or abilities are important to being successful in this position?
Interacting with the customer and listening and appreciating their concerns and working with them to resolve any open issues is primary. An ability to schedule and multitask is also a very important attribute.
What technical skills are important to being successful in your job?

Testing and documentation are the primary skills needed.

What part of this job do you find most satisfying?

When I know that I deployed a quality product and positive feedback from the customer/management agrees.

What part of this job do you find most challenging?

The most challenging part of this job is managing time between the customers, management, engineering, and testing.

What type of training was offered for your position?

None.

What advice would you give to students considering your major?

Give serious thought about what kind of a company you want to work for and what roles in that company you would want to be in. Simply thinking about what company you would want to work at is not enough. You have to really think about a specific job title that you would want to do.

What are possible career paths/promotional opportunities from your current position?

From my position there are a number of directorship positions and project management possibilities. I could branch to more Quality Assurance roles or take on a more commanding lead in an implementation role.

Is there any other advice you would like to share?

Pay very strong attention to the Software Engineering line of classes. If Software Engineering classes are not mandatory, consider taking one for an elective. No matter what path you decide to go down, you will need to work within the project management system. This includes documentation, development, and testing. It is not only about the development. People who focus only on development tend to get a very narrow focus of the company and inadvertently cause problems for those around them, thereby making
themselves less desired employees. Also be very flexible in what opportunities are presented to you and consider things that you haven't considered before. Truly be open to new opportunities—even if they are not in your primary focus or what you initially think you want to do.

Eric Nakaki - Informational Interview completed November 8, 2007
Marii Thompson

Cal Poly - B.S. in Computer Engineering, March 2005

Employer:

Eaton Corporation - Galesburg, MI

Title:

Embedded Software Engineer

How long in current position:

1 year as of July 2006
Description of overall job duties and responsibilities:

Write firmware code for VORAD on-board Collision Warning System, used on commercial vehicles. Write firmware code for Data Logger, GPS unit, and Radar Systems used for Mobile Resource Management (MRM) Solutions. Develop specification sheets for upcoming product line. Test current product line when upgrades occur.

What is a typical day like?

I check email and voicemail. I meet with my group to find out where we are at for deadlines. I have a few conference calls reviewing status of projects being done by outside resources. I work at my desk and code all day long until lunch. After lunch, I research the Internet and try to get help understanding the code I am using to write the software. Sometimes I test some software and look for bugs on revisions of current products.

What personal qualities or abilities are important to being successful in this position?

Knowing and understanding the language you are writing in is key. To be successful, you must be hard working and self-sufficient. There is not going to be an instructor to watch over you or help you with your tasks. You have a deadline and you will suffer if you procrastinate (like doing homework the evening before it is due) and there won’t be any peers to help you out of the water because they have their own deadlines to meet. Working well with others and collaborating your efforts with those of others is important because everyone is writing their own pieces that come together as a final project. So understanding and knowing what your peers are doing is vital to making your part work too.

What technical skills are important to being successful in your job?

For this particular position, it is knowing the language. In software development you have to understand the hardware too, but the key is knowing the language you are coding in. Understanding what the capabilities of the development board are important at first and then writing the code to make the board work is what gets the job done.

What part of this job do you find most satisfying?

I enjoy working with new and innovative technology that is saving the lives of hundreds of people out on the roads.
What part of this job do you find most challenging?

Finding the time to get everything done--time management is an important skill.

What type of training was offered for your position?

There was not much training involved. I needed to understand the specifications of the product and communication protocols and the rest I taught myself or learned from my peers.

What advice would you give to students thinking about majoring in Computer Engineering?

Pick a programming language and get good at it. Don’t just do your assignments--work on small projects for yourself to better understand the language and really see all it can do. I know that is easier said than done when you are in school, but it would be worth your while to do so. Try and do two or three small projects throughout the summer or something.

What are possible career paths/promotional opportunities from your current position?

Technical Lead, Management of Engineers, Marketing Solutions, or move over to Windows applications programming (off-truck applications, rather than on-board firmware).
Informational Interviews - Matt Braun

Matt Braun

Cal Poly - B.S. in Computer Engineering, June 2005

Employer:

Amgen Inc. - Thousand Oaks, CA

Title:

IS Associate

How long in current position:

1 year as of July 2006

Description of overall job duties and responsibilities:

I am a system administrator for my group. I build the servers and configure the hardware and software to be used with SAP. I ensure that our servers are monitored correctly, follow the proper regulations, and provide the correct access to users.

What is a typical day like?

A typical day flies by very quickly. I am constantly doing work and trying to complete the tasks on my never ending list. However, it was at least six months into my job until I had
What personal qualities or abilities are important to being successful in this position?

It is important to learn to adapt to the different types of co-workers and to be able to work effectively with each person. You must be able to manage your time well to ensure progress is being made in each area of your work. It is important to always respect the professional environment you are in and not become lackadaisical in your work and mannerisms. In order to get to the top, you always need to show confidence and strength in your work over time but also not be too intense.

What technical skills are important to being successful in your job?

A decent knowledge of programming with any language proved to be helpful. I had to code for an ASP.NET program which I had no experience with in college. However, having learned many other languages in college, I was able to figure it out quickly. For my specific job, being comfortable with basic network configuration and OS installs was helpful. In the end, having a general interest in computers throughout the years helps quite a bit.

What part of this job do you find most satisfying?

The most satisfying times are when a co-worker shows deep thanks for your work. It is nice to see someone so proud of what you have done. It is also satisfying to hear people mention the good work that you are producing.

What part of this job do you find most challenging?

I find it most challenging to work with people who are overwhelmed with their own work. Since I am lower on the totem pole, I have less priority with other people so it quickly becomes difficult to get them to do work for me.

What type of training was offered for your position?

All sorts of training is offered. There are classes on specific software, diversity, personal health, documented practices, new systems, etc. Amgen always encourages training and it has never been difficult enrolling in a class I need. Amgen will also sometimes pay for employees to travel to a convention for training.
What advice would you give to students thinking about majoring in Computer Engineering?

Make sure to get good grades. Some students quickly forget that good grades are needed to get into grad school. A Bachelor’s degree is becoming commonplace so a grad degree is more and more important every day. Besides that, try as hard as possible to get at least one internship while in college. Getting a full time position after college is exponentially easier when having the experience of an internship.

What are possible career paths/promotional opportunities from your current position?

There are many career paths for me. I can become a network engineer, systems engineer, systems analyst, programmer analyst, business analyst, UNIX administrator, Windows administrator, etc. With the MBA I plan to get, there are endless opportunities for higher positions in Amgen.

Matt Braun - Informational Interview completed July 28, 2006
Informational Interviews - Mike Holland

Mike Holland
Cal Poly - B.S. in Computer Engineering, June 2005

Employer:
Amgen, Inc. - Thousand Oaks, CA

Title:
IS Associate, Information Systems Security Department

How long in current position:
14 months as of July 2006

Description of overall job duties and responsibilities:
I do awareness presentations on securing Amgen’s intellectual property. I write risk assessments on internal IS projects as well as external business to business communications. I’m also the Cal Poly recruiter for Amgen’s College Hire Network.
What is a typical day like?

Starts at 8:30am with e-mails and reading the latest information security news related to the computer software and hardware owned by Amgen. I attend lots of meetings for different projects throughout the day. Then finish by completing any action items I have received from the meetings and returning more e-mails and phone calls.

What personal qualities or abilities are important to being successful in this position?

Social skills! Verbal and written communication is key at any company especially this one. This company also stresses building relationships to ensure the success of your career.

What technical skills are important to being successful in your job?

An understanding of operating systems and telecommunication networks has been important to be able to explain new technologies and how they can be exploited to possibly hurt the company.

What part of this job do you find most satisfying?

I really like working in teams and being able to present something I enjoy to groups of people.

What part of this job do you find most challenging?

Like any company, the politics can be a little stressful sometimes. You can’t please everyone.

What type of training was offered for your position?

I have been to several technical training courses both onsite and offsite. Amgen offers 10,000 a year for school so I have taken several classes at the local JC and I’m currently looking into a Master’s program. Amgen also offers personal development classes in things like management and public speaking which I would like to take in the future.

What advice would you give to students thinking about majoring in Computer Engineering?

The best class Cal Poly has to offer in our curriculum is Technical Writing. Don’t expect to be working on programming or technical stuff all day long. Work on the social skills.
Volunteer for everything in your first year, you may be surprised at what you like.

**What are possible career paths/promotional opportunities from your current position?**

Information Security allows me to work with a lot of different groups and work with a lot of different technologies. The possibilities are endless.

Mike Holland - Informational Interview completed August 2, 2006
William C. Traenkle

Cal Poly - B.S. in Computer Engineering, March 2001

Employer:

Tranquil Networks, Inc. - San Diego, CA (www.tranquilnetworks.com)

Title:

Owner/CEO

How long in current position?

3.5 years as of July 2005
What is a typical day like?

Networking (with people), project management, accounting, computer consulting, low voltage contracting, product sales and marketing, team building, and mentorship.

What personal qualities or abilities are important to being successful in this position?

An entrepreneur spirit, extraordinary networking (people) skills, positive mental attitude, leadership skills, helping others, being responsible, giving praise to others, and a heightened level of awareness.

What technical skills are important to being successful in your position?

The ability to recruit and enroll people into your company that know these skills. Managing, leading, and mentoring these people.

What part of this position do you find most satisfying?

Building a business, helping others, providing extraordinary services/products, providing opportunities for others, mentorship.

What part of this position do you find most challenging?

Dealing with me and what keeps me and my business from being extraordinary and growing to where I envision it to be.

What type of training was offered for your position?

Sales, marketing, belief systems, goal setting, influence, personal growth, leadership, team building.

What advice would you give to students thinking about majoring in Computer Engineering?

Define your emphasis early and take classes that will give you a foundation and build on that with work experience in that field.
What are possible career paths/promotional opportunities from your current position?

They are unlimited. The opportunities are endless. The ability to be your own boss, own your own company, and build your own company. Meet and network with others who are successful like you.
Alan Law

Cal Poly - B.S. in Computer Science, March 2004

**Employer:**

*SBC Communications*

**Title:**

Associate Analyst

**Length of Employment:**

15 months as of July 2005

**What is a typical day like?**

I work on an internal instant messaging client used by a significant portion of SBC management employees. In addition to developing the code such as doing bug fixes and adding new features, I am also responsible for the deployment and maintenance of the backend systems that run the messenger. I help manage Windows 2003 Enterprise servers, as well as some Redhat Linux servers. All of those servers are at remote locations in data centers, so I never have to be physically present at any location to do work on them. I’m also free to use Virtual Private Networking (VPN) to work from home on occasions. About 6.5 hours in an 8-hour work day involves being in front of a computer. Here’s what a
A typical day might be like for me:
- Wake up at around 8am; ask myself “how much longer can I sleep before I absolutely have to get up?”
- Get to the office around 9:00-9:15am (although there are no set hours, I can show up anytime I want, as long as I put in 8 hours a day)
- Check email, answer support/development questions
- Attend “daily standup” meeting - talk with other project developers/leads, on-site and over conference call in St. Louis and Los Angeles
- Work on tasks assigned for the day with project partner
- Leave for lunch at around noon—go to either the cafeteria, Costco (cheap $2 per slice pizza), or a nice lunch place around the San Ramon Bishop Ranch area.
- Come back from lunch at around 1pm
- Check email, answer support/development questions again
- Attempt to get brain back into gear
- Continue to work with project partner until around 5:00-5:30pm
- Wrap up project development, joke around with co-workers
- Exit building at around 6pm

What personal qualities or abilities are important to being successful in this position?

Must be resourceful. If you don’t know how to do something, it’s okay, as long as you are resourceful enough to figure how to do it. Must also be critical, have planning and design capabilities. One change in your part of the project can easily affect the parts worked on by seven other coworkers.

What technical skills are important to being successful in your position?

Java, Perl, HTML, Eclipse IDE, Unix, Linux

What part of this position do you find most satisfying?

The constantly changing challenges and adventure

What part of this position do you find most challenging?

Some of the people I work with; corporate red tape/guidelines
What type of training was offered for your entry-level position?

None

What advice would you give to students thinking about majoring in Computer Science?

You will probably not use anything from CSC 349 (Algorithms). If you’re into project management, all the lifecycle models you learned about in CSC 205 and CSC 206 are outdated and probably do not work well in real life (which explains why less than 30% of all software projects are successful). XP or Extreme Programming (Pair Programming/Small Releases) are the new “in.” It works, learn it.

What are possible career paths/promotional opportunities from your current position?

With a big company... little to none.
Informational Interviews - Eric Ha

Eric Ha
Cal Poly - B.S. in Computer Science, August 2003

Employer:
St. Jude Medical - Sylmar, CA

Title:
Software Engineer

How long in current position?
A little over a year and a half as of July 2005

What is a typical day like?
I write Graphical User Interface (GUI) components/systems for the latest and greatest product my company is developing. There is no single "typical" day. Sometimes, meetings take up five hours of my workday; sometimes, tool or computer problems limit my productivity to less than an hour of real work. Sometimes I kick _ _ _ and do loads of work.

What personal qualities or abilities are important to being successful in this position?
People skills. Attention and cohesion to the set process. Initiative - being very thorough and diligent in what you do is great, but it's stepping up and opening your own doors which get the most recognition.

What technical skills are important to being successful in your position?
Java; ability/willingness to learn a whole lot on your own
What part of this position do you find most satisfying?

The privilege to interact with so many people who are smarter

What part of this position do you find most challenging?

Non-productive days (read above...)

What type of training was offered for your entry-level position?

One-to-one training from the more experienced.

What advice would you give to students thinking about majoring in Computer Science?

It's a tough major.

What are possible career paths/promotional opportunities from your current position?

Management
Informational Interviews - Eric Wood

Eric Wood

Cal Poly - M.S. and B.S. in Computer Science, March 2004 (Blended Program)

Employer:

IBM

Title:

Software Engineer

How long in current position?

1 year, 11 months as of July 2005

What is a typical day like?

I spend my days working on software that allows companies to establish trusted relationships so they can provide more effective products and services to their customers. This involves designing and implementing features, maintaining existing versions of the product, educating coworkers, and working with customers.

What personal qualities or abilities are important to being successful in this position?

Multitasking, ability to work independently, effective verbal/written communication skills.
What technical skills are important to being successful in your position?

Object-oriented design and problem solving skills, software engineering skills, Java, j2ee

What part of this position do you find most satisfying?

That my work is used by companies that can't afford to lose time if our software fails.

What part of this position do you find most challenging?

Working in a physically distributed environment (our development team is in California, Texas and Australia).

What type of training was offered for your entry-level position?

Product-level training

What advice would you give to students thinking about majoring in Computer Science?

Don't do it for the money--do it because you're truly interested in technology.

What are possible career paths/promotional opportunities from your current position?

Software architecture, solutions design, sales engineering
Informational Interviews - Johannes Kienzle

Johannes Kienzle

Cal Poly - B.S. in Computer Science, June 2006

Employer:

salesforce.com - San Francisco, CA

Job Title:

Software Developer
How long in current position:
15 months as of September 2007

Description of overall job duties and responsibilities:
- Software design, development and maintenance
- Presentation of new features and progress reports to management
- Interviewing and evaluating prospective hires
- Some college recruiting
- Working with customers to resolve issues which includes conference calls, remote debugging, and log file analysis

What is a typical day like?
Get to work around 10 AM, quick meeting to sync up with the team, writing code for most of the day (lots of debugging), occasional interview (phone or in person), maybe a customer call to help with issues or problems, work on bugs that have been filed by Quality Assurance or customers, deploy new binaries to our servers, go home between 8:00 PM and midnight.

What personal qualities or abilities are important to being successful in this position?
- Teamwork, teamwork, teamwork
- Social and communication skills
- Technical knowledge to a degree, but mostly the ability to learn and understand new stuff quickly and use it on the job, very few of the technologies actually used in the field are taught in school.

What technical skills are important to being successful in your job?
C++, Win32, Java, SQL, some Javascript, some Perl

What part of this job do you find most satisfying?
Working with cutting edge technology and writing software used by 100,000+ people.

What part of this job do you find most challenging?
1. Keeping up with the fast pace of the industry
2. Dealing with customers
3. Having to become an expert in something in a very short amount of time
4. Office politics
What type of training was offered for your position?
- Training on the company’s main software product
- Training to understand and use the software development process used internally
- There’s a budget for other training you’re interested in—you just have to ask

What advice would you give to students thinking about majoring in Computer Science?

You will work and study with some of the smartest people you’ll ever meet but don’t be intimidated if everyone seems to have an easy time except for you. Hard work can compensate for a lot. You will also work with some people who you think are really dumb. Don’t dismiss them. Everyone has qualities you can learn from. Take the hardest and most challenging classes and professors. Learn as much as you can, no one cares later that you had a good GPA (because you took the easy classes). All that counts is your skill. Expect to work long hours in this field. You have to love the job if you don’t want to go crazy. If you don’t seem to like CSC during your first year and the intro classes, switch majors or you’ll have a rude awakening later.

What are possible career paths/promotional opportunities from your current position?

Lead developer, principal software architect, management if I want to (I don’t at this point).

Is there any other advice you would like to share?

Learn how to learn, not just how to finish the assignment at hand; go beyond what’s required and taught in the classroom, ask lots of questions and network. Everyone can finish the classes but to distinguish yourself you have to do more. Work on your own projects in your free time. Make sure you know the basics but become really good at something you’re interested in; don’t just look at what’s important in the industry but at what you have fun with. Not to forget: social and communication skills are almost as important as technical skills. Some brilliant geek who has an IQ of 150 but can’t work in a team is much less likely to succeed than someone who’s “only” moderately intelligent and skilled but is a great team player.

Johannes Kienzle – Informational Interview completed January 15, 2008
Informational Interviews - Jordan Small

Jordan Small
Cal Poly - M.S. + B.S. in Computer Science, June 2005 (Blended Program)

Employer:
Intuit - Mountain View, CA

Title:
Software Engineer

How long in current position:
One year as of August 2006

Brief description of overall job duties and responsibilities:
- Implement new features for QuickBooks payroll
- Help design and review code for other engineers
- Software defect repairs
- Write unit tests for code and interface with QA engineers

What is a typical day like?
- 3 hours of meetings
- 4 hours of programming
- A lot of fun! :) Intuit is a very team-centric company. Much time is spent interacting with fellow engineers and solving problems.
What personal qualities or abilities are important to being successful in this position?

• Good communications skills
• Easily adaptable to changing requirements and processes

What technical skills are important to being successful in your job?

• Good Object-Oriented design skills
• Understanding programming languages and complex build environments

What part of this job do you find most satisfying?

The people. The people and resulting culture is fabulous. A great mix of work and play.

What part of this job do you find most challenging?

Maintaining a 15+ year old codebase.

What type of training was offered for your position?

Three-month training explaining how the Intuit business works as a whole from talking directly to customers all the way to personal sessions with key business executives. Ongoing training classes are offered in various engineering skills/methods and business acumen.

What advice would you give to students thinking about majoring in Computer Science?

Do internships. It's the best way to try before you buy. The more experience you get during your education the better you can tailor your learning while in school.

What are possible career paths/promotional opportunities from your current position?

Intuit has a technical promotional ladder: Software Engineer -> Senior Software Engineer -> Staff Software Engineer -> Architect

Jordan Small - Informational Interview completed August 16, 2006
Informational Interviews - Matthew M. Swann

Matthew M. Swann

Cal Poly - B.S. in Computer Science, June 2004

Employer:
Microsoft Corporation - Redmond, WA

Title:
Software Test Engineer - Windows SharePoint Services

How long in current position?
Just over a year as of July 2005
What is a typical day like?

The first thing I do when I get to work is make some oatmeal and spend thirty minutes or so catching up on email. I subscribe to a variety of discussion groups to keep track of technology trends, and there are always product related emails flying by, so I try to get all that out of the way before I get started. Next, I look over my “to-do” list for the day. Do I have any meetings? Anything urgent that needs to be done by end of day, or end of week? I prioritize my day and try to write down a few things to get done before I leave. Depending on the day, that might mean spending an hour or two testing a specific area of our product, writing a document, evaluating the results of test automation, or working with other members of my team to determine our status and what we’ll be doing in the weeks to come. A lot of my job involves communication with other teams, so I spend a lot of time in email throughout the day. Primarily, however, my job is to find bugs and weaknesses in our software and make sure the right people know about them so that they can be fixed.

What personal qualities or abilities are important to being successful in this position?

Curiosity and a willingness to learn new things! Time management is big -- and it's important to have good interpersonal skills, as you’re never working alone. Strong coding skills are increasingly important in this field, so a good grasp of the technical side of computer science is important. A good tester is always organized, always alert for new potential problems, and always able to maintain a complex picture of the product and its components in his/her head.

What technical skills are important to being successful in your position?

Basics of software engineering and one or two programming languages. Most of this position is about how you think and how you solve problems, rather than any concrete knowledge you may or may not possess.

What part of this position do you find most satisfying?

I get to play the role of the customer, trying new things and giving feedback about what works and what doesn't. As such, it's my job to find problems before our customers do -- and that means I play a direct role in shipping a quality product. That's quite a bit of motivation! I also love working with prerelease software and having access to internal code that hasn't made it to the public yet. Microsoft is full of bright, excited people, and just working alongside them is a joy in itself.
What part of this position do you find most challenging?

When I first started, I had to get up to speed on a complex product I had no prior knowledge of. Even now, a year later, I still run across pieces that I need to learn more about. Keeping track of the product as a whole and all the changes that occur during development is quite a challenge!

What type of training was offered for your entry-level position?

Everything from programming language workshops to effective software testing to how to manage my 401k and finance a new house... Microsoft isn't shy about providing on-the-job training!

What advice would you give to students thinking about majoring in Computer Science?

Be sure you love what you're doing. If you don't love it, if you don't wake up in the morning excited about what you're studying, then you're in the wrong major! Better to figure that out early than when you've made a career choice and placed some big bets on the path ahead of you.

What are possible career paths/promotional opportunities from your current position?

I could move up management to become a test lead, then a test manager -- or I could stay an individual contributor and develop my technical skills. I could also switch roles and become a Program Manager or a Software Development Engineer... I'm pretty much free to move about the company as my skills allow.
Informational Interviews - Scott Thomas

Scott Thomas
Cal Poly - M.S. and B.S. in Computer Science (Blended Program), June 2004

Employer:
Cisco Systems, Inc. - San Jose, CA (www.cisco.com)

Title:
Manufacturing Test Development Engineer

How long in current position?
One year as of July 2005

What is a typical day like?
I usually spend about four hours per day working on new product test scripts and current product script maintenance. The production floor runs all day and if there is a script error, we are responsible. The other half of the day is spent in meetings discussing new test strategy. For example, discussing the best way to test a new feature across different
products.

**What personal qualities or abilities are important to being successful in this position?**

Teamwork is essential. You need to have the ability to speak clearly and understand other people’s explanations quickly.

**What technical skills are important to being successful in your position?**

Scripting language experience is helpful. Also, knowledge of networking and Cisco products is a plus.

**What part of this position do you find most satisfying?**

Seeing the results of test process improvements resulting in less customer product returns and DOA products.

**What part of this position do you find most challenging?**

The work load can be intense when many new products are shipping at once. Manufacturing is the key in getting a new product shipped out to many customers and making money. Things can get very stressful when the manufacturing line is stopped because of test script errors.

**What type of training was offered for your position?**

I did a formal internship with Cisco the summer before I graduated. This allowed me to come up to speed much more quickly than people without prior Cisco experience. All languages and testing infrastructure is proprietary and no external training is available.

**What advice would you give to students thinking about majoring in Computer Science?**

Work hard, but take your time and enjoy what you are doing. If you don’t like the work you are doing in school, then Computer Science may not be for you. It takes a real love for this stuff to continue doing it every day. Also, do the 4+1 BS/MS program. It is the best program at Cal Poly.
What are possible career paths/promotional opportunities from your current position?

In manufacturing, the next step would be Test Group Manager, then to Business Unit Manufacturing Manager who controls multiple test group managers. Next would be Director of Manufacturing, then Vice-President. However, Manufacturing is a very good place to start off and transfer into engineering (both hardware and software). You are forced to get to know the products very well testing them in Manufacturing. This looks very good when trying to get into Cisco hardware/software engineering.
Informational Interviews - Victor Fehlberg

Victor Fehlberg
Cal Poly - B.S. in Computer Science, June 2005

Employer:
Amgen Inc. - Thousand Oaks, CA

Title:
Systems Support Specialist

How long in current position:
6 months as System Support Specialist (1.5 years total at Amgen as of July 2006)

Description of overall job duties and responsibilities:
I am the system owner (application owner) of a data quality application used in the enterprise.
What is a typical day like?

A typical day might consist of mixed technical work (programming for example), along with a few meetings that you set up with colleagues to get work done. The meetings help break up your day and make things go faster - as long as they aren't boring meetings, they're usually beneficial.

What personal qualities or abilities are important to being successful in this position?

The ability to communicate effectively to both technical and non-technical people. Good character is always sought after - people who are honest, that make a concerted effort to do the right thing regardless of circumstance.

What technical skills are important to being successful in your job?

Object-oriented design / understanding. Software engineering principles. Familiarity with UML and iterative project methodologies (Rational Unified Process for example).

What part of this job do you find most satisfying?

I enjoy the balance of technical and non-technical work. I enjoy using the best software engineering principles in my discipline.

What part of this job do you find most challenging?

Changing the way other people around you think.

What type of training was offered for your position?

Lots of training is a part of the job. They seem to be countless…

What advice would you give to students thinking about majoring in Computer Science?

Have you thought about Software Engineering instead? Make sure you take a class on relational databases - I don't know why they don't make this required.
What are possible career paths/promotional opportunities from your current position?

There are many career paths at my company. I could choose to become more of a "business analyst" or I could choose a path leading toward "software architect," or I could go toward project management. There are many specialist positions that fall somewhere in between these paths.

Victor Fehlberg - Informational Interview completed August 30, 2006
Aaron Abts

Cal Poly - B.S. in Electrical Engineering, June 2005

Employer:

Donald Keef & Associates, Inc. - Redding, CA

Title:

Associate Engineer

How long in current position:

One year as of July 2006

Description of overall job duties and responsibilities:

I help to engineer and design the collection system and substations for wind farms. This includes deciding cable routes between turbines and sizing cables from thermal analysis, fault analysis, economic/loss analysis, etc. I also work on drawing sets using AutoCAD and put together specifications and all sorts of reports.
What is a typical day like?

First thing in the morning, check emails from people we are working for and respond or get to work on what they are asking for. In a day, I may work on only one project the whole day or I may work on five different projects. I spend a lot of time in front of a computer, though every now and then traveling to job sites is involved.

What personal qualities or abilities are important to being successful in this position?

A good understanding of the basics of power engineering, being personable with people who want something done by yesterday, and enjoying working with power software and calculations.

What technical skills are important to being successful in your job?

I use a lot of AutoCAD, ETAP, Excel, and Word. I feel that at Cal Poly I was lucky enough to become familiar with a power simulation software. I actually learned with a program called Power World but switching to ETAP was not difficult as they run on the same input data.

What part of this job do you find most satisfying?

That I am helping to improve the world's use of an alternative form of energy. This day in age, this is such an important thing and the harnessing of wind power is really starting to take off and be viable. When I see a job completed there is such a sense of satisfaction and it feels good to know that I was part of that.

What part of this job do you find most challenging?

Keeping all the jobs straight and knowing equipment specs and values off the top of my head. Also, as I am just starting out in this industry, it's challenging to keep learning so much everyday. My boss has been doing this for decades and I just can't believe that someday, I may know stuff off the top of my head like he does.

What type of training was offered for your position?

Not much. I was just kind of thrown into it and had to ask a lot of questions for a while. I consider most of my training being what I learned at Cal Poly and just learning by doing on the job.
What advice would you give to students thinking about majoring in

It is an interesting and rewarding field to be in. Just remember that classes and labs are nothing like the actual job. I started to doubt whether I wanted to finish out my Bachelor’s degree in electrical engineering because I wasn’t enjoying the classes, but I’m sure glad I stuck with it because I enjoy my job more than I thought I would. I can honestly say I love my job.

What are possible career paths/promotional opportunities from your current position?

I work for a small company where I work right beneath the owner, who is the professional engineer. In two years I can take the Professional Engineer (P.E.) exam and get my license. Eventually, when my boss retires, I’ll be in line to run the company. I really landed in a good spot here.
Frances Palomar

Cal Poly - B.S. in Electrical Engineering, June 2003

**Employer:**

*St. Jude Medical* - Sylmar, CA

**Title:**

Design Assurance Engineer

**How long in current position?**

2 years as of July 2005

**What is a typical day like?**

When I first started working, my day was fairly regular and slower. Now that I have more involvement working with different departments, every day is different and very busy.
Whenever my assistance is needed supporting other groups, I may be juggling several different projects all at once. I am always involved on a project, and my day differs day-to-day as I work towards completing the project. I may be in lab taking measurements, at my computer writing engineering specifications, traveling a bit to use other facilities or in meetings, on the phone, or emailing trying to coordinate tasks.

**What personal qualities or abilities are important to being successful in this position?**

Having a solid technical background, being able to work with other people with different skill sets, being able to communicate effectively, being able to multi-task, and being detail-oriented.

**What technical skills are important to being successful in your position?**

Electrical engineering background, software background, basic computer skills

**What part of this position do you find most satisfying?**

Knowing that my work benefits actual patients who rely on St. Jude Medical devices to live.

**What part of this position do you find most challenging?**

Juggling many projects at the same time while being able to meet deadlines.

**What type of training was offered for your entry-level position?**

Not a whole lot. I just asked a lot of questions and performed my tasks as I saw fit.

**What advice would you give to students thinking about majoring in Electrical Engineering?**

Get as much hands-on experience as possible whether it is through work experience or taking on additional projects outside of school.
What are possible career paths/promotional opportunities from your current position?

Many--Hardware/Software Research and Development, Testing, Project Management positions
Informational Interviews - Matthew Ellington

Matthew Ellington

Cal Poly - B.S. in Electrical Engineering, December 2006

Employer:

Altergy Systems

Title:

Product and Process Engineer

How long in current position?

4 years

Description of overall job duties and responsibilities:

Design electrical power conversion and control systems for advanced fuel cell systems. Lead electrical design effort for specific parts and assemblies. Test and troubleshoot prototype-level boards. Select components for various electronic assemblies, including power FETs, control processors, logic ICs etc. Produce system and board-level schematic diagrams and complete PCB designs to implement these circuits. Produce PCB drawings and Gerber files alone or via a designated designer/drafter.

What is a typical day like?

Check e-mail. Update Bill of Materials and PCB Schematics. Discuss with Management new product ideas and design goals. Work with technicians on the building of prototype hardware. Work with contract manufacturers on the building of production hardware.

What personal qualities or abilities are important to being successful in this position?

Willingness to jump on any task quickly and dynamically while balancing multiple project loads. Giving accurate time estimation and difficulty to complete certain requests.
What technical skills are important to being successful in your position?

Knowledge of Power Electronics with regards to IC's, device physics, magnetics, material science, thermodynamics, and CAD software.

What part of this position do you find most satisfying?

Looking at a large electromechanical system and knowing how every piece fits together and works down to the electron level.

What part of this position do you find most challenging?

Working through sales and managements requests of odd and sometimes unreasonable products.

What type of training was offered for your entry-level position?

An experienced mentor at all times.

What advice would you give to students thinking about majoring in Electrical Engineering?

Learn the basics well, from that you can create anything.

What are possible career paths/promotional opportunities from your current position?

Product manager, Senior Level Designer, Director of Engineering, Principal Engineer.

Is there any other advice you would like to share?

You don't know how something works until you make it work yourself.

May students contact you?

Yes nextenzo@sbcglobal.net
Informational Interviews - Michael Sweetman

Michael Sweetman

Cal Poly - Electrical Engineering, June 2009

Employer:

Schneider Electric, Lake Forest, CA

Title:

Project Application Engineer 2

How long in current position:

4 years

Description of overall job duties and responsibilities:

I am a Lead Project Engineer in our Nuclear Delivery Group. I lead project teams to design hardware and software for Tricon PLC systems and Wonderware applications—writing and reviewing software, reviewing CAD drawings, writing and executing Test Plans and Test Procedures, assisting with technical decisions, prioritizing tasks, and guiding the process in accordance with NRC regulatory guidelines and customer specifications.

May students contact you directly with questions?

Yes. My email is mike@michaelsweetman.com
This page was automatically formatted by http://kevinyae.com
Informational Interviews - Mike Klein

Mike Klein
Cal Poly - B.S. in Electrical Engineering, June 2006

Employer:
Keyence - Gardena, CA

Job Title:
Engineering Sales Executive

How long in current position:
1 year as of Jan 2008

Description of overall job duties and responsibilities:
Penetrate engineering R&D industrial companies by networking/calling employees. Call, schedule, and follow up on on-site demonstrations, providing engineering solutions with our top-of-the-line digital microscope (designed, engineered, and sold by Keyence) to sell these systems within a given territory.
What is a typical day like?

Mon/Tues/Fri - call to schedule appointments, follow up on past visits and aid the customer in the timely acquisition of our product. Wednesday/Thursday - travel to Texas to visit engineering companies and research organizations for the job description above.

What personal qualities or abilities are important to being successful in this position?

Committed, efficient, responsible, out-going, diligent, energetic, passion and personal job experience within engineering, ability to relocate, loving to travel, easily able to adjust to change, liking variety in a job.

What technical skills are important to being successful in your job?

Background/interest in engineering disciplines, and an open mind to learn new ones.

What part of this job do you find most satisfying?

Traveling, visiting the top of the line engineering companies and schools, exposure to current research and engineering, and involvement with Keyence as a Japanese company and culture.

What part of this job do you find most challenging?

Constantly finding new ways to penetrate the engineering companies in my territory.

What type of training was offered for your position?

Two months in Chicago--extensive sensor training (the company is a leader in electronic sensors for automated processes), with office visits to locations within the US.

What advice would you give to students thinking about majoring in Electrical Engineering?

To always be aware and understand what interests you and pursue it; never to determine your goals or major based on what you’ve heard would be good or what makes more money.
What are possible career paths/promotional opportunities from your current position?

Sales management, moving to a different state, national management.

Is there any other advice you would like to share?

This was a great opportunity for me since I didn't want to be in a desk or office for eight hours a day like I experienced at three previous summer internships. Although my internships were stimulating as far as engineering goes, it was the travel, people contact, and heavy involvement with the latest technology/research that led me to my current position.

Mike Klein - Informational Interview completed January 28, 2008
Informational Interviews - Ryan Star

Ryan Star
Cal Poly - M.S. in Electrical Engineering, December 2003

Employer:
Unocal Oil - Indonesia

Title:
Construction/Engineer Supervisor (Electrical & Instrumentation)

How long in current position?
One year as of July 2005

What is a typical day like?
Chopper out to an off-shore oil platform, supervise an instrumentation installation and then watch it be commissioned and put into service.

What personal qualities or abilities are important to being successful in this position?
Culturally tolerant, flexible lifestyle, fast learner of languages, like challenges and lots of money, grasp the big picture--be broadly educated in engineering and interested in everything not just EE (your major).

What technical skills are important to being successful in your position?
Common sense above all, then broad engineering skills, good communication skills and all the specifics you can teach yourself anytime. College should teach you to think and problem solve so that if you forget the specifics you'll know exactly where to look and refresh your memory as well and expand your knowledge.

What part of this position do you find most satisfying?
The ability to be an example for others who haven't had or don't know how to do things.
What part of this position do you find most challenging?

Motivation and progress come very slowly in third world countries. Language and cultural barriers need to be overcome.

What type of training was offered for your entry-level position?

Practically none--buy a book and read! "Learn by doing"—the Cal Poly motto.

What advice would you give to students thinking about majoring in Electrical Engineering?

Think about what you want to do, it's a broad field with lots of opportunities. Be open to new experiences. Women should not fear Electrical Engineering! There are great jobs out there for everyone.

What are possible career paths/promotional opportunities from your current position?

Limitless global and local opportunities, self-employed and all.
Tuyet Hoang
Cal Poly - B.S. in Electrical Engineering, June 2005

**Employer:**
Micrel, Inc. - San Jose, CA

**Title:**
Applications Engineer

**How long in current position:**
Over one year as of October 2006
**Briefly describe your overall job duties and responsibilities.**

As an applications engineer, I am responsible for writing specification sheets and evaluation board literatures for new products, analyzing new products by performing tests, gathering data to compare with the specification sheets and making sure design requirements are met. I also provide technical support to customers as well as field applications engineers via telephone and email. On a quarterly basis, I work with my teammates to provide training to field applications engineers and field sales staff through hands-on demos and technical presentations. I am also involved in marketing tasks, such as working with the marketing communications group to generate product brochures, product collaterals, advertisements, and press releases.

**What is a typical day like?**

My day begins at around 9:00 am. I spend the first hour checking emails, review my to-do list and then prioritize my day accordingly. Customer requests/problems need immediate attention, so often times I spend the first half of my day resolving customer problems by verifying, debugging/retesting a design in lab or proposing a solution to customers’ applications through emails. The second half of the day is spent in attending meetings, documenting specification sheets, performing competitive analyses, and analyzing new products, etc.

**What personal qualities or abilities are important to being successful in this position?**

Possessing strong communication skills, having the ability to take initiative, being detail oriented, showing enthusiasm, and using good engineering judgment.

**What technical skills are important to being successful in your job?**

Strong understanding of circuit fundamentals; knowing MicroCap or PSPICE is helpful for circuit simulations and verifying design ideas; having basic Microsoft office/computer skills; and being comfortable with using lab equipment.

**What part of this job do you find most satisfying?**

Positive feedback from customers, colleagues, and executives. Also, having the opportunity to participate in developing cutting edge products and learn about new applications is always exciting.
What part of this job do you find most challenging?

Keeping up with understanding complex circuit design ideas, learning new applications and providing feasible solutions to customers’ applications in a timely fashion. The semiconductor industry is very fast-paced. If we cannot provide a product or a solution that satisfies a customer’s need quickly, we miss the opportunity window.

What type of training was offered for your position?

Limited formal training, but I learn a lot through asking questions, doing research and just reading information on the Internet or in books on my own.

What advice would you give to students thinking about majoring in Electrical Engineering?

Electrical Engineering is such a broad discipline. There are a lot of opportunities for electrical engineers.

What are possible career paths/promotional opportunities from your current position?

Vertically: Senior Applications Engineer and Marketing Manager; laterally: integrated circuit design, product engineering or marketing, or even sales.

Tuyet Hoang - Informational Interview completed November 3, 2006
Bonnie Chin

Cal Poly - B.S. in Environmental Engineering, June 2006

**Employer:**

ENSR Corporation - Orange, CA

**Job Title:**

Staff Specialist II - Environmental Engineer

**How long in current position:**

Five months as of September 2007

**Description of overall job duties and responsibilities:**

ISC - Integrated Site Closure, field work (sampling, operation & maintenance, site visits), detail designs for remediation systems, oversight of remediation activities, task management

**What is a typical day like?**

Field Work: Coordination with Subcontractors, Tailgate Safety Meeting, Oversight of
activities (well install, sampling, drilling, etc.), being able to adjust or modify activities as appropriate, end of day overview with Project Management
Office Work: Write up proposals, reports on completed work, correspondences with regulatory agencies, utility, subcontractors and other staff, drawing/drafting designs for remediation systems from multiple references, and much more

What personal qualities or abilities are important to being successful in this position?

Being able to learn things the first time, prioritize projects, be organized, team player, and perform tasks without supervision. Consulting work requires you to "think on the fly" and flexibility. Creating and maintaining a client base requires great communication skills. Having a positive attitude and not being afraid to ask questions.

What technical skills are important to being successful in your job?

Understanding process flows, knowing treatment process and laboratory analysis. Organic chemistry, AutoCAD experience is a plus, Microsoft Office, technical writing skills, GinT, GIS, pretty much anything you can learn will help you.

What part of this job do you find most satisfying?

Having billable work and learning hands on.

What part of this job do you find most challenging?

The most challenging is having a project manager or other senior staff not including you in the whole picture so you end up working on a small part that you don't understand where it fits into the whole.

What type of training was offered for your position?

Mentoring, job task shadowing, on-the-job training, leadership training, etc.

What advice would you give to students thinking about majoring in Environmental Engineering?

Visit actual facilities and see if they provide tours where you can see how things work and ask questions of the facility operators. Talk to the professors in the department (Drs. Tracy Thatcher, Yarrow Nelson, Nirupam Pal, Tryg Lundquist, Hal Cota, and Sam Vigil). Do your research on companies (online, in-person, phone). Ask questions of other students.
What are possible career paths/promotional opportunities from your current position?

Technician; Staff Specialist; Task Manager; Project Manager; Senior Project Manager; Principal Manager
My company has unlimited opportunities to work overseas in our offices located in Australia, China, Europe, etc. Also, most companies tend to promote from within for other positions that might open up. Obtaining the Engineer-in-Training Certification is a great way to boost your resume.

Is there any other advice you would like to share?

Join clubs, such as, Engineers without Borders, Society of Environmental Engineers, or even Society of Civil Engineers. You'll get an idea from older students as well as be able to mingle with alumni during social events. Many of the organizations join competitions that give you scenarios that you can apply what you learned. Also Engineers without Borders travels to less fortunate countries to actually design and implement systems, such as water treatment, sanitation facilities, etc.

Bonnie Chin - Informational Interview completed January 9, 2008
Carey Carpenter (Spencer)

Cal Poly - B.S. in Environmental Engineering, June 1999

Employer:

Alaska Native Tribal Health Consortium - Anchorage, AK

Job Title:

Design Engineer

How long in current position:

8 years as of January 2008

Description of overall job duties and responsibilities:

The Division of Environmental Health and Engineering (DEHE) offers outstanding opportunities for a rewarding career in civil engineering. Our projects are focused on the planning, design, construction and operations of public health infrastructure throughout the state of Alaska. Professional engineers at DEHE are involved in all aspects of a
project, from planning to design to force account construction. We are committed to doing good work and helping people in a challenging environment.

What is a typical day like?

I work as a design engineer for sanitation facilities for Native Alaskans in rural, remote communities. Depending on which area you choose to work in, you can work as a project manager, design engineer, or utility support engineer. There are a variety of projects that a design engineer may work on such as water source development, water treatment process and design, water distribution, sewage collection and treatment, etc. A typical day usually includes doing design calculations, plan set development, design review meetings and memos, coordinating with project managers, AutoCAD technicians, and land surveyors.

What personal qualities or abilities are important to being successful in this position?

A successful engineer would be flexible—dealing with challenging environments such as the remote communities, weather, culture, and funding requires flexibility.

What technical skills are important to being successful in your job?

Water Resources, Water Treatment and Wastewater Engineering

What part of this job do you find most satisfying?

The challenges of designing sanitation facilities for remote Alaska villages. Visiting areas of Alaska that very few people get to see and learning about a different culture. Helping people in our own country that are sometimes living in third world conditions without any plumbing in their homes. It is pretty rewarding when a mom is able to give her baby a bath in their own house for the first time and it’s because of something you helped design. You can make an important impact to real people in bringing water and sewer to homes.

What part of this job do you find most challenging?

At the beginning, there was a big learning curve because there is so much information to consider when designing such big projects.
What type of training was offered for your position?

No formal training, though the company will pay for job specific training and has an annual budget. Design seminars are held in-house as a form of training also.

What advice would you give to students thinking about majoring in Environmental Engineering?

Whatever you choose to do and wherever you choose to work - enjoy yourself.

What are possible career paths/promotional opportunities from your current position?

I can move from a design engineer to a project manager or up the design section to a senior design engineer or manager.

Carey Carpenter (Spencer) - Informational Interview completed February 5, 2008
Davina Gonzalez

B.S. in Environmental Engineering, December 2004

**Employer:**

[Stantec Consulting](#) - Sacramento, CA

**Title:**

Assistant Water Resources Engineer

**How long in current position:**

One year (as of January 2006)

**Description of overall job duties and responsibilities.**

Assist in hydrologic and hydraulic studies involving calculations, water models, and report writing. Draft and maintain Storm Water Pollution Prevention Plans for local cities and contractors.
What is a typical day like?

My boss and I discuss what deadlines we have for the day or week and which are the priority tasks at hand. I spend about 40% of my time writing reports, 25% doing calculations, 25% creating exhibits and maps for the reports, and the remaining 10% drafting storm water pollution prevention plans.

What personal qualities or abilities are important to being successful in this position?

A good balance between technical and communication/writing skills

What technical skills are important to being successful in your job?

Math, good understanding of hydrology/water resources, AutoCAD (helpful), ArcGIS (very helpful)

What part of this job do you find most satisfying?

Completing tasks on time with little to no mistakes or oversights. Being able to juggle a few tasks at once, so it doesn’t get boring. When a strength is recognized by my boss and he/she looks to me as a resource.

What part of this job do you find most challenging?

Working with all different kinds of personalities is the most challenging part of this job, not the work itself. Office politics are not taught in school and have to be learned quickly. It is hard to know sometimes which are the right battles to pick especially when new to the job and the industry.

What type of training did you receive for this position?

Degree and two internships, one related to the job that helped me get hired. I was not EIT certified until a few months on the job.
What advice would you give to students thinking about majoring in Environmental Engineering?

Be prepared to take three years of schooling without knowing what Environmental Engineering really is, and where you fit in. You can make the degree fit what you want to do. I got the degree, and now have a Civil Engineering position. Use your technical electives wisely to specify in one section of water/air/waste. Take 500 level classes to gain more of a specialty if you are not going to pursue a master’s degree. And seek out opportunities to learn modeling programs. They can be taught on the job, but if you already know them, you will be that more valuable (HEC-HMS/HEC-1, HEC-RAS/HEC-2, WaterCAD, etc.)

What are possible career paths/promotional opportunities from your current position?

Project Manager within three to five years, as long as you are P.E. licensed
Evan Larson

Cal Poly - M.S. in Civil and Environmental Engineering + B.S. in Environmental Engineering, March 2004 (Blended Program)

Employer:

Pacific Gas & Electric - Diablo Canyon Power Plant

Title:

Operations & Engineering Procedure Writer

How long in current position?

I started on site as a contract Civil Design Engineer in 2008. I’ve been with PG&E’s Procedure Services group since late 2014.

What is a typical day like?

Most of the site works four 10-hr shifts, M-Thursday. I come in at 6:30 AM and start work, check emails, etc. 20-minute staff meeting at 7:15, then the rest of the day involves going to the occasional meeting, performing training or procedure changes. Since I work on Engineering & Operations procedures, I need to be familiar with the design function and operating basis for systems or components where I make changes. I consult with
System Engineers regarding specifics and with the Design Engineers that perform changes to the design. I need to attend design change meetings, to see if design changes will impact any procedures (controlling how the plant is operated). Lots of time in front of the computer, taking breaks to keep from fatigue, repetitive motion injury, etc.

**What personal qualities or abilities are important to being successful in this position?**

Questioning attitude, actively participate, have a low threshold for reporting / acting on problems, have a high degree of ownership.

**What technical skills are important to being successful in your position?**

Problem solving (approach), configuration management, typing, general engineering helps in conversing with clients.

**What part of this position do you find most satisfying?**

Working with nuclear professionals. Everyone here wants everyone else to go home in the same condition as they arrived. We understand the nuclear field is a special and unique, demanding excellence. It’s great working with people with true focus and appreciation for the importance of our work.

**What part of this position do you find most challenging?**

Not letting time pressure impact quality.

**What type of training was offered for your entry-level position?**

PG&E has great training. Before coming on site, there were a couple weeks of safety and process training to ensure I would keep myself and others safe. My first week or two on the job involved reading relevant procedures for my position. I was also given a task mentor.
What advice would you give to students thinking about majoring in Environmental Engineering?

Make sure there are the type of environmental issues that interest you where you want to live, or you will be looking for a career change.

What are possible career paths/promotional opportunities from your current position?

Career paths can vary. PG&E is receptive to keeping a work / life balance with employees and keeping them happy. Promotional opportunities either go up one of two ladders, technical or managerial. I could pursue supervisory route or stick with technical and become a Senior Procedure Writer. I’d likely need to become a Senior Procedure Writer in either case.
Jeff Silliman

Cal Poly - B.S. in Environmental Engineering, December 2007

**Employer:**

[Cornerstone Environmental Group](#) - Dublin, CA

**Job Title:**

Project Engineer I

**How long in current position:**

Three weeks as of April 2008

**Description of overall job duties and responsibilities:**

Provide engineering support for the company and clients in the western region. Design pipe layouts for landfill gas collection. Perform structural design for flare stations.
What is a typical day like?

Work on various landfill site designs using AutoCAD. Meetings, lunch, and occasional site visits.

What personal qualities or abilities are important to being successful in this position?

A fun personality and being easy to get along with are the most important qualities. The ability to communicate well with others is also important.

What technical skills are important to being successful in your job?

AutoCAD, math, and Microsoft Office

What part of this job do you find most satisfying?

The awesome people I work with and being able to use knowledge from Cal Poly classes and labs.

What part of this job do you find most challenging?

Deadlines.

What type of training was offered for your position?

HAZWOPER and PE training

What advice would you give to students thinking about majoring in Environmental Engineering?

Pay attention to major courses and get involved in more labs. The more experience you have in different areas the better.

What are possible career paths/promotional opportunities from your current position?

Becoming a supervisor.
Is there any other advice you would like to share?

Keep class notes.
Jeff Silliman - Informational Interview completed May 8, 2008
Sandy Scott

Cal Poly - MS Civil and Environmental Engineering, August 2003; B.S. in Environmental Engineering, June 2001

Employer:

Black & Veatch - Irvine, CA (www bv.com)

Current Title:

Civil Engineer

How long in current position:

Two years as of October 2005

What is a typical day like?

I currently work as a resident engineer on a construction site. My typical day begins with a walk around the construction site answering clarification questions from the Construction Manager and Contractor on our design documents.

What personal qualities or abilities are important to being successful in this position?

A person in this position should be patient, have the ability to explain and understand
construction issues, and stand firm on what your company requires.

**What technical skills are important to being successful in your job?**

Geotechnical Engineering and general civil engineering skills, i.e. hydraulics, surveying.

**What part of this job do you find most satisfying?**

Seeing something you designed be built and function correctly.

**What part of this job do you find most challenging?**

The high stress of finding answers to construction questions as quick as possible to keep the contractor working.

**What type of training was offered for your position?**

Two months of apprentice type training with a senior resident engineer on a construction site.

**What advice would you give to students thinking about majoring in Civil or Environmental Engineering?**

If you can make it through the support courses, then do it.

**What are possible career paths/promotional opportunities from your current position?**

Project Engineer and Project Manager
Informational Interviews - Wendy Martin, P.E.

Wendy Martin, P.E.

Cal Poly - M.S. in Civil and Environmental Engineering + B.S. in Environmental Engineering (Blended Program), August 2003

Employer:

Sanitation Districts of Los Angeles County - Whittier, CA

Title:

Project Engineer

How long in current position?

Six months as of July 2005 (started Feb. 14, 2005)

What is a typical day like?

I work 9/80 so I start at 7:00 and get off at 4:30. I have two projects that I typically work on. One is finalizing drawings and specifications. So I read specifications, look things up, make changes, ask questions of my co-workers. The other project is in the early design phase so I’m looking up information a lot. I do Internet searches and contact companies by email and phone. I gather information and discuss it with my supervisor. Ninety percent of the time I am at my desk. About half of the time I’m using a computer.
What personal qualities or abilities are important to being successful in this position?

It is important to be able to work independently but also ask questions. Writing is important since there are specifications, reports, and a lot of emails. It is also important to be comfortable calling vendors and other companies.

What technical skills are important to being successful in your position?

At my previous job, having a little bit of AutoCAD knowledge was helpful because sometimes the drafters were too busy to make minor changes. It is important to know how to use Microsoft Word and Excel well. Excel is very useful. I haven't used too many other programs. Hydraulics are very important and CE440 (Hydraulic Systems Engineering) was not a required course when I was at Cal Poly, but I think it is now. I've done quite a bit of work involving piping and pumps. I don't feel like I learned hardly anything about pumps in college. The math we do on a day-to-day basis is much easier than what they put you through for ENVE. The chemistry is definitely important since I work in wastewater. Basic physics has been useful.

What part of this position do you find most satisfying?

We are cleaning wastewater and making it available for reuse in a lot of cases. We are providing an important service. In my specific job I'm working on projects that are upgrading existing systems to treat the wastewater. It's very interesting and complex.

What part of this position do you find most challenging?

The projects I work on are complex and I don't have a lot of experience so it is usually challenging. Design is technical, so it usually involves finding people who have experience to help.

What type of training was offered for your position?

I didn't really get trained. It's more like I've been given tasks and I need to ask questions to get them done.

What advice would you give to students thinking about majoring in Environmental Engineering?
I highly recommend environmental engineering as a career choice. I think there are wonderful opportunities in the field. It is interesting and challenging. At the end of the day you can feel proud that you are part of the pollution solution. It is a rewarding career.

**What are possible career paths/promotional opportunities from your current position?**

Here at the districts it is set up so that if you have your Professional Engineer license and three years experience you can apply to be a "Civil Engineer." After two years as a "Civil Engineer" you can apply to be a "Senior Engineer." After that there is supervisor, which would include project managers. After that there are division engineers and department engineers, then the assistant general manager, and the general manager. So there are a lot of promotional opportunities. The Districts prefers to promote from within. For career paths, people can go the management route, or stay on the purely technical route. Within technical, we have design, research, regulatory, planning, and field engineering.
Adrian Herrera

Cal Poly - B.S. in General Engineering, Concentration: Engineering Sciences, December 2008

Employer:
United States Air Force, Royal Air Force Station Lakenheath, UK

Job Title:
Weapon Systems Officer, F-15E

How long in current position:
Since June 2009
Description of overall job duties and responsibilities:

A Weapon Systems Officer, or WSO (pronounced wizzo), is the combat aviator on the F-15E Strike Eagle. (Think of Goose on the movie, Top Gun). They are considered part of the overall umbrella USAF career of Combat Systems Officer, or CSO (pronounced cizzo). The CSO is an aircrew position consisting of a Navigator (NAV) on the C-130/heavy aircraft, an Electronic Warfare Officer (EWO) on RC-135 or specific aircraft, or, in my case, a WSO on the F-15E.

The F-15E is a multirole fighter in the USAF with both air-to-ground and air-to-air weapons, and is the only dual seat fighter in the Air Force inventory. The WSO operates primarily the air-to-ground weapons for strike, electronic warfare systems, and secondary air-to-air weapons operations, radars, and is also a 2nd pair of eyes to look out for the enemy. They will only fly during non-essential phases of flight.

What is a typical day like?

What's great about working for the US Air Force is that there isn't a typical day. There are 2+ years of training right when you join. You can expect for physical training to be a regular routine, as well as studying, flying, flying, and flying. Additionally, you will be assigned a job within the squadron, and you have to balance your time between flying, family, working out, getting additional education (masters), squadron job, studying, etc.

What personal qualities or abilities are important to being successful in this position?

Perseverance and determination are some pretty important qualities to have. After applying in March of 2009 (3 months after graduation), I got accepted in June 2009. The application process is no easy task, and the Officer Qualifying test is similar to the GRE (with more spatial and flight sections included with the verbal and math sections). From June 2009 - June 2010, I had to qualify medically and physically. I had to have a flight physical that would qualify me to fly. The process to get through a flight physical can be long and daunting, but determination is key. You begin through the Officer Training School (OTS), which is a very arduous 3 months. After OTS, you commission and the next 2 years are dedicated to preparing you to fly. Being physically healthy is very important in order to become an aviator for the military. Finally, having the resume while being at Cal Poly will really help. The acceptance rate for the selection boards were between 10-20% of the applicants who apply, and even less if you decide to be a pilot or CSO.

What technical skills are important to being successful in your job?

I began Cal Poly in Aeronautical Engineering and realized that the General Engineering
degree is a much more marketable degree to have. Being an aviator, it is important to know every aspect of physiology, dynamics, basically a ton of technical knowledge about the F-15E. The people who generally do well are the people who have degrees in engineering, science or mathematics. Any leadership experience in clubs/organizations helps tremendously. The leadership aspect is just as important as the technical aspect.

What part of this job do you find most satisfying?

Most people have a dream to fly in this capacity, and it is gratifying to know that I am serving my country in the greatest job and the greatest force in the world. To know that you are protecting the rights of individuals living in the United States, and the US Constitution, is a really humbling idea. Additionally, as an Officer, you are naturally in a leadership role, especially since 80% of the US Air Force are enlisted. You outrank 80% of the Air Force, and it comes with a huge responsibility of leadership and integrity. I love the job and the core values of the organization. This military branch has been founded on 3 core values: integrity first, service before self, and excellence in all we do. This is not just a job where you come to work; everything you do makes a difference to millions of people, and you evaluate and reflect on your values on a daily basis.

What part of this job do you find most challenging?

There are a lot of hours, lots of studying, lots of time spent working. It's challenging, lots of pressure, and you gotta stay constantly alert. You have to make your health a priority as well.

What type of training was offered for your position?

Once you get accepted through a USAF Officer (Rated) board, you will attend OTS at Maxwell Air Force Base, AL for 3 months. After OTS, you will begin your career as an Air Force aviator.

Flight Training (CSO): You will start by attending Initial Flight Screening (IFS) in Pueblo, CO. IFS is a 5 week program to screen incoming aviators prior to beginning their military flying career. Afterwards, you will attend USAF Water Survival Training at Naval Air Station, Pensacola, FL. After you complete both training events, you will attend Undergraduate Combat Systems Officer Training (UCT), which is flight school. This program is approximately 11 months. You will fly on a T-6 Texan and a T-1 Jayhawk, and will complete T25 simulator training. From there, you will be assigned an airframe to work on -- as an EWO, NAV or WSO.

Weapons Systems Officer (WSO): Once you finish UCT, you will start your WSO career by attending Introduction to Fighter Fundamentals (IFF) for 2 months. You will fly on a T-38C Talon and acclimate to a jet and learn fighter airmanship. From there you will attend
Survival, Evasion, Resistance, Escape (SERE) training for a month at Fairchild Air Force Base, WA. Then you will begin your F-15E training course at Seymour Johnson AFB, and qualify on the F-15E.

What advice would you give to students thinking about majoring in General Engineering?

I switched to General Engineering after 4 years in Aeronautical Engineering. It was one of the best decisions I've made. They keep it flexible so you can really master any specific engineering skills that you'd like. Ideally, you can take the best classes from each department, and become a more marketable engineer. You can also take classes outside of engineering and create an engineering concentration that may not be listed at Cal Poly. The professors in General Engineering were some of the most personable, brightest professors that I have interacted with at Cal Poly, and I'm so grateful that I was able to switch.

What are possible career paths/promotional opportunities from your current position?

The US Air Force pays for your additional schooling and a Masters Degree. In the US Air Force, promotions happen automatically for about 4 years. Once you reach the rank of Captain, you apply for promotions through selection boards. In order to promote, you must really stand out amongst your peers. No matter what, you receive higher pay and more housing allowances the longer you stay in. After 20 years you receive a very generous retirement. As a WSO, you could go to: USAF Weapons School, AF Institute of Technology (AFIT), become an Instructor - the possibilities are dependent on the needs of the Air Force.

Is there any other advice you would like to share?

If you decide on an aviation career path, do not take it lightly. The USAF invests a lot of money into you: just take a look at the pay that you could potentially get as a WSO. You will get an initial base pay based on your rank, and you can guarantee that every couple of years you will receive an automatic “promotion” (until the rank of Major). Additionally, they will pay for your lease or mortgage (through a Basic Allowance for Housing). They pay for your food, and also some of your uniform expenses you may incur. Anytime that they send you anywhere or if you move to a new base, they will pay for your move (I mean everything). You and your dependents receive full health coverage. If you take all of the benefits and really add it up, it’s an equivalent to any civilian job you would get.

Another piece of advice, get involved with the University. Join clubs. I didn't have the highest grades in Engineering, but it didn't matter once I passed the Fundamentals of Engineering (FE) exam and received my Engineer-In-Training license. The EIT can really prove your worth in engineering, and really push your resume to new levels.
Lastly, stay physically healthy.

**May students contact you?**

Yes [avherrera@alumni.calpoly.edu](mailto:avherrera@alumni.calpoly.edu)
Informational Interviews - Ben Cull

Ben Cull
Cal Poly - M.S. in Industrial Engineering + B.S. in General Engineering, June 2006
(Blended Program)

Employer:
St. Jude Medical - Seattle, WA

Title:
Field Intern

How long in current position:
Four months as of November 2006

Description of overall job duties and responsibilities:
Currently, while in training, my primary responsibility is to learn and absorb information and gain as much valuable experience as possible.
What is a typical day like?

Many people say that every day is different and that there is no “typical day.” That could not be truer for this job. For both Sales Reps and Field Clinical Engineers, no two days are alike, ever. Currently, my days consist of a mix of device implants (which typically last one to four hours each), pacemaker checks and patient follow-ups (one-half hour each), and online training. Most of these are done with supervision as I am still learning. Today, I went to a hospital at 8 a.m. for a pacemaker implant. The case started at 9 a.m. and finished at around 10:30. Then, I went to a clinic and completed several patient follow-ups until about 2 p.m. After that, I ate lunch, and then went home to work (from my home office) for a few more hours, mostly doing online training. Tomorrow, I have three implants lined up at 7 a.m., 10, and 1 p.m. These are at hospitals that are within a half-hour’s drive of my home, but on rare occasions, we are required to drive to hospitals and clinics that are up to two hours away. I have also spent three weeks on two separate occasions in Austin, Texas at our division’s headquarters for classroom didactic training and will spend one more week there before I’ve completed all didactic training.

What personal qualities or abilities are important to being successful in this position?

Flexibility, intelligence, technical acumen, attention to detail, confidence, ability to work with others and adapt to a constantly changing schedule. Oh, and one more thing: flexibility!

What technical skills are important to being successful in your job?

It depends on whether I pursue a role in sales or field clinical engineering, but in general: math, physics, basic knowledge of electric circuits, cardiac anatomy and physiology, and general anatomy and physiology.

What part of this job do you find most satisfying?

Knowing that we are saving lives and improving lives every day.

What part of this job do you find most challenging?

Not knowing what tomorrow’s schedule looks like. It makes it difficult to plan after-work events with friends and family. On most days, I am free by 5:00 or 6:00 pm, but on some days I don’t get home until 9:00 or 10:00 pm.

What type of training was offered for your position?

Currently, I am training 100% of the time. I have access to the best information and have
the support of everyone on my team in Seattle. St. Jude is outstanding at providing the best training, whether it is online, in the field, or in the classroom.

**What advice would you give to students thinking about majoring in Biomedical Engineering?**

Biomedical engineering is very unique. It takes principles from mechanical, electrical, industrial, and materials engineering, and applies them to the human body. The medical device industry is exciting and is on the fore-front of technology. If you’re interested in engineering and have thought about pursuing something related to medicine or health care, it’s a perfect fit for you! And, no matter what major you choose: study hard and pursue all of your interests, both in and out of school. College consists of a lot more than taking calculus and chemistry. Most people who are in this program have been involved in a variety of academic and nonacademic activities that have, in some way, shaped them into better people.

**What are possible career paths/promotional opportunities from your current position?**

After I complete my internship, I can pursue a career in sales, field clinical engineering, education (as a clinical instructor), marketing, or in-house engineering. Having field experience is extremely valuable in this industry and opens a lot of doors.

Ben Cull - Informational Interview completed November 16, 2006
Cassidy Levy
Cal Poly - General Engineering, June 2006
Concentration: Product Development

Employer:
Nike, Inc, Beaverton, Oregon

Title:
Footwear Innovator

How long in current position:
2 years

Description of overall job duties and responsibilities:
Work with and lead teams in Asia (Korea and Taiwan) to create capability in footwear manufacturing of the future (3-5-10 years out). Collaborate with inventors and designers to develop prototypes that show promise of future performance benefits to athletes in any / all of our major sport categories.
What is a typical day like?

Email between Asia counterparts. Meetings with project teams (materials, chemical, design, legal, etc) Call or meet with a new vendor of interesting technology, machinery, material, etc. Lunch / workout More of the above Make some prototypes by hand in our concept creation center Video conference with Asia counterparts (once or twice a week)

What personal qualities or abilities are important to being successful in this position?

Aspiration to make new things. Ability to connect the dots or go out and collect dots before you can connect them. Question asker, always seeking to understand why? How? Or why not? Self motivated as there are very few timelines, but a lot of expectation of delivering your proposed solution Okay with failing often.

What technical skills are important to being successful in your job?

Core problem solving skills, manufacturing, materials, chem, design thinking knowledge

What part of this job do you find most satisfying?

Working with athletes to make them better than they thought they could be

What part of this job do you find most challenging?

Long project life span... Meaning you could not see the fruit of your labor for 3/5 years!

What type of training was offered for your position?

On the job footwear development experience for ~5-6 years prior Attended a TRIZ Creative Problem Solving training

What advice would you give to students thinking about majoring in Agricultural Business?

Join a project club and build things with your hands! Get involved with industry supported projects. Travel, Tavel, Travel it will open your mind like nothing else can. Study abroad and get international experience no matter where it is. Take classes outside yor major even if others think it's a waste of time. Find something you like and chances are there
was an engineer or product team behind it. Contact that company and ask about it.

**What are possible career paths/promotional opportunities from your current position?**

Overseas team lead / manager (Korea / Taiwan) Program director in Oregon or overseas. Innovation lead in groups outside footwear. Entrepreneur :)

**Is there any other advice you would like to share?**

Live San Luis Obispo to its fullest! Chances are you will never live any other place like it! Camp, surf, climb, mountain bike, hike, hunt, ride horses, get into wine tasting or home brewing.... It's all there!

**May students contact you directly with questions?**

Yes. My email is cassidy.levy@nike.com
Informational Interviews - Christopher W. Martin

Christopher W. Martin

Cal Poly - B.S. in General Engineering, March 2003

Employer:

Pacific Soils Engineering, Inc., Corona, CA

Title:

Civil Engineering Associate

How long in current position:

Two years as of August 2006

Description of overall job duties and responsibilities:

Conduct geotechnical investigations, write proposals, write reports (Due Diligence, Geotechnical Investigations, Grading Plan Reviews, Grading Reports, Foundation Reviews, Underground Improvement Reports), perform grading plan reviews, deal with County and City Engineering and Building and Safety Officials, coordinate with the CAD department, and follow budgets over the life of a project.
What is a typical day like?

- Office: Write reports, review maps, update maps, choose laboratory testing programs, research current job sites.
- Field: Supervise operators (typically drillers, backhoe operators, and other heavy machinery). Collect soil samples and transport back into lab.

What personal qualities or abilities are important to being successful in this position?

Dealing with many projects, the ability to learn new things quickly (i.e. geology and other geotechnical issues), dealing with people (clients, field managers, operators), and the ability to communicate technical issues to clients.

What technical skills are important to being successful in your job?


What part of this job do you find most satisfying?

The chance to be in the field 50% of the time and in the office 50% of the time. Getting a break from the computer screen is priceless.

What part of this job do you find most challenging?

The geology aspect of it. Geology is such a dynamic subject with its own jargon, it is difficult to be on the same page as some geologists, especially the PhDs.

What type of training was offered for your position?

I started in the lab, where I was taught the basics of soils testing. (I had no Soils Mechanics or specialized Civil Engineering classes at Cal Poly. All I had was my statics and strength of materials classes.) I essentially was trained by a “learning by doing” methodology, starting with simple tasks. A Professional Engineer was (and still is) my supervisor who helps me with any questions or issues I have.
What advice would you give to students thinking about majoring in General Engineering?

If you know you want to be an engineer, but aren’t sure what field, DO GENERAL ENGINEERING. Great overview of the engineering field, plus most of the initial classes you take are required by all engineering departments. It also gives you the freedom to be original in your course curriculum perfect for mixing two or three types of engineering. The real work world is never ONLY a single engineering field, but often a mix of several fields. This flexibility has great potential, but don’t forget it also isn’t ABET accredited. This may limit you in some job fields, but a truly good employer should be able to see the potential in the education you have received.

What are possible career paths/promotional opportunities from your current position?

The next big promotion is to become a Professional Engineer (about two years from start), then a Geotechnical Engineer (about seven years from start), and a Principal within the company (about 10 years after start—not guaranteed).
Christopher Martin - Informational Interview completed August 21, 2006
Jaclyn Stephen

Cal Poly - M.S. in Engineering with Specialization in Integrated Technology Management + B.S. in General Engineering (Blended Program), September 2004

Employer:

Accenture - Palo Alto, CA

Title:

Analyst

How long in current position?

One year as of July 2005

What is a typical day like?

In the systems integration profession, no two days are alike. Consultants for our company get the chance to work on many different client projects, working on location for the client. My current project has me interacting with the clients to determine what their
needs are for the new software and solution, helping to design that solution based on those needs, testing our software solution over many phases, and preparing the client for success in upholding the solution once it has been implemented.

What personal qualities or abilities are important to being successful in this position?

Communication skills and logical thinking are the two main components, but being able to catch on quickly to new concepts, products, and methods is the only way you’ll stay alive.

What technical skills are important to being successful in your position?

Our profession has more to do with understanding processes than specific applications. Because we implement so many different applications for our clients, depending on their problems/needs, knowing only one application will not be quite as valuable. Logical thinking and working through problems that you may not be familiar with is a much stronger tool.

What part of this position do you find most satisfying?

Working closely with our clients to improve their current processes and effectiveness, and witnessing them test out the new solution and see the improvements for the first time is great. The company is also so helpful in teaching you basic tools that you need in the working world, and hosting networking events so you can meet people from all over.

What part of this position do you find most challenging?

The job is very fast-paced, so you have to work well under pressure and be ready to drop plans and start all over again when needed. It’s a huge challenge, but it’s fun. Also, trying to get the client to understand why and how a different process could dramatically increase effectiveness is difficult.

What type of training was offered for your entry-level position?

Three weeks of basic training helped us to learn more about the company, how it works, how the project-based work goes, what types of roles are out there, and also some basic technical knowledge. Even if you have no intention of ever doing the behind the scenes software stuff, it’s so helpful to understand how the process works, and what it takes when a bug is found or a change is needed. The company also sends you to a two-week
training course in Chicago, that goes into more details about the lifecycle of projects, resources available, detailed roles and their tasks, and people’s project experiences. The training is such a great networking opportunity as well, because you get to be around people from all over the world for two weeks.

**What advice would you give to students thinking about majoring in General Engineering?**

It’s a great major if you like many engineering disciplines, and don’t want to focus. No one will agree with you, and people will constantly ask you “General Engineering—now what do you do in that?” but it was fun. I enjoyed learning and working with students from all majors, and getting the chance to get my feet wet in multiple interests. It was helpful in gaining an overall understanding for the engineering and technical world. I would definitely say though that it helps to have a vision of what you could do as a job, to help you move through your electives so that they are a good use of your time. Definitely look into the 4+1 program too, because you can’t beat getting your Bachelor’s and Master’s degrees in 5 years!

**What are possible career paths/promotional opportunities from your current position?**

There are many opportunities to travel, and learn all aspects of consulting and software implementations. You can focus on specific applications, specific clients, or try to do it all at one point or another. Our company has a very distinct career path that reduces stress of the unknown, and allows you to focus on what you want to learn and do, instead of just what you’re supposed to do to move up. With over 100,000 employees world-wide, there is something for everyone!
Lesley Soekland

Cal Poly - B.S. in General Engineering, March 2004

Employer:

Kirby Construction Company, Inc. - Santa Rosa, CA (www.kirbycon.com)

Title:

Senior Project Engineer

How long in current position?

16 months as of July 2005

What is a typical day like?

A typical day for me consists of everything from meetings to job walks and estimates. Much of my day is spent on the phone coordinating work with subcontractors, obtaining quotes from subcontractors for estimates and talking with clients and engineers about projects. I am in the office more than I am in the field, but I have job site visits quite frequently on active jobs.
What personal qualities or abilities are important to being successful in this position?

The number one quality to being successful in this position is COMMUNICATION. In the construction industry, communication will make or break a project. Organization is another very important ability as well as flexibility. It is a service industry and making sure the client gets exactly what they expect and are paying for, requires all three of these skills.

What technical skills are important to being successful in your position?

AutoCAD and math are probably the most useful. Being able to modify drawings as necessary and send plans through email while having the ability to do even the most simple math for takeoffs and estimates are very important in this industry. General knowledge of all types of engineering also comes in handy. When you are planning a project that includes mechanical, electrical and structural modifications, it is easier to understand what is required and the difficulty of those tasks by having that background knowledge.

What part of this position do you find most satisfying?

The most satisfying part of this position is seeing a job completed and the client happy. Knowing that your team was able to accomplish exactly what the client envisioned makes this job worth going to every morning. Second to that would be managing a project yourself. When you do everything from the job walk, estimate and schedule to the final inspection, your self confidence increases tremendously from knowing that you can see a project through.

What part of this position do you find most challenging?

The part for me that is the most challenging is being a young female in a male dominated field. Most of the guys I am giving information to are twice my age or more and have been doing construction their entire life. It is also difficult dealing with clients who do not agree with women being in my position. I struggle constantly to prove my worth and do the best possible job for that client in order to make them aware of my abilities.

What type of training was offered for your entry-level position?

My training was definitely a Cal Poly "learn by doing" approach. I was shown how to
complete several tasks and attended a few meetings and then I was expected to run them all myself. I still have my bosses for reference and to check on me once in awhile but I really hit the ground running!

**What advice would you give to students thinking about majoring in General Engineering?**

My advice would be to pursue this option if you want to do engineering and do not know what type you would like to pursue. General engineering gives you the flexibility of taking engineering classes in all disciplines without having to choose any one in particular. It is also a great option if you know you want to pursue engineering project management and not necessarily the design aspect of engineering. That’s what I did!

**What are possible career paths/promotional opportunities from your current position?**

From my current position, I will next become a Project Manager, then a Senior Project Manager and hopefully sooner than later I will become a partner in my company.
Informational Interviews - Robert Mijares

Robert Mijares
Cal Poly - Major - GENE, Concentration - Architecture and Civil
Graduation Date - 03/2003

Employer:
Quad Knopf Inc.

Title:
Environmental Compliance Specialist

How long in current position:
Eight years

Description of overall job duties and responsibilities:
I consider myself lucky to have a variety of responsibilities at my office. They include preparing environmental construction documents, designing neighborhood subdivisions and shopping centers, performing green building evaluations and inspections, construction staking, and biological field assessments.
What is a typical day like?

Engineering design done on CAD, Meeting with clients in the field or at there office, conducting environmental law and regulation research and writing reports.

What personal qualities or abilities are important to being successful in this position?

Communication Skills; Engineering technical Skills; Time management; Organization

What technical skills are important to being successful in your job?

Familiar with engineering technical software. Ability to utilize excel to create your own calculation spreadsheets specific to your project. Familiarity with Engineering Foundations, but the ability to be flexible and look up new information since industry standards are continually changing.

What part of this job do you find most satisfying?

Working in the community. I find as a civil engineer it is a natural fit to be a builder of not only the physical structures of a city, but also the community that thrives within that city.

What part of this job do you find most challenging?

The most challenging part of this job is keeping up with all aspects of the trade. (This is true for any job, not just Civil Engineering). In order to be most succesful, you should be in touch not only with your technical work, but also know what is going on in the industry as well as participate in community groups and meetings. This is because you never know where you will find new clients and in the building industry it's all about relationships. It's not what you know, it's who you know.

What type of training was offered for your position?

Field training to conduct inspections. Computer training to use specific engineering programs and CAD.

What advice would you give to students thinking about majoring in GENE?

Love what you do because your career naturally becomes a part of who you are. Part of
any job is to keep in touch with your industry's community. As I mentioned before, you never know where you will find new clients and in the building industry it's all about relationships. It's not what you know, it's who you know. If you are going to get knee deep into your job, you better enjoy it.

What are possible career paths/promotional opportunities from your current position?

City Manager, Lead Engineer, Consulting Engineer, City Engineer, City Planner, Professor, Independent Consultant

Is there any other advice you would like to share?

Find out what you enjoy doing, then find someone who will pay you to do it.

May students contact you?

Yes, robert2003@alumni.calpoly.edu
Ahmad Al-Ghusain

Cal Poly - B.S. in Industrial Engineering, March 2006

employer:

Chevron, San Ramon CA

Title:

IT Professional - Project Manager

How long in current position:

Seven months as of 1/07
Description of overall job duties and responsibilities:

At the beginning, I was part of Chevron’s field support groups. I was working in Integrated Global Support (IGS) where I was exposed to various individuals from the various operating companies within the organization. In IGS, I was managing move projects (managing the IT portion of moves of 15 people or more) and conference room construction projects in the IT Dept. In less than 5 months, I managed the moves of over 250 people and the construction of over 20 conference rooms. I’m a team member on the Global Service Desk (SD) Project Team. Chevron is implementing ITIL (best practices in IT service management) throughout the IT organization. The Service Desk team is responsible for consolidating the 60+ Help Desks that we have spread throughout the world into fewer Service Desks that will operate within a virtual model. The team is focusing on standardizing our processes across all Service Desks anywhere in the world. I’m also part of Chevron’s Cal Poly IT Recruiting Team and I teach monthly Productivity Push classes to various individuals across the organization to increase awareness around PC Security.

What is a typical day like?

Twice a week, I’m in all-day meetings for the Service Desk project. The remaining days I spend working with fellow team members and others throughout the business on my/our action items. During the busy recruiting months, I spend a lot of time with interviews and on-site visit coordination.

What personal qualities or abilities are important to being successful in this position?

No matter what company or industry you’re a part of, communication and interpersonal skills will always be the key to an individual’s success. Aside from the social skills, the ability to quickly learn new skills and apply those skills to your tasks is equally important. In order to build credibility in your new job, you need to be able to speak confidently on the topics that are important to your organization. It’s always nice when you hear people saying “that new kid is really sharp.”

What technical skills are important to being successful in your job?

successful in applying my past experiences and engineering background to my current job. Aside from that, I’ve gotten two ITIL certifications which are world renown, and I’ve been learning about CPDEP (Chevron Project Development and Execution Process.) Every company has its own way of doing things and it’s important that you’re able to adapt to those new processes and to do so quickly.
What part of this job do you find most satisfying?

I received offers from defense companies, biomedical companies and a few others but I’ve always been fascinated by the energy industry and its ability to drive the world’s economy. Also, I enjoy working for a company that values people over all other things.

What part of this job do you find most challenging?

engineers, managers and other IT professionals at Chevron. Since I’ve never had any IT experience, it was important for me to quickly learn as much as I could about Chevron’s IT Company and to score well on the certification exams.

What type of training was offered for your position?

Chevron requires that each employee take at least 40 hours of training per year. In my first 6 months, I spent approximately 100 hours in training. This included ITIL (Information Technology Infrastructure Library) Certifications, CPDEP, and new employee workshops.

What advice would you give to students thinking about majoring in Industrial Engineering

Industrial Engineering is a great major and it gives you the opportunity to work in a variety of industries. Also, they focus heavily on projects and presentations which are necessary for the real world.

What are possible career paths/promotional opportunities from your current position?

The opportunities are endless. Chevron is a global company with opportunities to work in over 180 countries. I would like to move into the exploration and production side of the business and eventually into management. Chevron covers the entire scope of the energy industry, everything from exploration and production, to refining, and even retail. To sum it up: if you can perform, work hard and make the right relationships; the opportunities are endless.
Informational Interviews - Brian Cameron

Brian Cameron

Cal Poly - M.S. + B.S. in Industrial Engineering, June 2005 (Joint Program)

Employer:

Lockheed Martin Space Systems Company
Sunnyvale, CA

Title:

Reliability Engineer (in the Specialty Engineering Organization)

How long in current position:

13 months as of July 2006

Description of overall job duties and responsibilities:

Develop standard process documentation (Command Media) and training for program engineers to follow during the development and execution of logistics contracts. Participate in corporate-wide initiatives to develop logistics engineering career paths. Perform reliability analysis for various programs throughout the stages of program development. Provide support and oversight to various subcontractor Integrated Logistics Teams.
What is a typical day like?

I am able to structure my individual days based on the current program work load and deadlines. Generally a day consists of meetings, technical review of documents, analysis of systems, report and presentation development.

What personal qualities or abilities are important to being successful in this position?

- Shift quickly between multiple tasks and projects
- Communicate complex ideas through writing
- Quickly learn and effectively apply new software to tasks
- Quickly understand relevant design aspects of complex systems

What technical skills are important to being successful in your job?

Statistics, math, technical writing, human factors

What part of this job do you find most satisfying?

Reliability analysis of space systems during program developmental stages.

What part of this job do you find most challenging?

Applying the correct analysis to systems and documenting the results.

What type of training was offered for your position?

Green belt six sigma, RELEX reliability software, RCM, corporate compliance and process. Additionally, Lockheed has a good tuition reimbursement policy for those interested in continuing their formal education.

What advice would you give to students thinking about majoring in Industrial Engineering?

Make sure your interests are not in design engineering for products or systems before you start.
What are possible career paths/promotional opportunities from your current position?

Immediate opportunities include leadership development rotational programs to see other technical disciplines and gain a better overview of the company. Many opportunities exist to take on additional responsibilities and improve technical proficiency.

Brian Cameron - Informational Interview completed July 25, 2006
Informational Interviews - Carlene Gutowsky

Carlene Gutowsky

Cal Poly - B.S. in Industrial Engineering, December 2005
Pepperdine University - Master of Business Administration, December 2008

Employer:

The Boeing Company - Long Beach, CA

Job Title:

Quality Engineer

How long in current position:

2 years, 4 months as of April 2008

Description of overall job duties and responsibilities:

I work with Boeing suppliers dealing with quality issues. I conduct audits and assessments on the products and processes that the Boeing suppliers use to ensure that all requirements are met and they provide Boeing with conforming parts.
What is a typical day like?

I spend most of my day going to visit different suppliers in the Orange County and Los Angeles areas conducting audits, ensuring the supplier has an effective quality system, and checking parts for conformance to drawings and engineering requirements. I do all my administrative work either in the Long Beach office or at my home office.

What personal qualities or abilities are important to being successful in this position?

Leadership, efficiency, attention to detail, ability to understand engineering drawings, and the ability to juggle many different kinds of tasks.

What technical skills are important to being successful in your job?

I don't use many programming systems, just the basic Microsoft Office products and internal databases and systems.

What part of this job do you find most satisfying?

The flexibility and independence to schedule my day with the many tasks that I have to complete.

What part of this job do you find most challenging?

Sometimes since I am not working next to my manager, I can be over-loaded and not get enough face time. There is also a large gap in age demographics with the aging workforce within the company, so adapting to this has been difficult.

What type of training was offered for your position?

Training in how to audit, quality system standards, blueprint reading, machining and manufacturing classes, and much more.

What advice would you give to students thinking about majoring in Industrial Engineering?

Industrial Engineering is a great major and you can do almost anything with it. If you like engineering, but don't know what you want to do and would like to keep options broad, this is the major for you.
What are possible career paths/promotional opportunities from your current position?

Industrial Engineering leans toward the business side of engineering. An MBA is a great compliment to this major and can lead you down a path of engineering management.

Is there any other advice you would like to share?

Make sure you love the job that you eventually take. If it isn't challenging you, work with management to change that. There is nothing worse than spending eight or more hours a day doing something you don't love.

Carlene Gutowsky - Informational Interview completed April 2, 2008
Caroline Gonzalez

B.S. in Industrial Engineering, June 2005

Employer:

Cisco Systems - San Jose

Title:

Program Specialist

How long in current position:

7 months (as of February 2006)

Description of overall job duties and responsibilities:

I work in supply chain management, assigned to one of the Contract Manufacturers that Cisco deals with. I work with them throughout the fiscal quarter to forecast the cost for the products they manufacture for Cisco Systems, Inc. I then create metrics that measure our current process performance, and present them in quarterly post-mortems to the Contract Manufacturer so that we can review what improvements need to be made for the following quarter.

What is a typical day like?
A typical day is spent working directly with my assigned contract manufacturer. We face different problems/issues each day, and work together to reach an agreement and complete all the action items in time for the weekly deadlines. Some days are also spent working with different groups within Cisco to try and improve different aspects of our process.

**What personal qualities or abilities are important to being successful in this position?**

You need to be very organized and have good time management skills to make sure that you get all your tasks accomplished prior to the weekly deadlines. It’s also important to have good communication and presentation skills, especially when presenting the final metrics to the contract manufacturers.

**What technical skills are important to being successful in your job?**

Good analytical skills, including in-depth knowledge of Excel, Access, and Oracle-based databases. I have also really used everything that I learned in IME 410 (MRP) and IME 426 (Supply Chain Management)

**What part of this job do you find most satisfying?**

I really enjoy working with so many people and trying to find solutions that help us improve our process each quarter. I have also really enjoyed all the responsibilities that my manager has given me. It has allowed me to keep challenging myself to accomplish new goals.

**What part of this job do you find most challenging?**

The part that I find the most challenging is trying to work through the stress and get everything accomplished in time to meet the deadlines. This is especially stressful when working with people located in different sites around the world including Toronto, Thailand etc. It can also be very challenging to work with the large amount of data we collect. Often we are working in Excel spreadsheets that are 40,000 lines long and 100s of lines wide. The analysis we perform includes complicated calculations, and a simple error can dramatically affect the final results.

**What type of training was offered for your position?**

I was mainly trained by a co-worker, but Cisco often offers a variety of classes/training open to their employees. Cisco also had new hire orientation classes that are offered for 10 weeks to help new employees get familiarized with the company.
What advice would you give to students thinking about majoring in Industrial Engineering?

I would really encourage students to try and get as many internships as possible. They not only give you the chance to see what aspects of the major interest you, but give you the experience that employers will be looking for when hiring college graduates.

What are possible career paths/promotional opportunities from your current position?

There are many possible career paths/promotional opportunities from my current position. It really depends on what interests me the most. The position I currently hold allows me to work with a variety of people that hold different positions both at Cisco and at the Contract Manufacturers. College hires are also encouraged to have a mentor in a management position to see if this is the career path that interests them. However, I still haven’t decided if I want to go back to school to get my MBA or if I want to pursue other opportunities within the company.
Informational Interviews - Christina Ghiorso

Christina Ghiorso
Cal Poly - B.S. in Industrial Engineering, December 2003

Employer:
Raytheon Vision Systems - Goleta, CA

Title:
Multi-Disciplined Engineer 1. Actual job duties: Manufacturing Engineer with Material Requirements Planning (MRP) System emphasis.

How long in current position?
Three months as of July 2005 (after 1.2 years of rotation through other positions)

What is a typical day like?
I spend one to three hours per day working on a unique project related to systems migration. We are transitioning to a new MRP system (for the entire company) and I’m helping our site prepare MRP data for the transition. This involves reviewing and fixing data, conference calls/planning with people from other sites, and training employees on the new system. The remainder of my day is focused on Manufacturing Engineering. This includes hands-on analysis of “out of flow” parts and dispositioning them for rework, testing, or whatever else may be needed to ship them to the customer. This also includes maintaining many drawings and documents with up-to-date spec information and assembly instructions. Half of this time is spent in the lab with the parts, and the other half on the computer or meetings with the paperwork and product teams.

What personal qualities or abilities are important to being successful in this position?
Good people skills, extreme attention to detail.
What technical skills are important to being successful in your position?

Math, understanding drawings, understanding some material engineering stuff helps, ProEngineer, CAD, and tech writing skills.

What part of this position do you find most satisfying?

Fixing problems - both in our computer MRP system and in our production hardware

What part of this position do you find most challenging?

Fixing problems - both in our computer MRP system and in our production hardware

What type of training was offered for your position?

Training on how our systems work and how to fix the hardware

What advice would you give to students thinking about majoring in Industrial Engineering?

Industrial Engineering does not fit into an engineering box. Be open to the jobs that are available to you with your broad skill set - operations, systems scheduling, production, facilities, etc.

What are possible career paths/promotional opportunities from your current position?

Factory management, production control management, systems implementation (at a companywide level)
Informational Interviews - Greg Maita

Greg Maita
Cal Poly - B.S. in Industrial Engineering, December 2004

Employer:
Deloitte Consulting LLP - Sacramento,

Title:
Consultant

How long in current position:
18 months as of July 2006

Description of overall job duties and responsibilities:
Functional Lead - Ensure that critical business processes are properly developed into system being developed for deployment so that business processes and users are effectively and efficiently used. A Consultant’s main job is to learn the client’s business process so that they can ask intelligent questions, then apply their findings to suggest and implement the appropriate solution.
What is a typical day like?

There is no typical day...every day is different, therefore someone looking into the consultant field must be willing to get out of their comfort level and be willing to continuously learn. For example, one day you may be creating documentation explaining the system developed and the very next day you may be in design sessions to discuss how things should be developed or presenting a demonstration of the system so that clients can be sold they are headed in the right direction. Consultants are at the mercy of their client because that’s what they get paid to do...serve the client.

What personal qualities or abilities are important to being successful in this position?

Hard working, inquisitive mind, quickly grasps concepts, time management, personable demeanor.

What technical skills are important to being successful in your job?

SQL would be very helpful but any technical skills revolving around technical architecture of large scale computer systems is an additional plus. Personally, I had limited technical skills but I was quickly able to grasp the high level concepts of large scale computer development.

What part of this job do you find most satisfying?

The people.

What part of this job do you find most challenging?

Projects tend to have roller coaster type life cycles. I’ve had days where I do the traditional 9:00 am to 5:00 pm but then there have been days where I’ve done a 9:00 am to 1:00 am. These days aren’t terrible because the atmosphere is so team-oriented and your team is generally good friends that you spend extra time with outside of work.

What type of training was offered for your position?

Technical advancement in an application that may be utilized on the project site.
What advice would you give to students thinking about majoring in Industrial Engineering?

Industrial Engineering broadly reaches so many industries therefore many more opportunities will open up for you. Deloitte likes Industrial Engineers because they are taught to think in an efficient and productive manner. Consultants won’t use their hard core Industrial Engineering skills but they are still highly sought after in this industry. Then, you will definitely be sought after for the traditional Industrial Engineering positions for companies that are process-oriented and need process improvement.

What are possible career paths/promotional opportunities from your current position?

Many Deloitte practitioners may go to other companies to become Project/Product Managers. Consulting provides a good stepping stone to develop your soft skills (i.e. management, communication, etc.). In addition, consulting is a highly demanding profession and many people would say two years of experience in consulting provides you the equivalent of five years of experience in other professions.

Greg Maita - Informational Interview completed September 18, 2006
Informational Interviews - Jennifer Harris

Jennifer Harris

Cal Poly - M.S. in Engineering with specialization in Integrated Technology Management + B.S. in Industrial Engineering (Blended Program), June 2003

Employer:

UPS - Los Angeles, CA

Title:

Industrial Engineering Package Operations Supervisor

How long in current position?

Seven months as of July 2005 (promoted from Management Trainee)

What is a typical day like?

A typical day consists of analyzing operational statistics, creating operating plans, reporting critical elements, projecting daily production elements, meeting with operations managers, handling special shipments, and interacting with a variety of employees.
What personal qualities or abilities are important to being successful in this position?

Communication skills, the ability to work on teams, patience, organizational skills, a good attitude, an open mind, and creative ideas.

What technical skills are important to being successful in your position?

Microsoft Access and other proprietary software used at UPS.

What part of this position do you find most satisfying?

After working in a team to create a successful operating plan or when I can see the effects of decisions or ideas that have been implemented.

What part of this position do you find most challenging?

Not having all of the answers. It is actually making me a stronger person and it has taught me how to dig into a problem to find out the root cause.

What type of training was offered for your position?

I was able to participate in three weeks of training. Industrial Engineering Basic Skills for UPS, New Specialist Orientation, and Package Operations Skills Training.

What advice would you give to students thinking about majoring in Industrial Engineering?

Get involved early and study in every class even though you think you will never use the information. You will be surprised how much information you will actually use in the professional world.

What are possible career paths/promotional opportunities from your current position?

A starting position for an Industrial Engineer at UPS is a Management Trainee. After two years, you can be promoted to an Industrial Engineer Supervisor in operations, time study, industrial engineering, technology support, or business development. From my
current supervisor role, I can be promoted to Operations Manager or Industrial Engineering Manager.
Laurel Koester

B.S. in Industrial Engineering, June 2004

Employer:

Alcon Labs - Irvine, CA

Title:

Quality Engineer 1

How long in current position?

One year as of August 2005

What is a typical day like?

I check email, interact with other Quality Engineers and Manufacturing Engineers, evaluate complaint samples, work on specialized engineering projects, various “day-to-day” activities. I spend probably 40% of my time at my desk (checking email, working on documentation, etc) or in meetings, and the other 60% of the time evaluating samples
and discussing projects or information with other people. I am responsible for all complaint samples that come through our facility. I deal with ensuring they arrive and once they arrive, I receive them in, evaluate them and attempt to determine the root cause of the complaint. Once the root cause is determined, I work with both the Quality Engineers and the Manufacturing Engineers to determine methods for preventing the complaint from happening again. Often the complaint is not confirmed, either meaning that it is an intermittent failure or something different was happening at the customer’s site. I am also responsible for numerous engineering projects, whether they are dealing with the Quality Assurance Lab and complaint samples, or other special projects. Some of my projects so far have been dealing with sterilization of our samples, creating systems to better track our products or even doing a facilities layout of my new lab. I am never still; I am always on the go, which are things I love to do. I am rarely in my cubicle, and I prefer to keep it that way!

**What personal qualities or abilities are important to being successful in this position?**

The ability to interact with people, to be logical, communication skills, flexibility, dedication and motivation to succeed.

**What technical skills are important to being successful in your position?**

In my position it would be technical writing, statistics, math, AutoCAD (minor) and the engineering skills taught at CP.

**What part of this position do you find most satisfying?**

The realization that everything I am doing is able to help somebody else out. That is the unique benefit of working for a biomedical company. Everything we do revolves around the patient and improving their vision/sight. There is such a rewarding feeling about coming to work. I also enjoy being able to use my engineering background to determine the root cause of customer complaints and determine how to improve the product.

**What part of this position do you find most challenging?**

It would most likely be the politics and everything that ties into politics. When I talk about politics, it is encompassing the hoops we have to jump through to get documents signed, the crisis management of having things thrown at you at the last minute, and the normal office politics. I don’t believe that any of the things that I mentioned are unique to Alcon, but they are things that I was never exposed to as either an intern or a co-op student.
What type of training was offered for your entry-level position?

I was given extensive training, both practical and analytical. I had numerous standard operating procedures I needed to get familiar with, along with sufficient hands-on training. I was in training for at least the first three months of my job. Yet, training doesn’t stop there, everybody is ready and willing to help get the new hire up to speed on technology or the information needed to help complete a project. I have had numerous opportunities to go to training classes, not just because they are practical to my job, but also because I was extremely interested in the subject matter. At Alcon, you will never stop learning.

What advice would you give to students thinking about majoring in Industrial Engineering?

Industrial Engineering is a great program because it not only gives you practical business applications, but it is steeped in the thought process and technical nature of engineering. IE’s are typically the “people-lovers” of engineering. IE’s have the unique ability to go anywhere and do basically anything they would like to do, which is not common with most engineering disciplines. IE’s organize people, machines and information to make things more effective. IE’s have the ability to be creative, work on numerous teams and be a planner. IE’s make sure to improve quality, save money and increase workplace safety. If you enjoy working with your hands, interacting with people and thinking through processes, IE is for you!

What are possible career paths/promotional opportunities from your current position?

I have two different paths that I can take. I can either continue down the technical path, or I can choose the managerial path. That decision won’t be pertinent for a while, so currently, I can continue down the Quality Engineering path, decide I would like to take on Manufacturing Engineering responsibilities, or possibly even transfer into Technical Service. That is what I love about Alcon - they really want to make the employee happy and so they try to move us around as our interests change.
Marissa A. Byrne

BS Industrial Engineering, MS Engineering, June 2009
Concentration: MS Engineering-Integrated Technology Management

Employer:

Raytheon, Goleta, CA

Title:

Multi Disciplined Engineer II

How long in current position?

2 years as of August 2011

Description of overall job duties and responsibilities:

I have quite a few different roles...
Program Planner:
- Facilitate daily stand-up meetings
- Create and sustain project schedules
- Track shipments and assist with communication between the factory and management

Industrial Engineer:
- Focus on Cycle Time Reduction project to reduce costs & accelerate factory throughput
- Complete line flow assessments to increase capacity
- Coordinate/Implement Factory Improvements
- Benchmarking industrial capability
- Capacity Planning

Facility Designer
- Assist in layout design for new facilities

What is a typical day like?
I don’t really have a "typical day" which keeps it exciting! I’m usually working on the hot topic of the day/week and get to work with a lot of different people in different departments

What personal qualities or abilities are important to being successful in this position?
- Ability to juggle multiple tasks at once
- Strong communication and presentation skills
- Attention to detail
- Leadership
- Not afraid to ask questions
- Self-motivated and hard working
- Approachable

What technical skills are important to being successful in your position?
- MS Office Suite; well versed in Excel, Project, Powerpoint
- Lean Manufacturing; JIT; Kaizen
- AutoCAD
- Engineering Statistics
- Cost estimating and engineering economics
- Strong written and verbal communication skills
- Demonstrated organizational leadership
What part of this position do you find most satisfying?

Working on projects that could have a major impact on our business and never having a "typical day".

What part of this position do you find most challenging?

The most challenging part is having enough time in the day to get everything done and finding optimal solutions.

What type of training was offered for your entry-level position?

They offer a lot of training. There are constantly new training opportunities being advertised. There is a lot of learn by doing that happens at Raytheon. :) 

What advice would you give to students thinking about majoring in Industrial Engineering?

With an Industrial Engineering degree there are a lot of career paths that you can take and therefore a lot of opportunity. The classes are fun and the department is a good size so you know almost everyone. Try to get an internship as early as possible so you get real world experience. You have control of your career. You are never stuck. Pick something that you are passionate about and that will challenge you, stay connected and visible within your company, and try to achieve work life balance.

What are possible career paths/promotional opportunities from your current position?

Project Management
Raytheon 6 Sigma Expert
CEO :).
Michael Livezey

Cal Poly - B.S. in Industrial Engineering, June 2007

Employer:
Raytheon - El Segundo, CA

Job Title:
Operations Engineer

How long in current position:
2.5 years as of October 2009

Description of overall job duties and responsibilities:
Operations Engineers are involved in all aspects of the product life cycle. Some specific
responsibilities include factory simulation modeling, value stream analysis, facilities planning and plant layouts, equipment planning, lean manufacturing, and capacity management. Other duties include leadership of initiatives focused on process improvement and cost reduction.

Being that Operations Engineers are involved in so many areas of a product’s life, you gain valuable experience outside your specific skills set. You may be involved in the proposal process for a new product, mapping advanced manufacturing techniques for future business, coordinating efforts with supply chain for critical parts, or supporting the product through its production all the way to the end customer.

What is a typical day like?

A typical day consists of attending morning production status meetings to review the plan for the day and discuss if our goals were met from the previous day. We address all issues that could potentially pose a stop to production in this meeting and assign actions to those responsible.

From there the day has no set schedule. I could be analyzing our capacity constraints with equipment and other resources, working on scheduling the shop for the month, compiling data to use for future contract proposals, working on improvements at varying levels of the build process, meeting with upper management to review upcoming demands, and attending regular staff meetings.

The bottom line goal of my day-to-day work is to make things better, faster, and cheaper. I think about how I can affect the overall business outcome of the products we build here.

What personal qualities or abilities are important to being successful in this position?

The role requires a vast array of qualities or abilities. Some of them being:
- Ability to manage your time effectively
- Excellent communication skills are key
- Being able to convey your idea clearly to another party is crucial
- Comfortable speaking in front of large groups or top management
- Not afraid to ask why or how
- Being persistent
- Self-motivated and hard working
- Approachable demeanor

What technical skills are important to being successful in your job?

Numerous technical skills are needed to perform the day-to-day tasks and focus on larger projects. Some of them are:
- MS Office Suite; well versed in Excel
- Lean Manufacturing; JIT; Kaizen
- AutoCAD
- ProModel Simulation Software
- Engineering Statistics
- Cost estimating and engineering economics
- Well versed math skills (including Linear Algebra)
- Strong written and verbal communication skills
- Demonstrated organizational leadership

What part of this job do you find most satisfying?

There's always a new and exciting challenge to solve. I never wake up thinking it's going to be the same thing again today. The job is fast-paced with opportunity for new learning around every corner.

What part of this job do you find most challenging?

The most challenging part is conveying ideas to some groups in engineering and also top managements’ decisions that can ultimately have a major impact on our business.

What type of training was offered for your position?

There's an extensive list of training they offer here at Raytheon. They have anything from basic labor charging to lean manufacturing practices and beyond. If you name it, they probably have it. They also encourage a minimum amount of training be taken every year to keep your skills fresh.

What advice would you give to students thinking of majoring in Industrial Engineering?

The advice I would give would be to pay attention in class and make sure you get involved in your projects and different groups. Everything I learned in school I've put to use now in the workplace especially the groups part. Also, if possible, try to land an internship early in your time there as it can pay off later when looking for a full-time job. In addition to that it makes deciding what company or industry you want to get into much easier.

What are possible career paths/promotional opportunities from your current position?

There's an endless amount of opportunities here at Raytheon. They have positions in just about every field from HR, Engineering, Supply Chain, Business Finance, Program Management and beyond. Some possible career paths for me in the future would be Operations Team Lead, Project Manager, 6Sigma Expert, and Industrial Engineering Manager.
Is there any other advice you would like to share?

If you work hard at your goals, you can achieve them. Your future is in your hands. College is a time of learning, development, and finding yourself in the world. Take what you can from the experience and make the most of your life.

Michael Livezey - Alumni Career Profile completed October 21, 2009
Informational Interviews - Natasha Pecor

Natasha Pecor
Cal Poly - B.S. in Industrial Engineering, June 2008

Employer:
Deloitte Consulting LLP - San Francisco, CA

Title:
Business Technology Analyst

How long in current position:
Three months as of November 2008

Description of overall job duties and responsibilities:
I’m currently switching off between a role on a functional work stream and a role in project management. Neither of the roles is entirely predictable so it’s hard to define specific tasks that I regularly do. I’m often responsible for following up with team leads on issues, creating presentations, and occasionally researching either current key practice indicators or industry best practices.
What is a typical day like?

One thing that can be said for consulting is that there is no typical day. I may establish a routine for a short period of time, but then I’ll switch roles or projects and a whole new norm will develop.

What percentage of your time each work day is spent on a computer?

Probably about 75% of my day is at a computer. At the computer, I’m usually e-mailing, creating presentations, or using Excel.

What personal qualities or abilities are important to being successful in this position?

It’s very important to be personable, self-driven, open to change, and a quick learner.

What technical skills are important to being successful in your job?

Excel, PowerPoint... anything more technical than that, I could be trained on. In my role, I’ve been trained on the Oracle Supply Chain modules.

What part of this job do you find most satisfying?

Deloitte gives you so many opportunities to get involved. The firm-wide initiatives and clubs allow you to do something you’re passionate about. I’m currently taking part in Cal Poly campus recruiting (which is so fun) and figuring out which philanthropic organization I want to be involved with. Also, I love the people I work with. Many of my colleagues are fresh out of school, which makes the job a smooth transition from college.

What part of this job do you find most challenging?

Motivating myself to learn new things can be a challenge. I’m put into roles that I am completely unfamiliar with. There are all the opportunities in the world to grow from the experience but sometimes I need to push myself to open up to learning. I need to remember that learning shouldn’t stop the day I receive my diploma... or ever, for that matter.
What type of training was offered for your position?

Starting out, I went through five weeks of required training that started out with general consulting training and then became more and more specific according to my service line (Oracle implementations). Now that I’ve been through training, I can still choose to get trained on pretty much anything else I’m interested in that relates to Deloitte.

What are possible career paths/promotional opportunities from your current position?

Generally, you are an analyst for a couple years and then are promoted to consultant. There’s probably about a 1-2 year variance in how quickly you can get promoted but there is a pretty clear path on how to “climb the ladder” all the way up to partner.

What advice would you give to students thinking about majoring in Industrial Engineering?

Try to do as many internships and co-ops as you can. I think my internships taught me a lot about what I didn’t want to do, which in turn gave me more clues about what I DID want to do. When I was looking for a long-term job, I knew I needed to be in a dynamic environment with young people, an exciting atmosphere, and be able to live in San Francisco.

Is there any other advice you would like to share?

Try to figure out what you want out of a job at this point in your life... this will allow you to be much more targeted when looking for a job and help you end up in a better position. Also, never view any position you’re in as permanent. Always look for opportunities to allow your life to grow in directions where you’d be happier.

Natasha Pecor - Informational Interview completed October 27, 2008, updated February 28, 2011
Russ Sharer

Cal Poly - B.S. in Industrial Engineering, June 1980

**Employer:**

[Occam Networks](http://www.occamnetworks.com) - Santa Barbara, CA

**Title:**

Vice-President, Marketing

**How long in current position:**

8 years as of October 2008

**Description of overall job duties and responsibilities:**

Own the overall corporate, market and product strategy. Lead the Product Management, Field Marketing, Strategic and Business Development issues of the company.

**What is a typical day like?**

There is no typical day.
What percentage of your time each work day is spent on a computer?

70% with email, financial modeling and presentation preparation being the top 3 applications.

What personal qualities or abilities are important to being successful in this position?

The ability to listen to customers and read market trends, to apply our corporate competence to customer issues and problems. Good communication skills and now, management.

What technical skills are important to being successful in your job?

We sell telecommunications equipment, so it is critical to understand network and telephony protocols, element and network management requirements and rough software development processes.

What part of this job do you find most satisfying?

Solving customer needs. Seeing Occam grow from a start-up to nearing $100M in annual sales.

What part of this job do you find most challenging?

Lots of demands - customers, engineering, sales, operations - and having to make priority trade-offs all day long since we can not do all we are asked to do.

What type of training was offered for your position?

Mostly on the job. I have been to a few American Electronics Associations (AEA) seminars.

What advice would you give to students thinking about majoring in Industrial Engineering?

A great major. It gives you a broad view of many engineering disciplines, and I believe better prepared me for a career in management.
What are possible career paths/promotional opportunities from your current position?

General Manager or Chief Executive Officer
Russ Sharer - Informational Interview completed October 29, 2008
Informational Interviews - Sean Genovese

Sean Genovese
Cal Poly - B.S. in Industrial Engineering, June 2003

Employer:

The Boeing Company - San Antonio, Texas

Job Title:

Industrial Engineer

How long in current position:

Three years as of September 2007

Description of overall job duties and responsibilities:

Analyze existing processes and develop metrics to measure performance and identify waste. Work with teams to develop ways to eliminate waste in processes using principles of lean manufacturing. Assist in compiling information and performing data analysis to develop strategic plans for staffing.
What is a typical day like?

I spend about 50-75% of my time on the computer responding to email, developing metrics, or compiling and analyzing data. The other half of my day is usually spent meeting with colleagues, managers, or mechanics either at formal or ad hoc meetings.

What personal qualities or abilities are important to being successful in this position?

Successful Industrial Engineers are a little like detectives: they need to be able to separate feelings and emotions from facts and figures and then successfully communicate their findings and analysis to a variety of audiences. This requires a lot of common sense, diplomacy, and the ability to think logically about processes. It also requires excellent verbal and written communication skills.

What technical skills are important to being successful in your job?

The best technical skill for an Industrial Engineer to know is how to learn. I spend a majority of my time learning about processes and then finding ways to apply Industrial Engineering principles and methodologies to make them better. A good understanding of computers and technology helps, but more important than knowing how to use a particular piece of software is understanding how computers and different types of software operate.

What part of this job do you find most satisfying?

I love sharing knowledge with people. A lot of my job is about educating people on improvement methodologies and then coaching them as they make the improvements to their own processes.

What part of this job do you find most challenging?

Industrial Engineers are usually the change agents within an organization because, by their nature, they try to improve processes in order to reduce waste and maximize efficiency (and profit). Unfortunately change is often threatening to people and can require a lot of patience and diplomacy. Working for a very large company where policies and procedures are not usually easy to change, makes the change process even more challenging. I use the analogy of trying to steer a cruise ship versus a speed boat. As someone who likes to see things get done now rather than later, my biggest challenge is often trying not to get discouraged by slow progress.
What type of training was offered for your position?

With a company as large as Boeing, there are entire departments devoted to different types of training. I have been to lean "boot camp" and am a certified Improvement Workshop facilitator. I have also completed the Boeing Six Sigma Green Belt class. Earlier this year, I attended a basic training class on how to use a simulation software package. This is in addition to specific system training that may be required to access certain data or annual training requirements for things like safety, computing security, etc.

What advice would you give to students thinking about majoring in Industrial Engineering?

I spent four years at Cal Poly as an Electrical Engineering major before I even knew what an Industrial Engineer was. Once I found out, I was hooked. If you have a knack for math, science, and critical thinking but consider yourself more of a “people person,” Industrial Engineering may be for you. Go onto a site like Monster.com and search for "Industrial Engineer" or "BSIE" to get an idea where you’d find Industrial Engineers in industry. Get out and do a co-op or an internship or arrange to shadow an Industrial Engineer in industry as soon as possible. Talk to your friends who are taking Industrial Engineering classes, go see Dawn Sirois in the Engineering Advising Center (tell her I sent you), or send me an email.

What are possible career paths/promotional opportunities from your current position?

Within The Boeing Company, there are typically two paths people take as they get promoted: management or technical. You could think of the management path as zooming out: they usually deal with projects and responsibilities at a higher level and delegate the details to their subordinates. You could then think of technical fellows as zooming in: they typically specialize in a particular topic within their field and act as internal consultants on specific projects.

Is there any other advice you would like to share?

I can't stress strongly enough to do an internship or co-op. Even if you haven't taken a single engineering class yet, it's never too early. I did two engineering co-ops during my six year tenure at Cal Poly, including a summer at the Disneyland Resort. It is immensely valuable to be able to draw on industry experience in subsequent coursework and, more importantly, when interviewing with potential employers.

Sean Genovese – Informational Interview completed January 15, 2008
Informational Interviews - Susan Chandy

Susan Chandy
Cal Poly - B.S. in Industrial Engineering, December 2004

Employer: 
The Boeing Company - Seattle, WA

Title: 
Industrial Engineer

How long in current position?
Six months as of July 2005

What is a typical day like?
My current assignment is to work new product line integration. So basically where I work we make a product for an existing airplane family and we will be soon making a similar part for the new airplane family. My job is to make sure we are able to manufacture and
assemble both parts and flawlessly execute our plan with regards to cost, schedule, and quality. I mainly do discrete-event simulation, capacity studies, and some factory layout design. My days are usually filled with a few hours of meetings, and then most of the time it is working on my assigned projects.

What personal qualities or abilities are important to being successful in this position?

You need to be able to learn quickly in this environment. Decisions are made before all the information is known, so if you have a concern or an issue that is of importance you need to have your answer ready before anyone even asks for it. Also, communication skills are key. You need to be able to sell your idea to those who have the power to execute them. Also, you have to be confident in your skills. No one will tell you what you are supposed to be doing. You need to know what your skills are and how they can contribute to the team, then you have to be willing to work hard to prove it. It's a little challenging, but definitely rewarding once you gain your colleague’s confidence.

What technical skills are important to being successful in your position?

Currently, knowing how to use discrete-event simulation software is key. Also, basic Microsoft Office applications are very helpful to know as well. I think the thing that is most valuable from the Industrial Engineering curriculum is teaching you a different way of thinking and solving problems. Having a good problem solving technique is key!

What part of this position do you find most satisfying?

I enjoy producing results. It’s very common to be assigned multiple projects at once and in that environment it’s easy to let projects slide. I have found it most beneficial to keep track of everything you have been assigned and establish appropriate estimated completion dates and success criteria for each one. That way if anyone ever asks you, you will have a record of what you were assigned, how you completed it and your success at it.

What part of this position do you find most challenging?

It would probably be having to start at the bottom. In school you’re always in projects with your peers, but now I’m on projects and I am the lowest level. So, you get stuck with work that isn’t necessarily in your job description, but it’s just how it goes.
What type of training was offered for your entry-level position?

A good amount. Basically since Boeing is such a large corporation there are a variety of training classes available that you can take on-hours. Also, new hires are assigned to a mentor to help learn all of the things you need to know for day-to-day working.

What advice would you give to students thinking about majoring in Industrial Engineering?

I think it is a great major! I am definitely biased, but I would say that if you enjoy the scientific/problem solving thinking then Industrial Engineering has a lot of opportunities. Plus, Industrial Engineers can go to a variety of different industries.

What are possible career paths/promotional opportunities from your current position?

I'm currently a level 1 Industrial Engineer and according to Boeing standards, you have to work for at least 4 years before you are able to promote to a level 2 Industrial Engineer. However, you can always apply for other positions under different classifications around the company. As long as you are willing to move around and be flexible there are a ton of opportunities around.
Todd Janzen

Cal Poly, B.S. in Industrial Engineering, June 2001

Employer:
salesforce.com - San Francisco, CA

Title:
Manager, Sales Engineering

How long in current position:
1.5 years as a manager, 3 years as a Sales Engineer

Description of overall job duties and responsibilities:

• As a Sales Engineer, it was my job to be a product expert in the sales organization, gather prospect requirements, shape sales strategy, deliver customized demonstrations, and help close revenue. • As a Manager, my responsibilities shifted to hiring top talent, growing my current teams’ skill set, and engineering the process/structure in which my
team operates daily.

**What is a typical day like?**

A typical day for a sales engineer really boils down to six types of tasks:
- Attend discovery calls with prospects/customers
- Assist in architecting the sales strategy
- Build product demonstrations
- Deliver product demonstrations
- Answer technical questions prospects have (in a pre-sales environment, not to be confused with customer support)
- Attend training and team meetings

As a manager, my role has shifted to focus more on the day-to-day operations of my team.

Tasks which include:
- Design my interview process, attending career fairs, interviewing, hiring
- Conduct biweekly one-on-ones with my team to review accomplishments and gauge what skills they need to work on
- Help individuals set priorities as workloads become unmanageable
- Set expectations with sales people who task my team with unrealistic deliverables
- Plan weekly team meetings and external training for my team to attend
- Attend weekly regional, national, and international Sales Engineer Meetings
- Read lots of email

**What percentage of your time each work day is spent on a computer? What activities are you doing on the computer?**

- As a Sales Engineer, 80+% of your day is spent on a computer or Blackberry/iPhone. Activities range from taking notes in the salesforce.com CRM application, reading emails, delivering demonstrations, and building demos on the Force.com platform which is a SaaS platform.
- As a Manager, 50% of my day is spent on a computer, and 30% is spent on a Blackberry or iPhone. Computer activities include monitoring my teams’ workload and performance metrics via a salesforce.com dashboard, reading email, taking notes, and building presentations in PowerPoint.

**What personal qualities or abilities are important to being successful in this position?**

For a Sales Engineer you must have the following:
- Charisma--a lot of sales can be done over the phone; you have to be personable and outgoing.
- Time management; most days are booked solid and scheduled days in advance. You need to stay on top of your calendar at all times.
• Confidence
• Comfort in delivering presentations
• An ability to think on your toes and adapt quickly to an ever changing sales and technology environment
• Humility
• Extreme curiosity

What technical skills are important to being successful in your job?

For Sales Engineers at salesforce.com you need to have some level of the following skills:
• Experience in CRM or related applications
• Understanding of how relational databases work and query languages (SQL)
• Experience with web technologies such as JavaScript, AJAX, Java, PHP, C#, C++, .NET, etc.
• Proven success as a sales engineer, consultant, or related position.

What part of this job do you find most satisfying?

• As a Sales Engineer, I loved learning about different kinds of businesses and helping people solve problems. There is probably no greater feeling than knowing what you presented to a VP, CEO, or CIO will change their business and their lives for the better. Combine that with closing a large, complex deal and it does not get much better.
• As a Sales Manager, job satisfaction is completely different. I would say one of the most satisfying parts of being a manager is watching an employee grow, get promoted or receive recognition for their achievements.

What part of this job do you find most challenging?

• As a Sales Engineer it’s very challenging to keep a healthy balance of training, discovery calls, demo prep, travel, and demonstrations. In sales you must make hourly decisions on where to spend your time effectively. It’s cliché but time=money, and sometimes you sacrifice personal development time to pursue a big deal.
• In management, staying current on what each employee is doing and what skills they need to develop is a challenge. Sales Engineers are very self-sufficient and there is no room for micro management. If I never scheduled one-on-one time, I might never know what my team is working on or where they need to develop.

What type of training was offered for your position?

• For Sales Engineers, there is product and technical training. There is also sales and sales methodology training, along with presentation training. Shadowing a lot of calls and presentations before going live in the role is also crucial.
• For Management, I attended training on Interviewing, Time Management, Leadership,
What advice would you give to students thinking about majoring in Industrial Engineering?

It’s the perfect balance of business, process, and engineering. The major has a reputation of attracting the most social engineers at Cal Poly so be prepared to work in groups and enjoy your projects and classmates. The major is so broad you can really go anywhere from technical consulting to more manufacturing related roles. By your third year you will want to figure out what interests you so you can specialize and take classes that balance your resume.

What are possible career paths/promotional opportunities from your current position?

Different levels of Sales Engineering Management, Sales, Consulting, Product Management, or Product Marketing

Is there any other advice you would like to share?

Based on working at salesforce.com and my experience at Accenture, I would advise students to take some technical classes on databases and programming languages to better prepare them for the tech world. Industrial Engineering teaches you how to be a great process engineer, but a lot of improving/streamlining processes involve technology. If you understand how things work at a low level, it will help you make better decisions at a high level. Sometimes choosing the right technology is half the battle.

Todd Janzen - Career Profile completed December 1, 2008
Informational Interviews - Tom Gotsch

Tom Gotsch
Cal Poly - M.S. and B.S. in Industrial Engineering (Blended Program), Aug. 2003

Employer:
Raytheon - Goleta, CA

Title:
Material Cost Engineer (Supply Chain)

How long in current position?
Two years as of September 2005

What is a typical day like?
As a Material Cost Engineer, I plan, define, and initiate requests for material quotations in support of government proposals on all major programs. Additional duties include generating and maintaining the supplier rating system and the manufacturing database for Electronic Warfare. I also support vendors used by Raytheon, located around the world.
Following is a typical day:
- 7:30-8:00am Check email, voicemail, and return messages
- 8:00-8:45am Meet with manager regarding proposal activity
- 8:45-11:30am Work on new activities, call vendors, follow-up on project status
- 11:30-12:15 Lunch
- 12:15-1:30pm Program meeting
- 1:30-5:15pm Continue work, discuss action items with program management, wrap up assignments, and prepare for the next day

What personal qualities or abilities are important to being successful in this position?
- Strong communication and presentation skills
- Attention to detail
- Knowledge of supply chain processes
- Technical background

What technical skills are important to being successful in your position?
A strong technical background isn’t required, but it is very useful and puts you a step ahead.
Knowledge of material properties, tolerances, engineering specs, and computer programming is used on a daily basis.

What part of this position do you find most satisfying?
- Problem Solving.
- Being integrated into new and existing Raytheon programs immediately.
- Communicating with vendors and outside contacts on a daily basis.
- Working with managers throughout Raytheon.

What part of this position do you find most challenging?
- Problem Solving.
- Working on several different programs at once.
- Not getting stressed out.

What type of training was offered for your entry-level position?
Software training was offered, but most of your learning takes place on the job and is
What advice would you give to students thinking about majoring in Industrial Engineering?

IE is a major that offers more career paths than most engineering disciplines. As an IE, you can go into: consulting, manufacturing, engineering, supply chain, operations, or management directly out of school. Speak with friends and alumni who work in a field you’re interested in, and find out if that career best fits your strengths and abilities.

What are possible career paths/promotional opportunities from your current position?

From my position, there are several more direct possibilities:
• Management within Supply Chain
• Production Control / Manufacturing Support Engineering
• Manufacturing Program Management
• Program Management
A less direct career opportunity is Chairman and CEO of Raytheon. Bill Swanson, the current CEO, is a former Cal Poly Industrial Engineer.
Informational Interviews - Nicholas Martin

Nicholas Martin
Cal Poly - B.S. in Industrial Engineering, March 2007

Employer:
Sierra Business Council - Truckee, Ca.

Title:
Project Manager

How long in current position:
1 year, (5 years previous experience)

Description of overall job duties and responsibilities:
Program and people management; budget, cost analysis, program development and implementation, negotiations.
What is a typical day like?

Email overload, budgeting, conference calls, report writing, cost analysis, and squeeze in some skiing at lunch. No two days are the same.

What personal qualities or abilities are important to being successful in this position?

Attention to detail, communications and social skills

What technical skills are important to being successful in your job?

Math, Microsoft Excel proficiency

What part of this job do you find most satisfying?

Our projects are helping to solve the energy crisis.

What part of this job do you find most challenging?

Wearing multiple hats, but also exposes me to responsibilities not available in larger firms.

What type of training was offered for your position?

Job shadowing, project management seminars.

What advice would you give to students thinking about majoring in Industrial Engineering

IE is about finding efficiency, and can be applied to jobs not related to manufacturing.

What are possible career paths/promotional opportunities from your current position?

Vice President, Chief Operating Officer, Senior Program Director.
Is there any other advice you would like to share?

Don't corner yourself into the defacto career that most of your peers choose to follow, be capable of applying your degree to an industry you have a passion for, and be able to sell yourself well for that role.

Nicholas Martin - Informational Interview completed March 16th, 2012
Ben Wofford

Cal Poly - B.S. in Manufacturing Engineering, June 2003

Employer:

Rocky Mountain Sportscars, Inc. - Denver, CO

Job Title:

Owner/Manager

How long in current position:

7 years as of September 2007

Description of overall job duties and responsibilities:

As owner and manager, I oversee all day-to-day operations as well as strategizing and implementing longterm projects and goals.
What is a typical day like?

Typically I spend the first half hour outlining my day and writing a list of goals. I then spend the next hour or two catching up on emails and phone messages. Depending on how busy we are, this is often interrupted with other calls and emails which need to be dealt with right away. Often I will work on longer term projects and business strategy for an hour or more before lunch. After lunch, I revisit my daily goals, check phone messages and emails and then try to work on long-term projects again.

What personal qualities or abilities are important to being successful in this position?

A working understanding of how things work mechanically and how they are made is invaluable. I spend a lot of time sourcing products and working with suppliers. It makes things much easier when I know what they are talking about and when I can communicate with them in their own vernacular. Communication is probably the next most important thing. I am constantly working with customers and suppliers. It is not only communicating, but making sure that they have what they need and are satisfied. As a small business owner, I am involved in almost all aspects of the business. Many times, there are areas I have never worked on or have very little experience with. The most important skill in dealing with this is being resourceful and an eagerness to learn. No matter what job you end up in, you will probably never have done that exact thing before and it will be your ability to figure it out and learn which will make you successful.

What technical skills are important to being successful in your job?

Very few of the specific programs I learned in college translate directly to my day-to-day job. Having a broad exposure to a wide variety of different programs is much more useful. If I need to use a specific program regularly for work, I would take a specific class for it now.

What part of this job do you find most satisfying?

I enjoy being continuously challenged to learn new things. If all I did was the same calculation over and over I would go crazy. I love being a small business owner because I am not pigeon holed into one specific area, I am always learning and trying to apply what I have learned in one area to another.

What part of this job do you find most challenging?

The challenging parts are what I enjoy. The difficult part is knowing that I am ultimately responsible for not only myself, but for employees and investors as well. When we are having a slow month and money is tight, it is like the weight of the world in on my
shoulders and if it goes wrong there in no one to blame but me.

**What type of training was offered for your position?**

None. I needed to enjoy figuring things out for myself and finding people and resources that could help me.

**What advice would you give to students considering your major?**

Enjoy school, learn to love learning. Don’t rush through school. Try to take as many classes from other majors as you can. There is a lot to be offered at Cal Poly outside your major. Also, get to know your professors now in the Manufacturing Department—some of them are doing some very interesting work.

**What are possible career paths/promotional opportunities from your current position?**

The world is my oyster.

**Is there any other advice you would like to share?**

Don’t feel like you need to go work for a huge company with a high salary and fancy job title, those things wear out quickly. Do something which interests you. If you are not fascinated by what you are doing why bother?

Ben Wofford - Informational Interview completed December 17, 2007
Informational Interviews - Jordan Gamble

Jordan Gamble
Cal Poly - Manufacturing, June 2014

Employer:
Itek Energy, Bellingham, WA

Title:
Assembly Line Worker

How long in current position:
2 months

Description of overall job duties and responsibilities:
Process Improvement, Quality Control, Lean Implementation, Team Collaboration and Waste Reduction. Responsible for developing solutions to manufacturing challenges and implementing incremental changes that improve efficiency, quality and standard work.

What is a typical day like?
My shift runs 6am - 4:30pm and includes two 15 minute breaks with a 30 minute lunch break. Tasks include washing glass, cutting EVA, stacking the cells onto the EVA and glass, soldering, and placing the top piece of EVA before curing the laminate.

What personal qualities or abilities are important to being successful in this position?
Team work, communication and commitment to quality.

What technical skills are important to being successful in your job?
Same as Above.
What part of this job do you find most satisfying?

Being a part of a team that is making solar panels and helping to reduce dependence on oil.

What type of training was offered for your position?

Hands on training in soldering, machine operation and inspection methods.

What advice would you give to students thinking about majoring in Manufacturing Engineering?

1) Work to learn, not to earn. Don’t let the desire to make money motivate you. It only provides temporary happiness and only by doing what you love will you find true happiness. I find the ability to listen to audio books while I work is a reward in itself. In fact, I look forward to going to work every week just so that I can learn more and save the world, one solar panel at a time. 2) Be humble get out on the shop floor and do what you are told. I felt embarrassed that I was doing basic tasks before I realized the valuable hands on experience that would help me in future engineering process design. 3) Bike to work the small budget you live on will teach you valuable lessons about budgeting and saving that will stick with you for life. Do what you love and don’t let car payment drive your career.

What are possible career paths/promotional opportunities from your current position?

Production Team Leader, Operations Manager and a variety of internal hiring opportunities. External opportunities are endless and include aerospace, automotive, medical device manufacturing, green technology, etc.

Is there any other advice you would like to share?

Don’t feel pressured to jump into a high pressure job that doesn’t match your interested or priorities. You can make the best out of any job you get and salary should not be a deciding factor for you in finding your career path.

May students contact you directly with questions?

Yes. My email is jgamble@calpoly.edu
**Informational Interviews - Gaston Sueldo**

**Gaston Sueldo**

Cal Poly - B.S. in Manufacturing Engineering, December 2003

**Employer:**

[Northrop Grumman Corporation](https://www.northropgrumman.com) - Palmdale, CA

**Title:**

Manufacturing Engineer

**How long in current position:**

Three years as of July 2006

**Description of overall job duties and responsibilities:**

- Design Support
- Create Plans and Drawings
• Manufacturing Support

What is a typical day like?

• Work on plans and visual aids
• Attend meetings for design and manufacturing support
• Support the shop floor for any issues that arise
• Work on process improvement projects

What personal qualities or abilities are important to being successful in this position?

• Good people skills
• Good writing skills
• Know how to put presentations, charts, and graphs together
• Good presentation skills

What technical skills are important to being successful in your job?

• CAD software (CATIA)
• Math, Materials, Physics, and Chemistry
• MS office (Word, Excel, Power Point, and Project)
• Computer skills

What part of this job do you find most satisfying?

Building a quality product with the aid of the plans you provided manufacturing.

What part of this job do you find most challenging?

How to provide manufacturing plans that will work to perfection.

What type of training was offered for your position?

• Manufacturing Engineering Associates (MEA) Rotational Program
• Educational Reimbursement Program - MS degree at Embry Riddle Aeronautical University
• CATIA training
• DELMIA simulation training
• IMPCA (planning system) training
• Material Resource Planning (MRP) training
• Product Data Management (PDM) training
• Certificate programs - Quality Engineer Certificate at University of Phoenix and System Engineer Certificate at Cal Tech
• Quality improvement classes: Six Sigma, Facilitating leadership, etc.

What advice would you give to students thinking about majoring in Manufacturing Engineering?

Learn as much as you can about materials, tools, CAD software, MS office, and planning. One of Manufacturing Engineers’ main statements of work is to interpret design drawings and translate them to work instructions. These work instructions will consist of plans, tools, and visual aids that will be provided to manufacturing, so they can build the product.

What are possible career paths/promotional opportunities from your current position?

• Management
• Lead Engineer
• Can choose to work in other disciplines (Design Engineer, Tooling Engineer, Manufacturing Technology Development, Low Observable Engineer, Project Engineer, Quality Engineer, Industrial Engineer)

Gaston Sueldo - Informational Interview completed August 7, 2006
Pablo Päster

Cal Poly - B.S. in Manufacturing Engineering, March 2004
Presidio School of Management - MBA in Sustainable Management, May 2006

**Employer:**

[URS Corporation](#), Oakland

**Job Title:**

Sustainability Engineer

**How long in current position:**

Five months as of September 2007

**Description of overall job duties and responsibilities:**

Sustainability engineering consultant for public and private clients ranging from climate change and greenhouse gas work to sustainability strategy and supply chain analysis.

**What is a typical day like?**

I get to work at 7 AM to avoid the Bay Area traffic. Once in the office I respond to any e-mails that have come in and begin to plan my tasks for the day. These typically include attending meetings, webinars, and conference calls for various industry sectors or projects. I also work on writing proposals for new projects which involves a lot of writing
and interfacing with people that are contributing to the effort. Finally I work on projects, doing calculations, research, and writing of reports. At the end of a long day, I head home to rest and recover for doing it again the next day.

**What personal qualities or abilities are important to being successful in this position?**

A desire for continuous learning and a passion for thinking outside the box.

**What technical skills are important to being successful in your job?**

Physics, chemistry, energy, etc.

**What part of this job do you find most satisfying?**

The fact that my work contributes to the massive effort required to save our society from certain disaster.

**What part of this job do you find most challenging?**

Working in a cubicle and my long commute.

**What type of training was offered for your position?**

Ongoing project management training, health and safety training, LEED course

**What advice would you give to students considering your major?**

Don’t let school get in the way of your education. Think big. Never stop learning and asking questions.

**What are possible career paths/promotional opportunities from your current position?**

I could become manager for a sub-group in my work group as we expand. Pablo Paster - Informational Interview completed September 18, 2007
Bob Weiss

Cal Poly - B.S. in Materials Engineering, June 2005

Employer:

The Boeing Company
Integrated Defense Systems F-22 Program, Seattle, WA

Title:

Materials and Processes Engineer

How long in current position:

One year + two internships as of July 2006

Description of overall job duties and responsibilities:

In short, the group I work in is responsible for ensuring that all the parts that make it into a functioning F-22 are compliant with specifications and meet all the design requirements. We do this by working closely with our suppliers and the shop floor.
Anytime there is a new process, we visit the suppliers and witness the operation and qualify them to do that operation, whether it is a heat treatment, forging, machining, composite lay-up, curing, or some other operation. Then, as issues come up, we work closely with that supplier to resolve the issue and improve the process. Finally, there are other technology challenges that the Air Force asks us to solve. These can be some of the most exciting parts of the job as usually the task is something that hasn’t quite been encountered before. Because the F-22 is an advanced aircraft, we get to develop technology solutions that are cutting edge and usually not quite like anything else.

What is a typical day like?

Living in Seattle, a typical day always starts with at least one cup of coffee. There always seems to be a morning meeting to go to, but those are usually the opportunities to get involved and show your co-workers what you think and what you can do. (You can generally bring your coffee to the meeting!) Other than that, nothing is too typical. There are a lot of phone calls with our suppliers and our customer. But there is also a lot of time spent researching a problem and pouring over data. Other precious time is usually well spent by concentrating on getting your mind wrapped around the current issue and taking the appropriate time to compose any documents. People have a lot of respect for an individual that understands many faces of a problem. The days usually finish between 3:00-4:00 pm mostly because the culture of Boeing is that people arrive early so that they can leave early.

What personal qualities or abilities are important to being successful in this position?

Because the environment on F-22 is fast paced (did I also mention exciting?), it is important to be able to think on your feet. But staying calm is so critical as well. There are many times that it feels like there is pressure to have answers to a complex problem by noon, but being creative in problem solving and keeping cool usually helps to get the right people together and develop a solution (usually not by noon!). It is also extremely important to be able to communicate effectively with other people. In any given day, you might need to call on 10 other individuals in order to have questions answered or to find a solution. I would say that being personable is 60% of being able to get the job done. Then, it is also critical to be able to write an email or other document in a brief but clear way. I can’t say how much time gets wasted just because people have to discuss or reply to a topic two to three times before it becomes clear to everyone (but this is probably true in a lot of circumstances).

What technical skills are important to being successful in your job?

You have probably heard (or will hear) from professors that it is the basic principles of Materials Engineering that are the most critical to being successful. I honestly couldn’t agree more. Having a solid understanding of fundamental theory will take you most of the
way to being successful. The rest of the job is trying to take that fundamental knowledge and be able to apply it. Tools that can help you do that are understanding statistical concepts in order to get the most useful information from collected data, being able to understand engineering drawings, and being able to research technical journals and other sources and find related and relevant information to the project at hand.

What part of this job do you find most satisfying?

I love being able to constantly meet and interact with new people. Working closely with our suppliers is a great opportunity. I get to build personal and work relationships with people all over the country. And being exposed to how each one of them does business gives me such a great perspective on how diverse the industry can be. It feels so good to coordinate the skills of many other people and companies to deliver quality parts to our factory to build the F-22.

What part of this job do you find most challenging?

By far the most challenging part of this job stems from the fast-paced nature of a military program. Answers and solutions always seem to be needed yesterday and there is always far more issues than one can seem to wrap their arms around. But that is also the fun part about work; being creative and developing a solution that is technically sound, but more importantly, one that works. The real challenge though is finding the balance between gathering all the engineering data and managing time and cost restrictions while still developing a solution to why the material issue at hand.

What type of training was offered for your position?

For the most part, everything is on-the-job training. However, there are probably thousands of opportunities throughout the company to find training. There are only a small number of mandatory classes to learn basic operations. The rest is taken based on personal initiative. Since I have been at Boeing, I have taken Lean Manufacturing, Six Sigma Green Belt and Black Belt courses, and have even started coursework for a second degree, all through connections within the company. Training is a way to increase your employability without having accumulated many years of work experience. I should mention that Boeing has been recognized for its off-hours education partnerships (which I am taking advantage of) for employees to obtain degrees, certificates, or to take classes in a favorite subject (not necessarily related to your job function).

What advice would you give to students thinking about majoring in Materials Engineering?

Materials engineers can get involved in just about any industry. Of course there is always a need in the aerospace industry, but whatever your passion, you can probably find a job in materials engineering in that field. The great part about Materials Engineers is that we enable new technologies, and that is fun, exciting, and challenging no matter what
product you make. I would absolutely recommend getting at least one internship while in school. I can’t say how that has set me up for starting my career. Getting even just a little experience goes a long way in helping you to connect the engineering concepts together while you are still in school. (If you are interested in internship or other career opportunities at Boeing, please feel free to email me at Robert.j.weiss@boeing.com). And finally, remember that a degree is one of the most important things for creating opportunities; it is your ticket in the door. After you get a job, you then prove yourself by what you do and how hard you work, so practice thinking like that while you are in school.

**What are possible career paths/promotional opportunities from your current position?**

Well, there is always the ability to move up in the technical ranks, meaning that you become recognized as a more proficient engineer. This can even result in being recognized as a formal Technical Expert. But there is nothing precluding a materials engineer from becoming a manager. Usually an MBA would be required for management though. But from what I have heard from others, having a few years of engineering experience is good for a manager. It helps to have that perspective. At Boeing, even if one doesn’t want to become a technical expert or a manager, they can still move to different projects often enough to never be bored and to continue to learn new skills.

Bob Weiss - Informational Interview completed August 22, 2006
Informational Interviews - Emily Becker (Norvell)

Emily Becker (Norvell)

Cal Poly - B.S. in Materials Engineering, June 2011

Employer:

Solar Junction - San Jose, CA

Title:

Solar Test and Applications Engineer

How long in current position:

Since January 2011

Description of overall job duties and responsibilities:

My everyday duties consist of testing multijunction solar cell device wafers for their reflectivity properties and their quantum efficiency in each individual junction. It is my responsibility to make sure that good data is collected, that the testing equipment for those tests are measuring properly and that the data is presented and distributed to the correct people.

What is a typical day like?

Check my email to look at any testing data that ran overnight, upload the acceptable data, go to the lab and run calibration tests on the testing machines. While that’s happening I get a handle on what wafers and what tests need to be run and plan out testing for the day. Often there can be lot of troubleshooting involved in getting a good measurement and much of my day is spent checking to see that I’m getting good data, loading more wafers for testing as they become available, making sure the machines are running well and working on fixing them when they’re not. A little bit of my day is spent on data analysis by taking data that I collected and by fitting it in to the larger picture of the significance of what was trying to be achieved with that design. An even smaller part of my day is working on development projects.
What personal qualities or abilities are important to being successful in this position?

In my job it is helpful to be able to juggle doing many things at once and to be able to find out the most optimal way to plan testing so that the maximum amount of testing gets done on available pieces of testing equipment.

What technical skills are important to being successful in your job?

I have been developing my LabVIEW skills in order to better troubleshoot the LabVIEW programs that run our testing equipment. Concepts of solar cell physics and electrical engineering are at work in the testing that I do, and the more understanding I have of the concepts at work, the more successful I am in my job.

What part of this job do you find most satisfying?

An everyday sort of satisfactions comes when I'm able to load up a whole stack of wafers into the testing machine and everything runs smoothly. A special satisfaction comes when I'm able to create something for the testing setup that makes the testing easier, better, more accurate, more detailed, etc. I find the company culture quite satisfying, it's a start up so it's still pretty small (<50 people) which allows me to know everyone and has cool perks like company catered lunch three days a weeks. The company has a sense of camaraderie and excitement which is further fueled by the fact that a lot of us go play soccer at lunch two days a week.

What part of this job do you find most challenging?

It's more of a frustration, but the timetable of the work I do is very dictated by the testing I need to do and that is very sensitive to the number of wafers that need to be tested, how they need to be testing and the availability of equipment to do the testing. Because I work for a start up, I'm the one responsible person for doing certain tests, and if the testing I do doesn't get done in a timely manner it can cause bottlenecks for other testing that requires my testing to be done first. doesn't long work days are pretty much the norm.

What type of training was offered for your position?

When I was hired it was made clear to me that the testing team I was joining was going to be supportive of my work and bringing me up to the level that I needed to be at. My first few weeks I was assigned Labview exercises to get familiar with the program and I was pointed to reading resources to get some of the solar cell physics theory that I needed. Coworkers have been very willing to answer my questions and have gone to great lengths to draw me out diagrams to explain concepts. Everytime I learned a new
piece of equipment I shadowed and then practiced with an experienced user until I was comfortable enough to run it myself. It has been amazingly helpful and educating to work on a team that is very willing to teach and explain aspects of my work and concepts relating to it.
Informational Interviews - Geoff Ho

Geoff Ho

Cal Poly - B.S. in Materials Engineering, December 2002

Employer:

Formfactor - Livermore, CA

Job Title:

Project Manager/Integration Engineer

How long in current position:

2 ½ years as of May 2008

Description of overall job duties and responsibilities:

Serve as a project leader for new process development initiatives. Oversee individual development efforts by process engineers so that it all works together. Assign tasks and prioritize resources. Interface with design/manufacturing/research/operations for new products. Create documentation for design rules and work instructions. Collect and analyze data for new product manufacturing.
What is a typical day like?
Email, check the status of parts, run/attend meetings, one-on-one discussions with other engineers, email, desk work, more email.

What personal qualities or abilities are important to being successful in this position?
Being able to balance several things with the ability to bounce between them easily. Taking input from several areas and putting it all together to come up with a comprehensive view. Incorporating diverse and conflicting opinions/goals to reach a decision.

What technical skills are important to being successful in your job?
Statistics, AutoCAD, Excel, presentation skills, semiconductor fabrication processes, and chemistry.

What part of this job do you find most satisfying?
Seeing the finished product run by production using the process that I helped develop. Getting a new product to the customer and knowing that they are pleased with it.

What part of this job do you find most challenging?
Balancing the needs of my project with the needs of others, time or resources are always in short supply. This company tends to have a very fluid environment, roles and responsibilities change quickly, and the pressure to perform is always there. Dealing with the ups and downs of the company/market and not having that affect your opinion or performance of the job.

What type of training was offered for your position?
We don’t have much in the way of formal training, instead we tend to follow a model of work through a single example and then after that you have run with it.

What advice would you give to students thinking about majoring in Materials Engineering?
Give serious thought about what kind of a company you want to work for and what roles in that company you would want to be in. Simply thinking about what company you would
want to work at is not enough. You have to really think about a specific role that you would want to do. Your degree is what you make of it. The drive and effort that you put into does make a difference and make you stand out from the crowd, but often getting the initial notice depends on grades.

What are possible career paths/promotional opportunities from your current position?

Advancement in the technical ranks, management in the technical ranks, or a switch to the business side to run projects from the customer side.

Is there any other advice you would like to share?

Intern as much as you can and try new things. Get involved!
Geoff Ho - Informational Interview completed May 21, 2008
James Albertoni

Cal Poly - B.S. in Materials Engineering, June 2004

Employer:

CH2M HILL - Sacramento, CA

Job Title:

Corrosion Engineer

How long in current position:

Two years as of September 2007
Description of overall job duties and responsibilities:

- Design cathodic protection systems and select materials of construction for water and wastewater applications.
- Perform condition assessments of water and wastewater applications.
- Perform construction management for water and wastewater applications.

What is a typical day like?

Address questions from project design team regarding materials of construction. Design cathodic protection system and write specifications for contract documents. Observe construction activities to ensure the project specifications are being followed.

What personal qualities or abilities are important to being successful in this position?

Need to be able to work with contractors and engineers.

What technical skills are important to being successful in your job?

Microsoft Office, math, and chemistry.

What part of this job do you find most satisfying?

Seeing the completion of multi-million dollar projects that you helped design.

What part of this job do you find most challenging?

There are so many different ways to design the same project. Finding the balance between cost, efficiency, adequacy, etc.

What type of training was offered for your position?

Experience. I got to learn by doing.

What advice would you give to students thinking about majoring in Materials Engineering?

Take five years and take some extra classes.
What are possible career paths/promotional opportunities from your current position?

My company allows me to not only become a fellow level engineer but take on managerial roles as well.

James Albertoni - Informational Interview completed January 22, 2008
**Kathleen Lloyd**

Cal Poly - B.S. in Materials Engineering, June 2004

**Employer:**

Jax Kneppers Associates - Newport Beach, CA

**Title:**

Consultant

**Length of Employment:**

One year as of July 2005

**What is a typical day like?**

On site/in the field: I arrive on-site between 8-9am and prepare for inspections. The inspections consist of walking around a house or building that is involved in Construction Defect Litigation and recording, through my notes and photos, the defects and the resulting damages from the defects, if visible. The inspections last anywhere from one hour to all day.

In the office: I arrive at work between 7:30-8am and turn on my computer, check phone and e-mail messages and catch-up with coworkers who may have been in the field. I
process my notes which include typing and editing them to ensure they match with the photos they describe. I use a database program to attach other information (keywords) to the photos. If I have processed my notes and photos, I then move onto whatever tasks the attorney would like done for a particular case. It may be gathering photos related to a specific subcontractor or creating a summary document of the issues involved in the case. The office days can vary greatly in terms of what work I do.

What technical skills are important to being successful in your position?

Unfortunately, I don’t flex my technical muscles (like dynamics or kinetics), but rather I use all my courses. My boss described it as this: he hires engineers because through all our courses we were trained to think and approach problems and situations in a detailed and thoughtful manner—an important quality when you are dealing with attorneys, litigation, and millions of dollars are on the line.

What part of this position do you find most satisfying?

I love the fact that some days I am outside and some I am inside. The ability to not be behind a desk is huge for me. I can get bored rather easily, especially when I am processing photographs or adding keywords, but knowing that it is not forever alleviates the sense of boredom.

What part of this position do you find most challenging?

Many of the men that I deal with are labeled experts, either by themselves or by the attorney that hired them. Many of them take that title very seriously. I have realized that some guys/women are jerks and I can either not recognize that and plow ahead, or I can use some wisdom and approach the “jerks” with an attitude and personality that will make my life easier and way more pleasant.

What type of training was offered for your entry-level position?

None. I was taken on a few field inspections and then on day four, I was on my own. There usually isn’t time for training, which is a bad thing because knowing what to look for is crucial to taking the right photos and gathering the right information.

What advice would you give to students thinking about majoring in Materials Engineering?

Beware. Materials Engineering is very specific and leads to many possibilities, but you
have to shop yourself around if you don’t want to end up in biomedical or defense work. Honestly, if I had to do it again, I would like to have chosen Civil or Mechanical and then if I was still interested, done Materials Engineering as a graduate degree. But that is only me.

What are possible career paths/promotional opportunities from your current position?

Currently, I am taking Civil Engineering courses to be able to sit for the Professional Engineering (PE) Exam in Civil Engineering. Once I obtain my PE license, doors of many companies will open up to me, I hope, but in terms of my current company, the promotional opportunities are not found in any titles. We operate on a lateral scale, where everyone is equal, except for the owner and an office manager. All engineers have the same title/position and are equal, in theory. Of course, there is some inherent hierarchy which comes from age, time spent with the company, and education.
Lisa Christensen

M.S. in Engineering with Specialization in Biomedical Engineering, September 2004 +B.S. in Materials Engineering, June 2002

Employer:

Stryker Endoscopy - San Jose

Title:

Design Engineer

How long in current position?

One year as of August 2005

What is a typical day like?

There is no typical day! It depends on what stage of the project I am in. My overall job responsibility involves designing surgical equipment and implants that are used in endoscopic surgeries. This involves taking the project from the initial design and prototype stages all the way to the manufacturing of large quantities. This means that I may be back in the lab doing testing, or at the computer working on a CAD model, or on
the phone with a supplier talking about scheduling, or even in the Operating Room with a surgeon! There are also times where I’m at my desk writing reports or in a conference room having a team meeting about my project.

**What personal qualities or abilities are important to being successful in this position?**

Communication, relationships, organization, responsibility, resourcefulness

**What technical skills are important to being successful in your position?**

ProEngineer, math, strength of materials, mechanical behavior of materials, understanding of the product development cycle

**What part of this position do you find most satisfying?**

Working with such a wide variety of people to produce products that are used in the operating room!

**What part of this position do you find most challenging?**

I studied materials engineering, but in my position, as a design engineer, I do a lot of mechanical design. The most challenging part is getting up to speed quickly with all the details of design (prints, tolerances, ProEngineer, design for manufacturability).

**What type of training was offered for your entry-level position?**

Stryker does not have a whole lot of formal training. There was some ProEngineer training and some small training sessions for all engineers. The main approach is to jump right in, and ask lots of questions. Learn by doing!

**What advice would you give to students thinking about majoring in Materials Engineering?**

Materials Engineering offers an avenue into several different industries. Everything is made of materials and everyone needs a materials engineer! You get to break stuff and make stuff!
What are possible career paths/promotional opportunities from your current position?

- Senior Design Engineer
- Project Engineer (Management Route)
- Staff Engineer (Technical Route)
Informational Interviews - Michael Leonard

Michael Leonard

Cal Poly - M.S. in Engineering with a Specialization in Biomedical Engineering + B.S. in Materials Engineering, December 2008 (Blended Program)

Employer:

Abbott Vascular - Santa Clara, CA (www.abbottvascular.com)
R&D Engineer

How long in current position:

11 months as of May 2009

Description of overall job duties and responsibilities:

Develop test systems/methods, improve current fixtures/equipment, lead weekly meeting, and present data/findings on a weekly basis.
What is a typical day like?
A typical day consists of the following: working on developing new innovative solutions for device manufacturing and testing, developing testing systems to evaluate device performance, and planning and executing engineering studies.
What personal qualities or abilities are important to being successful in this position?

Teamwork skills, integrity, innovation, adaptability, and initiative are all important. Don’t work in a box...always run your thoughts by a teammate.

What technical skills are important to being successful in your job?

SolidWorks is a great skill to have. In fact, I use it whenever I am going to write an invention disclosure. It is important to be able to do basic statistical analysis so that you can intelligently interpret your data. Knowing how to put together a solid and fluent PowerPoint presentation is essential as I tend to give at least one PowerPoint presentation per week.

What part of this job do you find most satisfying?

The underlying satisfaction from working in the biomedical device field is that the work I am doing is going towards improving the condition of life for other people. “Underlying” was italicized because it is not necessarily the most personally satisfying part of my job. The part of my job that I find most satisfying is the opportunity to develop important and meaningful intellectual property.

What part of this job do you find most challenging?

The most challenging part of my job, aside from managing my time and handling an overload of work, would be developing new capabilities for my R&D team. It is always challenging researching and developing new effective equipment or technology.

What type of training was offered for your position?

A statistics course, polymers course, proper medical device procedures (clinical savvy)

What advice would you give to students thinking about majoring in Biomedical Engineering?

Choose a field that interests you. Don’t be turned away by positions in quality or manufacturing. Don’t just have your mind set on R&D. There is too much to experience in the world of engineering to limit yourself early on; you can narrow down your career as you begin to broaden your experience.
What are possible career paths/promotional opportunities from your current position?

I am currently an intermediate engineer. That is in the second tier of engineering here at Abbott. If I pursue engineering (which I plan to), I will eventually be promoted to Senior Engineer. From there, I can choose to try and climb the technical or managerial ladder.

Is there any other advice you would like to share?

Be open-minded to various types of positions and industries. It is important to try to experience as much as you can early in your career. Work should have undertones of fun. It realistically won’t be 100% fun, but if there isn’t enjoyment, keep your eyes open to new, more exciting and intriguing opportunities.

completed May 27, 2009
**Informational Interviews - Marcus Simon**

**Marcus Simon**

Cal Poly - B.S. in Materials Engineering, March 1997

**Employer:**

*Workman Nydegger*

Intellectual Property Attorneys, Salt Lake City, UT

**Title:**

Patent Attorney

**How long in current position:**

2.5 years

**Description of overall job duties and responsibilities:**

I am a patent attorney at the law firm of Workman Nydegger in Salt Lake City, Utah. My practice is focused on patent prosecution and related counseling in a wide range of technology areas including chemistry, materials science, electronics, photonics, and mechanical and electro-mechanical devices. Specific technologies include superabrasive and superhard materials used in polycrystalline diamond cutting elements and bearings, oil and gas exploration drilling systems, nanomaterials, physical metallurgy, implantable medical devices, semiconductor devices and processing, lasers, fiber optics, and orthotic braces. My practice also includes patent portfolio management, infringement and validity opinions, product clearance analysis, due diligence evaluations, pre-litigation counseling, and trademark preparation and prosecution.

**What is a typical day like?**

My typical day at the office includes reviewing my docket for current and future deadlines, drafting patent applications, responding to office action in patent applications from the U.S. Patent and Trademark Office, counseling clients on patent and trademark law, among other things.
What personal qualities or abilities are important to being successful in this position?

My current career requires strong analytical and problem solving skills, writing skills, and the ability to interface with clients and colleagues having a wide range of personalities.

What technical skills are important to being successful in your job?

Fundamentals (e.g., mechanics, physics, chemistry, electronics, and programming) are important technical skills for my current career. As a patent attorney, you have to be able to understand inventions in a wide range of technologies and quickly get up to speed on unfamiliar technologies by applying fundamentals that you have learned.

What part of this job do you find most satisfying?

I enjoy getting clients good results and seeing how it helps their businesses.

What part of this job do you find most challenging?

The most challenging part of my job is the long hours.

What advice would you give to students thinking about majoring in Materials Engineering?

Materials engineering provided me with a solid technical foundation for my current career as a patent attorney. I believe that materials engineering is a very versatile background that can serve as a foundation for a wide variety of careers both inside and outside of engineering.
**Ronnie (Willis) Pierce**

**Cal Poly - B.S. in Materials Engineering, June 2003**

**Employer:**

USS Posco Industries - Pittsburg, CA

**Title:**

Quality Engineer

**How long in current position:**

Three years as of July 2006

**Description of overall job duties and responsibilities:**

Responsibilities include solving quality problems, managing a mechanical testing lab, running trials on new products, statistical analysis, customer visits, and participating in process improvement projects.
What is a typical day like?

A typical day includes a few meetings, going out to the process lines to deal with quality issues, and office work. The office work includes statistical analysis, preparing presentations, researching and solving quality problems, managing the mechanical testing lab, and working on process improvement projects. I typically spend about a couple hours in meetings, a couple hours on the process lines, and the rest of the time in the office.

What personal qualities or abilities are important to being successful in this position?

You must work well with different types of people. This job involves teamwork and social interaction. Good communication skills are very important.

What technical skills are important to being successful in your job?

A background in metallurgy is probably the most important technical skill. Knowledge in statistics, Excel, and Minitab are also useful skills.

What part of this job do you find most satisfying?

Working with others to complete large tasks.

What part of this job do you find most challenging?

Finding enough time in the day to get everything done.

What type of training was offered for your position?

First level manager training, Excel/Access/Minitab classes, Six Sigma green belt training, SAS programming classes, safety training, and on-the-job training.

What advice would you give to students thinking about majoring in Materials Engineering?

Materials Engineering is a great major if you enjoy chemistry but don't want to become a Chemical Engineer or be a Chemistry major. This is a great major for someone who wants to know why certain materials act the way they do and how to alter the properties.
What are possible career paths/promotional opportunities from your current position?

Quality Department Manager, Customer Technical Service, Process Manager
Ronnie Pierce - Informational Interview completed August 14, 2006
Stephen Nelson
Cal Poly - Major: Materials Engineering

Employer:
Semtech - Camarillo, CA

Job Title:
Process Development Engineer

How long in current position:
Four months as of September 2007

Description of overall job duties and responsibilities:
I am the project leader in all wafer backside processing, advanced packaging, testing, wafer probing, and R&D.

What is a typical day like?
I wake up either in Santa Barbara or Shanghai, China trying to get a process ramped up in China for mass production of TVS diodes.
What personal qualities or abilities are important to being successful in this position?

Being independent, working well with people of different cultures, and being patient.

What technical skills are important to being successful in your job?

Material science for process development mainly, some physics, chemistry, etc.

What part of this job do you find most satisfying?

Developing a process, ramping it up, and making devices that we all use in everyday electronic things like cell phones and TVs.

What part of this job do you find most challenging?

Trying to memorize a whole new batch of three lettered acronyms.

What type of training was offered for your position?

None, my previous job experience was enough.

What advice would you give to students thinking about majoring in Materials Engineering?

You can do so many different jobs with this major that it all depends on what you want to do. Try it and maybe a certain class topic will stick and be fun for you. It is never the same thing over and over.

What are possible career paths/promotional opportunities from your current position?

As a new hire since last June, I have been continually pushed to find where my limit is, new responsibilities, important projects for new products etc. For engineers right out of college, they are hired in as Associate Engineers. I believe they then get promoted about in a year to two years to official engineer status with a raise in pay. Then the normal promotional stuff I think happens at 5 years, 10 years, etc or depending on goals achieved, company standing, etc.
Is there any other advice you would like to share?

Never give up, even if you are a C average student. Companies are seeing the quality of a C average student. :-)  
Stephen Nelson - Informational Interview completed January 9, 2008
Ben Fine

Cal Poly - M.S. in Mechanical Engineering, December 2003; MBA, June 2002; B.S. in Bioresource and Agricultural Engineering, June 1999

Employer:

TEC Engineering (formerly WRD Engineering) - San Luis Obispo

Title:

Design Engineer

Length of Employment:

1.5 years as of July 2005

What is a typical day like?

Hectic. Phone calls to return in the morning, do design work, phone calls throughout the day, meetings with clients and co-workers to review plans. Eighty-five percent of my time is spent working on a computer doing design with AutoCAD.

What personal qualities or abilities are important to being successful in this position?

Attention to detail, reliability, promptness

What technical skills are important to being successful in your position?

AutoCAD; very basic math—algebra, geometry; technical writing for clients (clients are mostly private developers or those remodeling their houses)
What part of this position do you find most satisfying?

Problem solving

What part of this position do you find most challenging?

Dealing with clients attitudes

What type of training was offered for your current position?

Informal training was required and provided by co-workers. Ninety percent of what I do, I did not learn in school.

What advice would you give to students thinking about working in your field?

Get an internship while in school (most companies hire their interns for career positions).
Chris Morey

Cal Poly - B.S. in Mechanical Engineering, December 2002

Employer:

iRobot West - San Luis Obispo

Title:

Mechanical Design Engineer

How long in current position?

Two years as of July 2005

What is a typical day like?

I work in a small office where I am expected to contribute on multiple fronts. I spend most of my time designing and modeling parts and assemblies in a 2-D CAD system and then switching to a 3-D system when the design is somewhat mature. We have a small shop in which I can personally machine a lot of the parts I design. If the parts are outside
of our capability, then I will contact some of my favorite shops and have them quote and submit for a purchase order. I interface with customers and vendors a lot. I've also gotten into molding parts for cost reduction in higher quantities and I communicate with mold shops frequently. Once I get parts in-house, I am expected to assemble prototypes and hand them off to be tested by either me, someone in our headquarters or by the potential customer. Once the prototypes are completed, I will gather feedback and implement design changes until the design becomes somewhat stable and mature. Then I am responsible for fully documenting the design (drawings, solid models, procedures, Bill of Materials, etc.) and then I have all of this documentation Engineering Change Ordered (ECO) into production. We then have a production house that takes all of this documentation once it is ECO’d and begins mass production.

FYI: My division manufactures robots for the military and EOD (explosive ordinance disposal). We have over 200 robots in Iraq that run hundreds of missions each day destroying roadside bombs and saving lives. It’s estimated that our robots have saved at least 100 lives in Iraq (both civilians and soldiers). I deal with military customers a lot on the phone and in email. This is an extremely rewarding job.

What personal qualities or abilities are important to being successful in this position?

Hardworking, honesty, straight-forward personality

What technical skills are important to being successful in your position?

Math, Physics, Mechanical Design, Statics, 2-D design ability, 3-D modeling ability (either in SolidWorks or Pro-Engineer)

What part of this position do you find most satisfying?

I find it satisfying because I am really needed and important. I feel challenged.

What part of this position do you find most challenging?

It’s all pretty challenging, but design is definitely the most challenging of all the tasks I am responsible for.

What type of training was offered for your position?

I was an intern at iRobot, San Luis Obispo for four years before I was hired on full time. I learned a lot during this time, and wasn't trained besides what I learned during this time.
What advice would you give to students thinking about majoring in Mechanical Engineering?

I strongly recommend majoring in Mechanical Engineering. It is a very rewarding profession and it pays well.

What are possible career paths/promotional opportunities from your current position?

I could move up to a management role but I would rather not. I like getting my hands dirty. My company allows a lot of flexibility and mobility in our positions. I could move into our consumer division (that division manufactures Roomba and Scooba consumer robots), but I love the division I'm in. Promotions are done every year. I've been promoted twice in the last two years.
Informational Interviews - Chris Wilburn

Chris Wilburn

Cal Poly - B.S. in Mechanical Engineering, June 2004

Employer:

Lockheed Martin Space Systems Company - Sunnyvale, CA

Title:

"Software Engineer," but I am really a Control Systems Engineer (Lockheed just doesn't have an official title for that)

How long in current position?

13 months as of July 2005

What is a typical day like?

I spend 90% of my time on the computer writing software (C++) and running simulations (Matlab/Simulink). I have come to find that most engineering jobs in today's day and age are computer based. Whether one is doing design, analysis (controls, thermal, stress, etc.), systems, or just about anything else, one will spend the majority of his/her time on the computer. This was difficult to get used to at first. I work in the aerospace industry, so it is not like we are making hard drives, or gear boxes, or something like that. We do a
lot of desk work up front, and then build the thing (usually once), and then put it into space. Several years from now, I will find myself away from my desk much more than I currently am (because I will be in the lab/shop testing hardware).

What personal qualities or abilities are important to being successful in this position?

The ability to learn quickly, communicate effectively, and work well with others.

What technical skills are important to being successful in your position?

As far as tools that are needed, my job relies heavily on understanding the C++ computer language and the Matlab/Simulink suite. Because I am a Controls Engineer, I develop simulations to supports system design. This requires a pretty comprehensive understanding of most of the engineering discipline. One needs to understand control system theory, implementation (computer science), vibrations, mechanics, dynamics, kinematics, math, physics and the list could go on. My point is that a Control Systems Engineer needs to be able to understand just about everything that comprises the system that he/she is trying to control.

What part of this position do you find most satisfying?

Solving complex problems.

What part of this position do you find most challenging?

The learning curve. Like I mentioned earlier, a Control Systems Engineer will need to know about everything that comprises the system that he/she is trying to control. Systems can vary in complexity, but in my case, I have had to learn a great deal about many diverse things.

What type of training was offered for your entry-level position?

For my position, not much. Lockheed in general offers a lot of training for various types of engineering, but not for controls. This is probably because the field of controls is specialized. Most people come into my type of position with a master’s degree or higher. Because I came in with a bachelor’s degree, I have had to work very hard at learning what is necessary. I have also begun working on my master’s degree at Stanford in controls. This is helping me a great deal in my daily work.
What advice would you give to students thinking about majoring in Mechanical Engineering?

Mechanical Engineering is a great degree program--especially at Cal Poly! It is the broadest degree program, touching many different disciplines, and it prepares one very well for engineering work or advanced study after graduation. I chose to major in ME because I felt that with the solid base that it provides, I could transition to just about any field from it (robotics, aerospace, automotive, marine, civil, HVAC, etc.). I found the aerospace industry most interesting.

What are possible career paths/promotional opportunities from your current position?

The possible career paths are:
• Stay in analysis (i.e. continue to do control system analysis and design)
• Transition into a higher level system design position. This would be a position where one would be responsible for designing an entire system (the whole plane, car, satellite, missile, etc.) or subsystem.
• Eventually go into management
• Having a systems design background (which controls people definitely do), one would be well qualified for a management position. Lockheed promotes very technically savvy individuals to management (instead of hiring business people like, say Wal-Mart would).
• Become a consultant
• Control System Engineers are rare by comparison to most other engineers. There is a demand for those who have the skills required to design an effective system as a solution to a problem. One can make a good living as a consultant doing this type of work.
• Start your own company

While this is an option for anyone with any background, I believe that someone with a solid background (like ME) and a systems design expertise, would be prone to inventions (it happens all the time in the Silicon Valley).
Corey Marugg

Cal Poly - B.S. in Mechanical Engineering, March 2004

**Employer:**

Palm, Inc. - Sunnyvale, CA

**Title:**

New Product Readiness Engineer, Palm Customer Support Organization

**How long in current position:**

4 months (as of January 2006)

**Description of overall job duties and responsibilities:**

Work with Palm customer support teams, marketing, sales, engineering, operations, and carrier operations teams to ensure products are ready to be supported upon launch. I coordinate Palm Customer Support readiness including website updates, carrier and service partner training (call center agent training), knowledge base development, and documentation review/development. Engage crossfunctionally with any area of the company that affects the end user and customer support. Provide customer support feedback to engineering and development teams to ensure CSO concerns are being acted upon. Act as beta tester for up and coming products to gain technical expertise and provide feedback. Act as the technical expert in your product/project pre and post
launch for escalation support, training, etc. Act as CSO liaison between engineering, operations, marketing, and the end-user. Manage up and coming products from a program and introduction perspective for customer support.

**What is a typical day like?**

I start the day reviewing email and typically have at least one meeting before lunch. This meeting is either weekly (recurring) or a discussion on a particular project that I am managing. I usually end up reviewing status meeting notes, or compiling project updates for CSO or future meetings/reports. I usually start work on coordinating another meeting/discussion, working on a customer call flow, scope of support, or other CSO new product readiness document. I work on updating project timelines for CSO as provided by engineering and development teams. I usually have at least 2-3 meetings per day. Much of my day-to-day activities include using Palm products and providing feedback, reviewing or creating documentation, discussion, or providing/receiving product implementation and road-map updates. Typically work around 40 hours/week with a flexible schedule (9-5:30 ish).

**What personal qualities or abilities are important to being successful in this position?**

Working with people, being pro-active, being self-motivated (not much pressure - have to work on your own and figure out what needs to be done), being diligent, and being a good communicator are key. Much of my job is discussion and updates, along with the need to be a “technical expert” on the product or projects. Keeping up-to-date on cellular technology, computing, trends, and user feedback is also critical. The more I learn about technology and trends, the better.

**What technical skills are important to being successful in your job (AutoCAD, SolidWorks, ProE, math, physics, or chemistry)?**

I don’t use many purely engineering technical skills at my job at Palm. My first job at KLATencor (1.5 years employed; hired out of school from Cal Poly) was much more technical. This job is more project management, tracking, reporting, and negotiating. My current job requires technical knowledge on the product(s) that I’m working on, and on the background/infrastructure that makes it happen. This background includes cellular technology, memory architecture, computers, LCDs, and other handheld computing related technology. The more process knowledge I learn about Palm as a company, and how we get things done (operationally with our call centers or with our partners, from manufacturing in Taiwan to repairing units in Mexico), the more effective I am in my position.
What part of this job do you find most satisfying?

I like working with a lot of different people cross-functionally at Palm, getting exposed to the consumer product market, being the “front-runner” on new projects for customer support, and testing new, un-released products. It is exciting to be part of a “hot” company with really cool technology and new products coming out. Palm is a recognized leader in handheld computing, and we are growing quickly.

What part of this job do you find most challenging?

Having a good feel for how our call centers operate and what the end-user really goes through on the other end of the phone is challenging. Bottom line is that we are helping the customer. It’s hard to determine an impact from what I do on a daily basis to how our millions of Palm customers have an improved experience. I am quite removed from this, but am more involved on the back-end and expressing the interests/concerns of “customer support” as an organization. I also find working with carrier partners challenging as I have no experience in “their world” and how they operate. As I work at Palm longer, these things will become clearer and more second-nature.

What type of training did you receive for this position?

Nothing specifically. As my second job out of school, I was hired based on my similar experience at KLA-Tencor (new product readiness within global support services), so it was “assumed” that I could hit the ground running. My manager supports me educating myself and taking classes to gain a better background in wireless technologies and handheld computing.

What advice would you give to students thinking about majoring in mechanical engineering?

Just to understand that there are a lot of different jobs and possibilities as an engineer, and to not expect that you have to be sitting down with CAD designing a suspension arm or something. Employers will hire you for your critical thinking, communications, and problem solving skills. Gain experience in understanding the way companies operate as a whole, not just the engineering and manufacturing aspects. Learn about sales, marketing, support, operations, etc. The broader your understanding of roles, responsibilities, and how “things get done” at any company, the more hirable you’ll be. Also know that there are a lot of positions out there that could be perfect for you, but to which you have no visibility. I never thought I would work in customer support at a handheld computing company, but my experience and “expertise” lead me in this direction naturally. Work hard and stay motivated to “make a name for yourself” and make a difference, even if it’s just within your smaller team or organization at the company.
What are possible career paths/promotional opportunities from your current position?

I could get into marketing, operations, training, sales, or possibly something in the realm of a “support account manager.” This position would not lend itself to a future in something highly technical within Palm or otherwise. There are lots of opportunities to get better plugged-in with our business partners, from carriers to software developers. This position allows me to learn a lot about Palm, and work cross-functionally which can lead to further opportunities.
Informational Interviews - Daniel Brown

Daniel Brown

Mechanical Engineering, June 2011

Employer:

Woodward HRT - Santa Clarita, CA

Title:

Manufacturing Engineer

How long in current position:

5 Months

Description of overall job duties and responsibilities:

Basically, I help to make sure that my company produces good parts. My job includes updating, improving, and overseeing the processes that our aerospace industry parts undergo on the shop floor. I disposition parts when needed, write rework instructions to bring parts back into production, and design some tooling. I also help produce work instructions to aid our shop floor machine operators, and I have my hand in purchasing additional equipment that will help improve our manufacturing capability.
What is a typical day like?

A typical day includes an early morning production meeting, e-mails, and dealing with a whole host of different problems and developing improvements. At Woodward HRT, we pride ourselves on producing quality parts for our customers, and that translates into a need for constant improvement. Throughout the day I get the chance to interface with shop floor operators, other engineers, my supervisor, and sometimes even my director or vice president. I have several projects I am currently working on including: designing some tooling fixtures, writing work instructions for machines and gaging equipment, and setting up a temperature data logger to wirelessly track freezer temperatures. Every day I also write some of the usual day-to-day reworks.

What personal qualities or abilities are important to being successful in this position?

As a Manufacturing Engineer, a lot of problems related to part production will come your way. Those problems can come from many different people within the company. It is very important to do your best to stay on task with what you’re working on and not allow yourself to get too distracted. Planning out a daily work schedule is an ability that I am currently learning so that throughout the day I can stay on track. Other qualities and abilities that are important to have in order to be successful as a Manufacturing Engineer include a good working knowledge of how the parts function that you help manufacture, a strong desire to learn more and help others out, and great interpersonal skills.

What technical skills are important to being successful in your job?

Since I do use the UG CAD system at work, it's great to have prior background with some kind of CAD system like SolidWorks, ProE, or NX. Good technical writing skills are a must, and knowledge of Controls systems or hydraulics is also a plus. For my position, a good solid background in a machine shop environment is important. This allows a new Manufacturing Engineer to really hit the ground running, since you already have a great working knowledge of how the machines work, what they are composed of, and what they are meant to do. Last but not least, it is especially helpful to have a lot of practice with both reading and understanding engineering drawings.

What part of this job do you find most satisfying?

My favorite part of this job is knowing that I am involved in improving the products that get shipped to our many different aerospace customers. Woodward is a very successful company in the area of hydraulic controls applications for the aerospace industry, and to be a part of that team has certainly been an honor. I also thoroughly enjoy having my hand in some tooling design here and there.
What part of this job do you find most challenging?

I think the most challenging part of my job is proper time management. It's easy to get going on one thing and then start thinking about multiple other things that need to get done. Learning to stick with one thing, stay focused, and do quality work is very challenging. Learning that skill is very rewarding though.

What type of training was offered for your position?

For my position, I got hired as a support Manufacturing Engineer. That basically means that I was hired to help out one of the Senior Manufacturing Engineers at our plant. So, all my training was on-the-job with my Senior Manufacturing Engineer mentor. This has been a very enjoyable process, and now that I'm 5 months in, I really feel like I'm beginning to understand a lot.

What advice would you give to students thinking about majoring in Mechanical Engineering?

Mechanical Engineering at Cal Poly is awesome, but very challenging. Do not underestimate it, but also do not underestimate yourself. Enjoy yourself too! Also, have a desire to serve everyone you work with and for. If you focus on who you are helping versus what you are accomplishing then I believe it gives you a greater drive to accomplish. That, I believe, is key.

What are possible career paths/promotional opportunities from your current position?

Woodward as a whole is a great company with many opportunities to advance AND travel. You might also get the chance to go back to Cal Poly as a Career Fair company recruiter like I did!

Is there any other advice you would like to share?

If you can, find a place to live that is very close to where you work. Then if you wanted you could just ride a bike to work. It's fun and it helps me jump start my day! Also, don't forget to laugh at least a little during the day.
Informational Interviews - Erick Rickards

Erick Rickards

Cal Poly - M.S. in Mechanical Engineering, June 2004
Cal Poly - B.S. in Mechanical Engineering, December 2002

Employer:

Raytheon Missile Systems - Tucson, AZ

Job Title:

Senior Mechanical Engineer

How long in current position:

4 years as of July 2008

Description of overall job duties and responsibilities:

Perform structural analysis on various levels from the complete missile to individual components. Analyze ranges from static strength and dynamic response to fatigue and damage calculations. I meet with designers and program managers to coordinate testing...
and determine what analysis is needed.

What is a typical day like?

Typical days are spent at my computer except for the occasional test. Design and requirement reviews are regularly held along with test preparedness reviews. Travel is sometimes required to get environmental data from flight tests and wind tunnel tests ranging from one to three weeks. Raytheon allows great flexibility in daily schedules ranging from a standard 5 day work week to a 9/80 schedule and some of us work 4 - 10 hour days (and depending on the project, sometimes even longer).

What personal qualities or abilities are important to being successful in this position?

Being self-motivated, and not afraid to ask questions. Continuous learning. I've been here for four years and there is still so much to learn - and that is just in the air to air group.

What technical skills are important to being successful in your job?

We typically use MS Office products, MSC Nastran and Patran, ProEngineer, MathCAD and Matlab. A large portion of my job entails data manipulation and data reduction, so being able to use Matlab and Excel are very valuable.

What part of this job do you find most satisfying?

I probably get the most satisfaction from seeing a design come together. We are constantly upgrading and changing the design of different missiles and knowing that I have had a part in a successful product is very satisfying.

What part of this job do you find most challenging?

Meeting the schedule. When you are trying to build a more efficient design, sometimes you give up robustness and margins can be very small. Iterations on a job can be very time consuming and cause delays further down the road. Being part of a team that brings a project together, meeting specifications is challenging, but very satisfying as well.

What type of training was offered for your position?

There are many different training courses and classes offered, many on my own time, some are on-hour paid classes that typically have direct impact on the type of work that I am doing. Raytheon tries to bring in industry professionals or experts in to train us in analysis methods and testing. I have been able to take courses in Random Vibrations, Flutter and Divergence, Shock, Modal Analysis and Testing and many other short courses.
to brush up in areas like statistical methods, static strength, and fatigue.

**What advice would you give to students thinking about majoring in Mechanical Engineering?**

Like many others have said, get some hands-on experience. In the area I work, it is very helpful to have an idea of what will work and what won't. You spend a lot less time finding out that a design was not robust enough. The ME program has a lot of labs that give you a lot of good information that is useful in industry and gives you a great foundation.

**What are possible career paths/promotional opportunities from your current position?**

In the future, I can head either toward management or stick with analysis and get some more breadth in different product areas. There are a lot of different paths that can be taken especially in a company like Raytheon. Performance reviews are conducted yearly. As far as the rate of promotion, Raytheon tries to maintain about 15 years of experience are required to achieve a title of E05 or Principal Engineer.

Erick Rickards - Informational Interview completed May 15, 2008
Gabriel Glynn

Cal Poly - B.S. in Mechanical Engineering, June 2003

Employer:

Solar Turbines Inc. - San Diego, CA
(www.solarturbines.com)

Title:

Staff Mechanical Design Engineer

How long in current position?

Two years as of July 2005

What is a typical day like?

Normally an 8-5 schedule with extra hours put in when needed. Four to six hours of day spent at computer doing email, researching issues, viewing drawings, crunching data and finite element analysis. Rest of day can be spent in meetings and on the shop floor tending to production issues or in test cell.
What personal qualities or abilities are important to being successful in this position?

Self-motivated, quick learner, willingness to juggle many tasks with varying priorities, and of course understanding of engineering concepts is key when designing component or troubleshooting issues.

What technical skills are important to being successful in your position?

Pro/E, Finite Element Analysis Packages (ANSYS, ABAQUS, IDEAS), Microsoft Office including PowerPoint, all aspects of mechanical engineering are needed for gas turbine engineering (thermodynamics, stress analysis, fluids, materials) and applying statistics to engineering data.

What part of this position do you find most satisfying?

Being directly responsible for the success of a component for any one of Solar Turbines' products, from design to test to production of the part or assembly.

What part of this position do you find most challenging?

Time is often at a premium, so being able to use good engineering judgment to make decisions that will save time is very difficult.

What type of training was offered for your entry-level position?

I am currently finishing a two-year "rotation" program, which has allowed me to work in four departments through Solar Turbines Engineering Group for six months each. Some examples include: Combustion, Mechanical Design, Materials and Processes, Heat Transfer, Performance, Aero, Customer Service, Turbine Assembly, Development Test and the list goes on. This a great way to learn the business and get exposure to many types of engineering and in the end you are given the freedom to choose a group to work for on a more permanent assignment.

What advice would you give to students thinking about majoring in Mechanical Engineering?

Certainly get an internship early so you can find out what you are getting yourself into
and what parts of mechanical engineering most appeal to you. Talk to Mechanical Engineers that have been in their profession for 5, 10, 20, 30 years, again so you know what opportunities are out there for a Mechanical Engineer.

**What are possible career paths/promotional opportunities from your current position?**

Solar Turbines is very much an engineer lead company, so I can move up through the company in a variety of positions like Project Management, Customer Service, Engineering, and even Sales and Marketing.
Greg Jenkins
Cal Poly - B.S. in Mechanical Engineering, June 2003

Employer:
BAE Systems - Santa Clara, CA

Title:
Mechanical Engineer

How long in current position?
Two years as of July 2005

What is a typical day like?
A typical day is not so typical. Design reviews, requirements reviews, product conception, vendor meetings, scheduling, procurement and shop assistance are all part of a day’s work. Sometimes CAD work is done but not too often. Often my day in the office is very dynamic, involving jumping from one meeting to another and then back on the phone.
with suppliers and purchasing. When time permits between meetings, product conception and design occur. Travel also occurs on a regular basis, usually involving week long trips to three or more cities. When prototypes or projects are being manufactured in the shop, I will go out to interface with shop employees and troubleshoot or resolve problems as the manufacturing process occurs.

**What personal qualities or abilities are important to being successful in this position?**

Good personality / team work / flexibility / good attitude / willingness to learn new things A flexible personality with a level head and the ability to deal with high stress situations in stride go a long way to help an engineer in almost any position.

**What technical skills are important to being successful in your position?**

ProEngineer / PowerPoint / Word / Excel / Project / Visio / Groupwise / Material Science / Mechanical Engineering / Math / Physics / Dynamics / Heat Transfer / Fluids / Controls

Being a well rounded engineer is probably one of the most important things in my position. I deal with mechanical design, controls, stress analysis, physics based modeling, electrical engineering and so on. Having good general knowledge in all of these fields go a long way to making someone a better engineer.

**What part of this position do you find most satisfying?**

What other job lets you be around tanks all day (see picture below)? When designing new prototype vehicles, a lot of time is spent on the design and analysis. When the vehicle starts to come together the way you had envisioned, it is pretty satisfying. I also volunteered to help on the Human Resources side of engineering where I get a say on who is hired in the future. It is nice to have input to the hiring process.

**What part of this position do you find most challenging?**

Sometimes you must work long days (16 hours) to get things done on time. The most challenging part of the job is the large amount of multi-tasking that occurs on a regular basis. If you don’t have notes and schedules for everything, you will definitely forget.

**What type of training was offered for your position?**

I was initially trained in Pro/Engineer when I started the job, but on a continual basis I get trained in safety, risk mitigation, export compliance and data marking, as well as continued training in Pro Engineer.
What advice would you give to students thinking about majoring in Mechanical Engineering?

Don’t focus on only one area. Enjoy a well rounded engineering experience and join some clubs. Make sure you get hands-on experience!

What are possible career paths/promotional opportunities from your current position?

Project Engineer / Manager of Technical Staff
Informational Interviews - Heather Hardie-Hill

Heather Hardie-Hill
Cal Poly - B.S. in Mechanical Engineering, June 2007

Employer:

CH2M Hill, Electronics and Advanced Technology - Portland, OR

Job Title:

Engineer I

How long in current position:

8 months as of May 2008

Description of overall job duties and responsibilities:

Mechanical Engineers within my department primarily focus on HVAC design and evaluation. Projects that I've worked on range from designing a solar water heating system, to airflow modeling using CFD software, to computer aided pipe flow analysis.
What is a typical day like?

My days start anywhere between 7:00 am and 8:30 am and end between 4:00 pm and 6:00 pm. I spend a lot of time working at my computer, but I also spend a decent amount of time at other people's desks helping with their projects.

What personal qualities or abilities are important to being successful in this position?

I think that good social skills, an ability to communicate well with people of all ages, and a proactive attitude towards work are the three most important skills in any job these days.

What technical skills are important to being successful in your job?

Auto-CAD and Excel.

What part of this job do you find most satisfying?

I get to work on a wide variety of things.

What part of this job do you find most challenging?

I am occasionally given work with a very tight deadline, and I have to turn work in that hasn't been double checked.

What type of training was offered for your position?

It's all been on the job and very informal. "Sink or swim" and "learn by doing" are two very common phrases heard around the office.

What advice would you give to students thinking about majoring in Mechanical Engineering?

Mechanical Engineering is hard, but very rewarding and it's not all about moving parts.

Is there any other advice you would like to share?

Do as many internships as you possibly can, it's a great way of finding out what you do and don't like. Also, study abroad because otherwise you won't have an opportunity to travel that long for a very long time.
Heather Hardie-Hill - Informational Interview completed June 3, 2008
Jarrod Sheetz

Cal Poly - B.S. in Mechanical Engineering, June 2007

Employer:

Halliburton - Houston, TX

Title:

Sand Control Technical Sales Engineer

How long in current position?

One year as of March 2012

Description of overall job duties and responsibilities:

As a technical sales representative for an oilfield services company, I sell completion hardware directly to major oil exploration companies. I have to be involved in the planning of their wells to know what their completion goals are so I can assist them in providing the correct hardware to maximize the production of the well. I am involved in their project from the paper concept until the final piece of metal is left in the well.
What is a typical day like?

I spend my mornings in my clients’ offices to stay current on their ongoing operations. When I have a well that is under completion, I will be spending time working between the client and our field office to insure proper delivery to the offshore well.

What personal qualities or abilities are important to being successful in this position?

The oil industry is 24/7 and super fast paced. You have to have the ability to work long and odd hours; you have to be able to solve problems in a fast manner and you have to be able to handle stress very well. Multi tasking is essential in this industry as well as being able to be a person pleaser. Selling in this industry is highly dependent on personal relationships; the oil companies prefer customer service over quality on many occasions.

What technical skills are important to being successful in your position?

I use many basic engineering concepts on a daily basis. Fluid mechanics, metallurgy, simple mechanics. I may not be a drafter, but I still have to read and explain engineering drawings to external clients. I also use several different mathematical software models to solve mechanics problems.

What part of this position do you find most satisfying?

Finishing an oil well project and being able to see the production results. We may spend months planning a project and it’s completed very fast and can be very stressful; but a success will always put a smile on my face.

What part of this position do you find most challenging?

Convincing a client that my proposed completion is the ideal solution for their well. It can be hard to tell someone that what they believe is right is not always the best solution and being able to explain that tactfully is a huge challenge. The ego is a huge part of our jobs and it is hard to push a person to change.

What type of training was offered for your position?

I am continually receiving training. I have had two intense training sessions that lasted two months each; these were to teach technical aspects of the job as well as to showcase the intense nature of the industry. I will spend 2-3 days a month in some form of training;
whether it be on the software we use, safety updates etc.

**What advice would you give to students thinking about majoring in Mechanical Engineering?**

If you enjoy engineering and don’t want to have a highly specialized career, then Mechanical Engineering is a perfect place to open doors to almost any engineering related career upon graduation.

**What are possible career paths/promotional opportunities from your current position?**

In the oilfield it’s a standard practice to keep turnover within a company. Moving personnel from place to place keeps things fresh and from becoming stagnant. My preferred next step would be to become an operations manager in an international location.

**Is there any other advice you would like to share?**

Always be proactive in the advancement and direction of your career. You have to be willing to be forward and willing to push your limits to insure you can progress your career at the pace you want.

**May students contact you directly with questions?**

Yes. My email is jarrod.sheetz@gmail.com

Jarrod Sheetz - Informational Interview completed March 15, 2012
Informational Interviews - Jessica Boisselle

Jessica Boisselle

Cal Poly - B.S. in Mechanical Engineering, December 2002

Employer:

Lockheed Martin, Space Systems - Sunnyvale, CA

Title:

Project Engineer in the Mechanical Design Organization

How long in current position?

One year, eight months as of July 2005

What is a typical day like?

There is no typical day, however on a daily basis I will interface with organizations throughout Lockheed Martin, outside suppliers, and our customers. I travel to meet with suppliers, tour their facilities, and ensure that they make quality products that meet our
requirements, as well as those of our customers. I get involved with investigations, and write reports to address my group's position on technical issues.

**What personal qualities or abilities are important to being successful in this position?**

Communication (verbal and written), teamwork, and being responsible for one's work are necessary to be a successful contributor in this position.

**What technical skills are important to being successful in your position?**

General knowledge of how to read drawings, make drawing changes, and understanding physics, math and core ME courses make me successful in this position.

**What part of this position do you find most satisfying?**

The high level of responsibility I am given.

**What part of this position do you find most challenging?**

Managing the multiple tasks I receive and prioritizing them.

**What type of training was offered for your position?**

I continue to have the opportunity to receive training in design and systems engineering. Additionally, I was recently accepted into the Engineering Leadership Development Program (ELDP), which allows me to take soft skill and business training as well as further my technical core competencies.

**What advice would you give to students thinking about majoring in Mechanical Engineering?**

The Mechanical Engineering coursework at Cal Poly, San Luis Obispo is challenging; however, the subject matter is very interesting. There are many job opportunities for internships and fulltime hires. The great thing is that ME professionals can work in aerospace (as I am), energy, materials/composite, HVAC, controls, automobile, or research industries. The choice is really up to the individual as to where they will find work they are passionate about.
What are possible career paths/promotional opportunities from your current position?

As I stated before, I am in the Engineering Leadership Development Program. This is a rotational program, such that I can work in many different areas of the Lockheed Martin business, to expand my skill set. I am very fortunate, in that within Lockheed Martin, there are many opportunities for promotion, and I can decide later on whether I will take the management or technical fellows career path. Both are highly regarded within the company, so I do not feel pressure to go down one path as opposed to the other. Additionally, Lockheed Martin is paying for my master’s degree at a local university.
John Jason Willingham

Cal Poly - B.S. in Mechanical Engineering, August 2003

**Employer:**

Microprobe Inc. - Carlsbad, CA

**Title:**

Mechanical Engineer

**How long in current position?**

Two years, three months as of August 2006

**What is a typical day like?**

That is highly variable. I spend about 80% of my time creating drawings in AutoCAD and SolidWorks. The rest is assembling fixtures, maintaining fixtures, taking physical measurements of undocumented equipment, updating information lists, attending meetings, etc.
What personal qualities or abilities are important to being successful in this position?

Attention to detail and the ability to work within a deadline

What technical skills are important to being successful in your position?

AutoCAD, SolidWorks, minor engineering calculations (i.e. deflection, force calcs), and a little MasterCAM

What part of this position do you find most satisfying?

Creation of new test fixturing from raw customer data.

What part of this position do you find most challenging?

Creation of new test fixturing from raw customer data.

What type of training was offered for your position?

No formal training. I learned AutoCAD and SolidWorks on the fly.

What advice would you give to students thinking about majoring in Mechanical Engineering?

Take as much physics and math as you can handle before committing to an engineering field. If you aren't sick of piles of finicky equations and problems, then sign up for an engineering major.

What are possible career paths/promotional opportunities from your current position?

There are no positions open. It is a good first job after college, but the company is small and new Mechanical Engineers are hired only when a current employee quits.

John Jason Willingham - Informational Interview completed August 7, 2006
Jon Dietrich

Cal Poly - B.S. in Mechanical Engineering, June 2005

**Employer:**

St. Jude Medical, Cardiac Rhythm Management Division - Sylmar, CA

**Title:**

Hardware Design Engineer

**How long in current position:**

1.5 years as of November 2006

**Description of overall job duties and responsibilities:**

Mechanical Development Engineer - responsible for design and testing for new product development. Also responsible for Mechanical Development Co-ops (interns) and Mechanical Development Lab.

**What is a typical day like?**

Mix of design work (3D CAD), documentation (2D drawings, reports), meetings and planning.
What personal qualities or abilities are important to being successful in this position?

Need to be highly-motivated, quick-learning, knowledgeable, practical, detailed, articulate, open-minded, capable of working with diverse perspectives/attitudes, and adaptable to large corporate culture.

What technical skills are important to being successful in your job?

CAD, mechanical intuition, materials, ProEngineer, technical communication (drawings, documents, etc.)

What part of this job do you find most satisfying?

Successfully designing within narrow technical and regulatory constraints; and the type of product we design/produce.

What part of this job do you find most challenging?

Creating inexpensive and production-friendly designs that consistently meet our high quality standards and FDA regulations.

What type of training was offered for your position?

ProEngineer, Bradycardia for Engineers, Tachycardia for Engineers

What advice would you give to students thinking about majoring in Mechanical Engineering?

An equal mix of sound theoretical knowledge and practical manufacturing experience is needed in order to be a successful design engineer.

What are possible career paths/promotional opportunities from your current position?

Engineering Management, Project/Program Management, Research, or transfer to another St. Jude Medical division.

Jon Dietrich - Informational Interview completed November 7, 2006
Informational Interviews - John Martin

John Martin
Mechanical Engineering, December 2008

Employer:
Chevron Richmond Refinery

Title:
Design Engineer

Length of Employment:
9 months

Job Duties:
Creating engineering work orders for daily plant support in the distillation and reforming section of the Richmond refinery.

What is a typical day like?

Every day is different for me. On some days I will spend a great deal of time in the field and others will be spent entirely in my office. Normally I am working on several jobs at once, which keeps the work interesting. Each job is different and I spend a great deal of time working with vendors, operations, and maintenance personnel.
What personal qualities or abilities are important to being successful in this position?

Excellent communication skills and the willingness to learn are the most important. Being prepared to get your hands dirty climbing all over equipment helps also, it’s a fun job.

What technical skills are important to being successful in your position?

Fluid mechanics is the most important, especially for sizing pumps, regulators, pipes etc. A good understanding of thermodynamics and materials engineering is important.

What part of this position do you find most satisfying?

The variety; every day is different. I meet all kinds of new and interesting people.

What part of this position do you find most challenging?

There is a great deal of equipment that takes a long time to understand and work with. After nine months I still feel quite lost sometimes. A lot of what I do is project management, so being able to multi-task and prioritize your schedule is extremely important.

What type of training was offered for your entry-level position?

I attend Chevron Technical University, which is 6 weeks of classes spread over a year to teach the fundamentals of refining to employees in the technical department.

What advice would you give to students thinking about majoring in Mechanical Engineering?

The most important thing is to take as many co-ops and internships as possible. I did two internships and one co-op and I would not have been able to find this career at Chevron without that experience. Internships not only help pay tuition but help you understand what kind of work you are interested in when you graduate and provide extremely valuable experience that employers love.
What are possible career paths/promotional opportunities from your current position?

From my position I can stay in technical and become a lead engineer, which would lead to management roles. I could transfer to a different part of Chevron, such as the upstream division and have an entirely different career. There are many possibilities.

Other Advice:

While in college, the two most important things are internships and joining Cal Poly's mechanical engineering clubs, such as ASME. These will provide you with the experience and connections you need to find the career you want, guaranteed.

May students contact you?

Yes: jmart@chevron.com
Jonathan Cerrona

Cal Poly - B.S. in Mechanical Engineering, June 2003

Current Employer:

JDK Controls Inc. - Grass Valley, CA

Title:

Mechanical Engineer

How long in current position?

Two years as of July 2005

What is a typical day like?

I may do one or all of the following in a day:
Design a new product (custom potentiometers); talk with customers; research new vendors and their products; complete engineering change orders; maintain various databases; design inhouse automation and tooling; create and maintain automation software; write process control documents. I spend most of my time creating and
maintaining software for in-house automated test systems.

**What personal qualities or abilities are important to being successful in this position?**

The ability to listen to and serve people. A creative engineering mind that can think outside the box and yet be sensitive to the fact that not everyone thinks like an engineer and that many people are afraid of change.

**What technical skills are important to being successful in your position?**

AutoCAD; SolidWorks; Word, Excel; PowerPoint; Labview and other National Instruments software; Visual Manufacturing; Adobe Acrobat; assembly code programming (also, I wish I knew Visual Basic, C++ or some variant); math (algebra, geometry, and basic calculus); physics; basic materials engineering; strength of materials; basic electrical circuits knowledge; vibrations; statics; dynamics; basic heat transfer; control systems; basic statistics

**What part of this position do you find most satisfying?**

Helping people and making their jobs easier and more efficient through automation.

**What part of this position do you find most challenging?**

Not becoming cynical towards people and their fickleness.

**What type of training was offered for your entry-level position?**

I worked as an intern for four summers before being hired full-time. I basically did a little of just about every job in the company over those four years.

**What advice would you give to students thinking about majoring in Mechanical Engineering?**

I’d recommend Mechanical Engineering if you enjoy creating just about anything mechanical. Internships are important because they help you to see what parts of engineering you like and dislike. Mechatronics was perfect for me because I really enjoy designing and implementing whole automated systems. I get to design and build the
mechanical parts and electrical parts, as well as create the software that controls it. It’s challenging and always interesting to be constantly stepping out of your comfort zone and learning new disciplines.

What are possible career paths/promotional opportunities from your current position?

Management (but I don’t think I want that for a long time)
Informational Interviews - Justin Carpenter

Justin Carpenter

Mechanical Engineering, Concentration Mechatronics, June 2007

Employer:

Aerojet

Title:

Design Engineer

Length of Employment:

6 months

Description of overall job duties and responsibilities:

Design of system and subcomponents of defense missiles.

What is a typical day like?

40% 3D CAD design, 40% engineering analysis, 20% meetings and communication.
What personal qualities or abilities are important to being successful in this position?

The two most important qualities to be successful are communication and work ethic. Being a good engineer helps too!

What technical skills are important to being successful in your position?

Drawing dimensioning and tolerancing, communicating/presenting data, and basis mechanical analysis.

What part of this position do you find most satisfying?

It’s all about the finished product - missiles that protect our country from enemies. Oh, and it’s cool to say you do rocket science for a living!

What part of this position do you find most challenging?

The part of my job that I find most challenging is also the part that I find most rewarding - constantly learning new things from some of the smartest people around.

What type of training was offered for your current position?

Aerojet graciously paid for a week long Pro/E training course (since I was schooled in Solidworks). We have various training courses here onsite on subjects like GD&T, drawing practices, etc.

What advice would you give to students thinking about working in your field?

You have to like what you are doing because, to be honest, it is a really hard major to undertake when you could probably make more money doing business.

What are possible career paths?

I’m still pretty new at my current position so there is no where to go but up.
May students contact you?

Yes: Justin Carpenter
Liz Tkacheff

Cal Poly - B.S. in Mechanical Engineering, March 2004
Concentration: Mechatronics

Employer:

Honda R&D Americas, Inc. - Raymond, OH

Job Title:

Engineer, Interior Design

How long in current position:

One year, two months as of May 2008

Description of overall job duties and responsibilities:

As an automotive seat designer, I focus on the interior of SUVs, vans, and trucks. I communicate and visit with suppliers at my workplace, in our plants, and at the supplier's manufacturing sites. I compile data on seat function, troubleshoot problems, and complete drawings for technical review and use within our plants. I am also involved in the final approval process of mass produced seats in vehicles.
What is a typical day like?

I spend a lot of my time examining the seat layout for my current projects, discussing it with my superiors, other interior design groups and suppliers, and producing drawings for my current projects. A typical day may also include a visit to a supplier or from a supplier.

What personal qualities or abilities are important to being successful in this position?

Being able to juggle multiple tasks, communicate diplomatically, handle criticism, and think quickly are important. It is also important to try to come up with new ways to solve current problems. Being flexible is important since you often have to adapt designs for new safety guidelines and consumer needs.

What technical skills are important to being successful in your job?

The programs I use most frequently are CATIA, Excel, PowerPoint, and Word. The knowledge I draw on most often came from physics, electronics, math, and materials, and all my manufacturing classes (welding, cast metals, machining, electronics manufacturing).

What part of this job do you find most satisfying?

Going to the plant and watching my parts assembled into the car is very rewarding. I also enjoy getting to discuss my designs with consumers that use them all the time.

What part of this job do you find most challenging?

Taking criticism into account, and coming up with new solutions that everyone agrees on can be hard. I also find it challenging to get suppliers to adapt to new design needs.

What type of training was offered for your position?

Multiple classes (I've taken 15 on-site classes so far that are related to CATIA) are offered on the different functions of CATIA, classes on multiculturalism, communication, diversity, cost calculation, driving classes, safety classes, and language classes. All these classes were available to me at work, during work hours.
What advice would you give to students thinking about majoring in Mechanical Engineering?

While it may be hard, it is a very rewarding field of study. Because Mechanical Engineering is such a broad field, you are going to take classes in subjects you won’t like. Just remember that YOU get to choose what career path you take after college. The classes I didn’t like made me gravitate towards a career that didn’t focus on those areas. So, keep your eye on the ball and don’t lose sight of the things you love about your major.

What are possible career paths/promotional opportunities from your current position?

There are a few different paths available to me at my level. I can move laterally to a completely different department (I could go and test components instead of designing them, or design different components), I can manage projects, or I can manage people. Managing projects means you become a technical expert in your group and direct the flow of a project towards completion. Managing people means you make sure your employees are being as efficient and satisfied in their jobs as possible. Note that this is a company where people managers and project managers are two separate roles--this is very unique.

Is there any other advice you would like to share?

I know a lot of people that dropped out of Mechanical Engineering to become other engineering majors, and after college ended up performing the same job duties they would have as a Mechanical Engineer. This is the broadest field with the most opportunities. If you can stick with it you will most likely have a larger variety of jobs open to you.

Liz Tkacheff - Informational Interview completed May 9, 2008
Informational Interviews - Manda Sio

Manda Sio
Cal Poly - B.S. in Mechanical Engineering, August 2003

Employer:
BAE Systems (formerly United Defense) - Santa Clara, CA

Title:
Analysis Engineer

How long in current position:
Almost two years as of July 2006

Description of overall job duties and responsibilities:
Conduct structural analysis using I-DEAS and LS-DYNA; create Finite Element Model and perform analysis for ongoing projects, support structural designs with FEA analysis results.

What is a typical day like?
I’m usually at work between 9am and 6pm including my lunch time. The schedule is very flexible. The only requirement is 80 hours per two weeks. For my day, 80% of my time is spent on the computer; 10% in meetings; and 10% of my time is break time.
What personal qualities or abilities are important to being successful in this position?

- Communication and translation skills. For example, design and analysis engineers both use different “languages.” In order to communicate with each other, you have to learn other languages too.
- Learning mode--don’t think you are done with school after you graduated. When you start to work, you will realize you know nothing.

What technical skills are important to being successful in your job?

Physics, strength of materials, all the mechanical engineering related class, I-DEAS, MATLAB, LS-DYNA, DADS, FLUENT (CFD code), report writing skills, and AutoDyn.

What part of this job do you find most satisfying?

- Using new software to complete a project for the first time
- When managers/customers appreciate my work

What part of this job do you find most challenging?

Working is totally different than studying. There is no solution. Therefore, all the projects are challenging.

What type of training was offered for your position?

Matlab/Simulink, Ls-Dyna, Autody, and graduate school.

What advice would you give to students thinking about majoring in Mechanical Engineering?

Mechanical engineering is the best choice because it gives you a basic concept for everything. Everything is related to it. Therefore, the market is wide and big. You can do whatever you want with a Mechanical Engineering degree.

What are possible career paths/promotional opportunities from your current position?

I really don’t know about it because I haven’t been here for two years yet. The company usually gives you a raise every year for sure. I’d expect a promotion next year after I
finish my graduate school.
Manda Sio - Informational Interview completed July 20, 2006
Marina Josephs

Cal Poly - B.S. in Mechanical Engineering, December 2004

Employer:

Northrop Grumman Space Technology - Redondo Beach, CA
(www.st.northropgrumman.com)

Title:

Dynamics Test Engineer

How long in current position?

Five months as of July 2005

What is a typical day like?

My boss assigns me to be the responsible engineer on specific jobs. The first step to this process is to write the test procedure. This involves working with the customer and our technicians to make sure all the needs of the program are met while taking into account the capabilities of our equipment. Often the unit is one we have not tested before and a fixture needs to be designed in order to secure the unit to be tested to the vibration shaker table. If this is the case, I design the fixture, order the materials, and take the package to manufacturing to be built. Once the procedure is completed and all the necessary people sign off on it, and the fixture has been finished and delivered to our
department, I take the job to my boss and let him know that the job needs to be added to the schedule and who needs to be available to work on that particular job. When it is time for the test to take place, I go into the lab and oversee the mounting of the unit onto the vibration shaker table. From there, I go into the control room where the technician inputs the test conditions into the computer controller software. I check the inputs against those called out in the procedure to make sure everything is accurate. As the test continues, I take notes of all the events that take place and keep track of the data that is produced from the vibration test runs. Once the test is finished, I gather the data and all the notes and create a test report. I then send out the report to the necessary people and file a copy in our department’s records. About half of my time is spent in front of the computer and the other half in the lab.

What personal qualities or abilities are important to being successful in this position?

In order to be successful in this position, one must have good oral and written communication skills. Having a technical background is important, but knowing how to get the concept across to someone else makes a difference in how well you can do your job.

What technical skills are important to being successful in your position?

The only programs we use here are Microsoft Word, Microsoft Excel, and AutoCAD. Everything else I was taught in school provided an excellent knowledge base to be able to understand what we do, but are not used on a regular basis. Some math skills are needed to be able to read and interpret log-log scale plots.

What part of this position do you find most satisfying?

I find the diversity of what we do most satisfying. Every unit we test is different and might even be tested in multiple ways. We do four different types of testing in this department, so you are always learning something new.

What part of this position do you find most challenging?

Most people who hold the same position as me have been here for a long time (10 years or more). Therefore, it was difficult to be trained because they are not used to having new hires. There is so much to learn and people to become familiar with that the job can be very overwhelming at times. Also, the responsibility that was placed on me from day one. Being responsible for a piece of flight hardware that will be going on a space satellite when it launches can be intimidating when you have no experience.
What type of training was offered for your entry-level position?

There really was no training of any kind. I learned, and am still learning, by watching other people and figuring it out as I go along!

What advice would you give to students thinking about majoring in Mechanical Engineering?

Make sure you enjoy taking the classes because what you do in your curriculum at Cal Poly is very similar to what you will be doing in the real world, although your workload will be a little lighter once you graduate! Also, get involved in as many extracurricular activities as possible because experience is the best way to find out what you enjoy doing. Summer internships or co-ops will also help you figure this out.

What are possible career paths/promotional opportunities from your current position?

From my position, the chain of command above me is the functional manager, the department manager, and the center manager. Moving up that ladder would be a possibility, although it is a long term one as most of those people have been here for 20+ years. Another direction might be into projects to work specifically on one program. A lot of people move from department to department within the company, but from what I have seen, most people work up the pay scale rather than work up the corporate ladder. I am sure getting further education would open up other opportunities, but I have not investigated that option; I am not yet ready to go back to school!
Max Fabbri
Cal Poly - B.S. in Mechanical Engineering, March 2003

Employer:
Dassault Systemes of America Corp., - Woodland Hills, CA

Title:
Mechanical Design Engineer

How long in current position?
19 months as of July 2005

What is a typical day like?
I help design, support, and test the #1 Project Lifecycle Management (PLM) system in the world while working with customers to implement the solution. Sometimes I start very early. At times, I might have a teleconference or phone meeting with the East Coast, or even with Paris (headquarters), so you have to accommodate their time zones, especially throughout Europe. I communicate freely with team members throughout the day regarding issues with the products throughout the lifecycle of different projects. At times, 30 to 50% travel is involved. For example, next week I travel to Portland, Oregon
in support of a big customer who needs help. Sometimes training is involved, where I have to pass on knowledge attained from the field to others so the team/customers/business partners are kept in the loop of things, and vice versa.

**What personal qualities or abilities are important to being successful in this position?**

Be very flexible and willing to stop what you're doing to help someone else out to solve their issue in a time crisis. Be motivated to experience different engineering industries and how other companies do their work, and how you can morph yourself to be like them and solve their problems. Be multicultural, have the ability to mold yourself to people of different ethnic and cultural backgrounds, be able to work in a team environment in these situations.

**What technical skills are important to being successful in your position?**

A variety of different CAD tools, but mainly Catia V5 and SolidWorks since we own these two products; knowledge of ProEngineer, UGS (UniGraphics Corp) is a plus since they are competitors of ours. Be familiar with analysis tools for Finite Element Analysis such as NASTRAN and ABAQUS to work on the analysis side. AutoCAD to work with Mechanical, Electrical & Plumbing (MEP) and Equipment & Systems customers. Computational Fluid Dynamics (CFD) knowledge in software such as FloWizard. Basic overall knowledge of Project Lifecycle Management platform in the business context.

**What part of this position do you find most satisfying?**

Traveling all over the world to support customers in all industries. Don't get stuck in one field, but can move from aero to auto to consumer goods to electrical industry, and so on, etc. The ability to work with young enthusiastic people my age, interested in the same career path as me. No “old guy” telling me what to do since that's the way it's been done for 50 years, so just do it!

**What part of this position do you find most challenging?**

Travel can also be very cumbersome, with high security at airports and stupid people that always have $4.72 in nickels, dimes and pennies stowed deep in their pockets just before they get to the x-ray machines. Having to constantly morph yourself to new projects in different industries. Dealing with some cultures and customers that are not too friendly since they are strapped for time and are impatient due to their ignorance and lack of knowledge with our product.
What type of training was offered for your entry-level position?

Here’s a book, go read it; ready to go on assignment to New York? There’s the customer, go see what the problem is; ready to fully support him? There’s your team, what are your skills; go make a valuable contribution. Really, that’s what it was like, and that’s the only way you learn in this type of working environment. It’s fast, a little stressed and it takes lots of self-motivation.

What advice would you give to students thinking about majoring in Mechanical Engineering?

Learn your basics very well, because everything just builds on top of it. Take advantage of office hours and ask questions of your professors regarding their previous experiences in the field. Learn from them and gain insight on what you think you might want to do. Once you’re out in the real world, the choices you make will quickly affect your engineering future, so be wise and get the most information possible before you take the next step.

What are possible career paths/promotional opportunities from your current position?

These are some feasible options I currently have with my employer:

• Stay and grow with the company, become team leader/project manager in multi-domain environment, travel more, have the ability to experience how more customers perform their business, how they work, and offer your advice to help them better their product lifecycle, as a real life business consultant. Decide whether or not you want to remain technical, want to focus more on business/sales/marketing, or want to manage the project itself.

• Go to a business partner, focus more heavily onto that specific product, focus more on specific industries, be more tuned into your selected environment, be more on the pre-sales side with customers, but still have the ability to “navigate” around the customer as a consultant.

Go to the customer; make a higher salary as an actual specific product guru, more demand and pressure being put onto you for the development of the product. You are now working in one industry in one domain for the creation of one product. You see the actual completion of the project, from design, build, and test throughout the entire lifecycle of the product. Each scenario is a little different, it depends what your career paths are and where you want to find yourself in the next 5 to 10 years.
Informational Interviews - Mauricio Garcia

Mauricio Garcia
Cal Poly - B.S. in Mechanical Engineering, August 2003

Employer:
Northrop Grumman Corporation - El Segundo, CA

Title:
Design Engineer

How long in current position?
One year as of July 2005

What is a typical day like?
Workdays vary depending on workload; my typical day consists of 8 to 10 hours of work. I spend about five hours or so designing airplane components using my computer. At least one hour or so on meetings and two hours interacting and interfacing with other engineering disciplines and the customer.

What personal qualities or abilities are important to being successful in this position?
There are many important qualities and abilities that one needs in order to be successful in this position. This position requires multi-tasking which is a key in designing. Personally the most important thing is communication; this job requires a high level of communication with other engineers. It is also important to be open minded and be willing to be a team player. Also be professional and respect others.

What technical skills are important to being successful in your position?
In engineering everything you learned in school is very important because you use it sooner or later. The more subjects you dominate the easier your job will be. It is a must
to be computer literate. CATIA is the program that we use every day and knowing other design programs is very helpful.

What part of this position do you find most satisfying?

I like airplanes, and designing parts for these amazing machines is a great and exciting feeling. Everything in this job is satisfying, from the people you work with to the things that we do on a daily basis.

What part of this position do you find most challenging?

The challenge is that there is always something new and exciting. I feel that the most challenging thing for me is communicating and knowing a little bit about all the disciplines involved with this job. You just never stop learning.

What type of training was offered for your entry-level position?

The company will train you in the basic things that you need to know to get started. There are many training sessions that you go through at the beginning to bring you up to speed. You will be assigned a mentor to help you in whatever you need. Everyone helps you— all you have to do is ask.

What advice would you give to students thinking about majoring in Mechanical Engineering?

Mechanical engineering is the greatest engineering discipline; there are a lot of opportunities out there waiting for you. My advice to you is to learn as much as you can at Cal Poly, take advantage of all the great help and programs that this great school has to offer. Get involved in as many learning activities as you can. It is very important that you work in groups and learn how to communicate with others. In the real world you will not succeed if you try to do things on your own. Take advice from other people and help others in what you can.

What are possible career paths/promotional opportunities from your current position?

Just like any other job, there are a large number of opportunities and promotions waiting for you to take advantage of. You could be the next president of the company or the best designer— it is up to you. This company takes care of its people and you can reach any goal if you give it your best.
**Mike Williams**

Cal Poly - B.S. in Mechanical Engineering, June 2003

**Current Employer:**

Schwartz Design Associates, Inc. - Brentwood, CA

**Current Title:**

Project Engineer

**How long in current position:**

1 year, 4 months as of September 2005

**What are your overall job responsibilities /job duties?**

Residential structural design (wood frames). I work with the owners of the new home, architects, and the contractors who are building the home.

**What is a typical day like?**

Sixty percent of my time is spent designing with hand-drafting or AutoCAD; 20% of my time is spent doing inspections in the field; and 20% is spent coordinating with contractors for building design. Occasionally, I’ll meet with the owners and contractors to discuss design issues.
What personal qualities or abilities are important to being successful in this position?

For success in this position a basic level of intelligence, being flexible, creativity, and consistency is required.

What technical skills are important to being successful in your job?

To be successful in this position, use of AutoCAD is plus. Also, knowledge in the areas of strength of materials, timber design (CE 455), concrete design, and statics are required.

What part of this job do you find most satisfying?

I find problem solving and the construction aspect of this job (going out in the field) to be the most satisfying. I enjoy being educated regarding knowledge of common building practices. It’s also very satisfying to be the “go-to person” for solutions regarding building on the job site.

What part of this job do you find most challenging?

One of the more difficult parts of the job can be walking a job that is not being built per design. Avoiding this requires good communication with contractors and clean plans.

What type of training was offered for your position?

Continual on-the-job training as well as training through the Structural Engineering Association of California (SEAOC) and Simpson.

What advice would you give to students thinking about majoring in Mechanical Engineering?

Do lots of internships. I did five and it gave me good contacts and insights to industries. Hopefully trying different things you’ll find something you really like to do. If you study Mechanical Engineering it will give you many options for employment right out of college. It’s up to you where you go from there. Mechanical Engineering is a really broad major. My best advice is to go study abroad for a year. This was probably the best decision I made in all my years of college.
What are possible career paths/promotional opportunities from your current position?

My current path is to get my California Professional Engineering license. With that, there are many structural opportunities. You can be a senior engineer, open your own practice, or branch off into sales-related jobs or owner representation jobs.
Nic Johnson

Cal Poly - B.S. in Mechanical Engineering, June 2003
University of Chicago - M.S. in Financial Mathematics, June 2004

Employer:

Pacific Investment Management Company - Newport Beach, CA

Job Title:

Commodity Analyst

How long in current position:

3 years as of July 2007

Description of overall job duties and responsibilities:

I work on the trade floor at PIMCO, which is a big money management company for corporate pensions and other large investors. My basic job is commodity trading and also coming up with trade ideas in commodities. To do this, I do a lot of number crunching and analysis on a variety of commodities like oil, gasoline, wheat, corn, nickel, copper, sugar,
etc. I also learn about the various commodity markets and try to understand what impacts them. I use a lot of math, such as principal component analysis, stochastic calculus, and partial differential equations, and I also do lots of time series analysis.

**What is a typical day like?**

I get to work at about 5:00 AM (we start trading during London hours), and I refresh reports showing our current exposures to various commodities. Then, I outline the projects that I need to complete for the day or the things I would like to look into. After that, I get started researching and analyzing various commodities. It is a fast-paced environment and I sit in the middle of a big open room about the size of a football field. I generally eat lunch at my desk and work until about 4:00 PM. Then I head home.

**What personal qualities or abilities are important to being successful in this position?**

It is important to have good math and communication skills. You have to share your ideas with people, and if you can't communicate them, they won't be appreciated. You also need a solid math background because that can give you an edge over the more senior people who often have more experience but less technical knowledge. Also, like anything else, you need to be motivated and a hard worker.

**What technical skills are important to being successful in your job?**

I have learned more about Excel than I ever thought possible. Matlab is also helpful for the more heavy duty number crunching, but most of the day-to-day stuff is done in Excel.

**What part of this job do you find most satisfying?**

I enjoy the fast-paced environment and the competitive nature of my job. Every day goes by so quickly. You sit down in the morning, work hard all day long, and then before you know it, it is 3:30 or 4:00. I also enjoy learning about the commodity markets; they are all different and have unique characteristics.

**What part of this job do you find most challenging?**

There is no final goal, it is a constant search for better ideas, so the most challenging part is the need for constant improvement.
What type of training was offered for your position?

I learned everything as I went, day by day on the job, and a little bit at the University of Chicago in my master’s program.

What advice would you give to students thinking about majoring in Mechanical Engineering?

Mechanical engineering is a great major because it sets you up to do so many things. For example, I ended up going into a financial type field, yet my mechanical engineering degree is probably the most helpful piece of education I have. It really taught me how to think about problems in a sensible way.

What are possible career paths/promotional opportunities from your current position?

The next step at a place like PIMCO would be to become a portfolio manager--someone who is directly responsible for managing a client’s money.

Nic Johnson - Informational Interview completed February 5, 2008
Informational Interviews - Paulo Younse

Paulo Younse
Cal Poly - B.S. in Mechanical Engineering, June 2002
Florida State University - M.S. in Mechanical Engineering, June 2005

Employer:
NASA Jet Propulsion Lab, Pasadena, CA

Title:
Associate Engineer, Mechanical

How long in current position:
One year as of July 2006

Description of overall job duties and responsibilities:
In my job as a robotics engineer, I get to design, build, and test prototypes of new robots for future planetary and space exploration missions. Some robots I have worked on since being at JPL are:

- Lemur, a six-legged robot designed for future in-space assembly, maintenance, and inspection
- Subsurface Ice Probe, a prototype for a probe built to melt tunnels thousands of meters
down through ice, which is being proposed for future missions to explore the polar ice caps of Mars

• Cliffbot, a small rover designed to repel down steep cliff faces also for future Mars missions Another task I am involved in is “rover maintenance,” where I get to fix and repair the test rovers we work on when they break down, as well as design and assemble new upgrades for them.

What is a typical day like?

• A typical day at work for me: 8:00am- I show up in my office, check my voice-mail and e-mail, and make a list of things I need to do for the day.
• I spend a few hours designing new parts for a robot on the computer using my college books, performing calculations in my notebook, and meeting with other members of my team to get their opinions and feedback
• I make drawings of these parts either on the computer or by hand and take them down to the machine shop to be built
• I attend a meeting or two for the different projects I am on, where everyone gives a description of what they accomplished over the last week, what they plan on working on the next week, and we come up with solutions and new ideas for the project together
• 11:30am-12:30pm• I go to lunch at the cafeteria with 7-8 of my co-workers. Some of them bring sandwiches they made at home, while others buy food from the cafeteria (I love JPL’s sushi bar and brick-oven BBQ chicken pizza!).
• We eat, share jokes, tell stories about what we did over the weekend, and some people talk about the funny things their kids did at home. Afternoon:
• I go into our lab to test drive some of our robot
• If a robot or a robotic arm breaks, I get to disassemble it and take it to our mechanical room. Then I get to use a bunch of screwdrivers and wrenches to take it about, figure out what’s wrong, and fix it (like replacing gears and motors, re-gluing parts, and soldering wires back together)
• I get phone calls from the machine shop, letting me know the parts I ordered had arrived or had been made, I pick them up, and then I assemble them onto our robot and test them out to make sure they work
• Sometimes I’ll have visitors at work and get to take them on tours of JPL and our lab and teach people how robot works, how robots help us explore the solar system and learn about where we came from, and how you can get to be an engineer like myself
• 5:00pm- I put away all my papers, tools, shut down my computer, say goodbye to my co-workers, and go home. (Though sometimes, if we really need to finish something at work or if one of my co-workers needs help on a project they’re working on, I’ll stay a little longer at work to help.)

What personal qualities or abilities are important to being successful in this position?

To become successful in my type of position, you need to have strong leadership,
management, and organizational skills. Typically, we have to balance several projects at one time, and manage many individuals like machinists, technicians, and contractors who may help you build, assemble, and test parts. People skills and teamwork are also important because we often work in teams with folks of all different backgrounds, technical abilities, and personalities. Speaking and writing skills are necessary for writing reports and making presentations.

What technical skills are important to being successful in your job?

Being involved in robotics requires me to be good in many fields of engineering such as mechanical and electrical engineering, artificial intelligence, computer vision, and computer programming, because it takes all of these working together to build a robot. We also use a lot of programs like SolidWorks, MatLab, Simulink, Labview, C, and C++.

What part of this job do you find most satisfying?

I love it when I get to come up with a design in my head, turn it into a drawing on the computer, and finally get to build it and see it work! Testing is also exciting. This summer, a team of us are heading to the island of Svalbard up in the Arctic Circle to test our Cliffbot Robot for several weeks.

What part of this job do you find most challenging?

Our job is very challenging in that we have to engineer new ideas for robots that have never been done before. Of course, this is what makes the job so exciting!

What type of training was offered for your position?

Much of the training for my position was done on the job through getting help and guidance from other, more experienced engineers. Also, I spent a lot of time the first few months reading up on and learning the skills I needed on my own as the need arose.

What advice would you give to students thinking about majoring in Mechanical Engineering?

My advice to everyone is to do well in school—not just in science, math, and engineering, but in all subjects. To be an engineer (as well as many other jobs), it’s important to be well balanced and have a good base in all types of engineering. Mechanical engineering is a great way to get involved in robotics. For robotics, also make sure you get experience with electrical engineering, computer science, and any robotics or mechatronics courses offered. Joining clubs and activities that help you work in the community, practice leadership skills, organize events, and do public speaking are very important. The leadership skills and people skills I learned through these helped me get a job at JPL, and
definitely help me on the job where I constantly have to deal with all types or people and lead teams in projects. You should also keep up with your regular activities like sports, music, arts, and hanging out with friends, because they help clear your head, practice creativity, stay physically healthy, and relax. Being well rounded will help you enjoy work and life to the fullest. When not working on robots, I love to draw portraits, train for marathons and triathlons, teach classes at local elementary schools, watch movies with my friends, play the harmonica, swing and salsa dance, read novels, and travel. Also, if you find yourself having a difficult time in your classes in college, don’t be afraid because you aren’t alone (I did very well in my math and science classes in high school and also had some very tough classes in college). What helped me get through my tough courses was to spend some more time reading my textbooks and doing extra homework problems, working in study groups with my classmates, and visiting my professors to get help and advice—they are more than willing to help and want you to succeed.

What are possible career paths/promotional opportunities from your current position?

Some people at the lab choose to stay in the technical area and move from being an engineer to a task manager, and then a project manager. This includes doing more system engineering, managing engineers, writing proposals, and coming up with mission plans. Others choose to go more for a management role, becoming group supervisors, section managers, and so on.
Informational Interviews - Phil Calvin

Phil Calvin
Cal Poly - B.S. in Mechanical Engineering, June 2005

Employer:
Applied Aerospace Structures Corporation - Stockton, CA (www.aascworld.com)

Title:
Manufacturing Engineer/Estimator

How long in current position:
Three months as Manufacturing Engineer; one year as Estimator (as of July 2006)

Description of overall job duties and responsibilities:
Currently I write up manufacturing documentation for satellite components, make sure that the programs are on schedule, as well as prepare cost estimates for future programs.

What is a typical day like?
I have yet to see a typical day in the last year, but yesterday was 10% cost proposal estimates, 40% manufacturing instructions, 25% shop floor interaction, and 25% customer interaction.

What personal qualities or abilities are important to being successful in this position?
Love for spacecraft and aerospace in general. The ability to interact with people in a group. Being able to pick up new information quickly, and ask questions when it’s not coming so quickly.

What technical skills are important to being successful in your job?
Composites, MS Excel, thermo, math, and SolidWorks. AutoCAD might help, but I’ve been
able to get by thus far without that dinosaur.

What part of this job do you find most satisfying?

Watching the space shuttle go up with our parts on board was pretty neat. Just seeing the components that we build and might get a chance at building. Listening to the knowledge base here, their hands-on advice and stories are excellent teachers.

What part of this job do you find most challenging?

Supplier interaction, getting pricing, delivery dates, and quality products. Dealing with three different job titles at once (marketing, manufacturing engineering, design engineering).

What type of training was offered for your position?

On the job for the cost proposals, and ongoing apprenticeship under the current program managers and engineers. They do offer educational reimbursement, but there is only UOP up here and I’m not sure they would have the technical courses I would want to take.

What advice would you give to students thinking about majoring in Mechanical Engineering?

At the collegiate level: don’t sweat the introductory courses (thermo, dynamics, etc). They are tough, but they are invaluable and it is possible to get through them. To the high school students--get the basics of math and science down so you can concentrate on those introductory courses for your first couple of years.

What are possible career paths/promotional opportunities from your current position?

Any technical position within my company or any aerospace company (manufacturing, design, or program management). The skills here would apply well to any engineering position at most companies.

Phil Calvin - Informational Interview completed August 7, 2006 Interview completed July 25, 2006
Rachel Osofsky

Cal Poly - B.S. in Mechanical Engineering, March 2003

Employer:

Abbott Laboratories - Redwood City CA (or www.abbottvasculardevices.com)

Title:

Logistics Analyst in Sales Operations

How long in current position?

I just started this position in July 2005, but I have been working for Abbott for a little over two years. I came to the company through an internship that I obtained by personal reference from one of my professors at Cal Poly. During my internship, I worked in R&D and became very interested in the biomedical field. I also had an opportunity to interview for a new-grad program that Abbott has, called the Engineering Professional Development Program. After graduating from Cal Poly, I moved to Chicago to begin this program. I went on four six-month rotations where I got a taste of various engineering roles, including manufacturing, project engineering, quality assurance, and R&D. After my first year, I moved back to the Bay Area. Moving around and trying different positions in different businesses offered me the opportunity to explore my strengths and different directions my career path could take. After finishing the program, I decided to take a position in the commercial organization to learn more about sales and marketing. Never saw that coming! So far it has been very interesting, and I am very pleased with all of the opportunities this program and my company have given to me.
What is a typical day like?

I spend a lot of time analyzing our sales data in reporting systems to help the sales and marketing groups optimize our business. Currently, we do much of this in Excel, but we are building bigger systems and better processes as the business grows, and it is exciting to be part of the team that is developing the requirements and implementing these key systems. I’m also working with operations to help improve product availability. Marketing tells operations how much of each product to build, and we are working on improving the information that we have about the marketing forecast, the production plan, and back orders. I’m currently working with groups across the organization to gather information and build new systems to help with this. While currently our day-to-day is very task-focused, we are also working towards automating many of our processes and thinking about the requirements for this.

What personal qualities or abilities are important to being successful in this position?

Good project management and communication skills, systematic thinking, being able to relate to our internal customers, i.e. knowing what a typical day is like for a sales rep, knowing the challenges that production faces, etc.

What technical skills are important to being successful in your position?

Excel, programming for reporting, and knowing the business

What part of this position do you find most satisfying?

Knowing from an end customer standpoint (in our case physicians) how our products will improve the state of healthcare

What part of this position do you find most challenging?

Digging through the layers of the organization and history to get all the information to solve logistics problems.

What type of training was offered for your position?

We had core competency training to work well with others, mentoring training, and job specific training through my two-year development program.
What advice would you give to students thinking about majoring in Mechanical Engineering?

If there is a certain industry (automotive, biomedical, HVAC, robotics, etc.) that you think you are interested in, find a company near you and try to sit down and talk to an engineer. Get an idea of what your day-to-day activities will be. Not only will this help you decide if it's something you're interested in, but it will also help you start building your network to land intern, co-op, and post-graduation positions in industry. Also talk to some students who are in the major. It's not a cakewalk at Cal Poly, but definitely worth it on the back end.

What are possible career paths/promotional opportunities from your current position?

Because of my diverse training so far, there are a lot of directions I could go from here. I could go back to R&D, program management, possibly field sales, or become a marketing product manager. Moving forward, I will continue to seek out positions that are interesting to me, allow me to develop my strengths, allow me to make an impact on the organization, and position me for advancement in my career, whatever part of the organization that may be.
Sara Burke

Cal Poly - B.S. in Mechanical Engineering, August 2002

Employer:

Pacific Gas & Electric Company - Walnut Creek, CA

Title:

Supervising Engineer

How long in current position?

6 months as of September 1, 2006

Brief description of job duties and responsibilities:

My job duties include the supervision of four Field Engineers and some engineering responsibilities related to managing the integrity of our high pressure natural gas pipelines throughout the state.
What is a typical day like?

Most of my time is dedicated to learning how to be an effective Supervisor for my four Field Engineers (the position I formerly held). Since this is my first supervisory position there is much to learn about time management, creating unique developmental plans for my employees, driving schedules while managing costs, and learning about the union contract. A typical day involves tons of communication in the form of e-mails, conference calls, meetings, and face-to-face conversations. I do get to go out in the field in order to observe my Field Engineers, visit excavation sites, receive training, see new technology in action, etc... I also have engineering responsibilities in this role. I work with our high pressure natural gas pipelines throughout PG&E’s territory (lines operating at >60 psig). In accordance with the Pipeline Safety Act signed into law by President Bush in 2002, I’m part of a larger effort to proactively inspect the integrity of our aging pipeline infrastructure. I coordinate above the ground, non destructive, surveys of the pipeline in densely populated areas. Then, based on several sources of data, I have to decide the best place to excavate the pipeline in order to find the problem areas. Basically, I deal with all things corrosion.

What personal qualities or abilities are important to being successful in this position?

Communication, communication, communication. Being able to effectively communicate ideas and directions clearly through e-mail, phone conversations, or in a meeting environment is essential. Also, the ability to respectfully resolve conflict is important. The workplace is diverse and being able to work side-by-side with people coming from all different perspectives and walks of life in the effort to reach a common solution can be challenging. But, this is also the fun part and can be successfully achieved through good communication.

What technical skills are important to being successful in your position?

Computer skills in general are crucial. The different software programs will vary with each company, but computer proficiency in general is a must. I use Excel daily as a way to organize data and to do simple calculations. My job mainly involves the specific disciplines of fluid mechanics, materials (metallurgical) science, and electrochemical engineering. Problem solving on a variety of levels is an everyday occurrence.

What part of this position do you find most satisfying?

The constant technical challenge and the demanding schedule. Because the programs I’m working on are federally mandated programs, we have firm timelines to meet in order to comply with the law. Since these programs are relatively new to the gas industry, I’ve been able to get in on the ground floor of new technology and processes. There are constantly new developments in this area and I am always learning as the scope of our
work expands. Also, the trend in the industry is moving toward GPS, GIS, wireless technology, etc. which will introduce efficiencies, cost savings, safety, and increased customer service for our company. PG&E’s goal is to be the leading utility company in the United States and it’s very exciting to be part of such an ambitious goal.

What part of this position do you find most challenging?

The biggest challenge of this position is balancing it with my personal life. I love my job and there is always so much to be done. I just have to remember to give myself a break and make time for engagements outside of work. Additionally, the demanding schedule of the work is satisfying because it’s constantly driving me to be more efficient, but it is also a great challenge.

What type of training was offered for your entry-level position?

PG&E has a formal training program for all new hires. The current program is a year long, offering three-month rotations in various departments within the company. Fortunately, my current department is very committed to investing in training opportunities and I’m exposed to several training courses (formal and informal) throughout the calendar year.

What advice would you give to students thinking about majoring in Mechanical Engineering?

Students considering mechanical engineering just need to be committed to the program. It’s not terribly hard, just very time demanding compared to other majors. There will be stuff that is difficult and may not make a lot of sense. But, the truth of it is that very little of that information will ever be needed in the working world. Students just need to get through the program. The most valuable skill graduating mechanical engineers will come out with is the ability to solve problems. Like I said above, I use that skill every day - both personally and professionally.

What are possible career paths/promotional opportunities from your current position?

- Program Manager - This position is responsible for managing any of the various programs within the department. It involves engineering, strong business understanding, budget work and supervision.
- Corrosion Engineer - This position is similar to the position I hold, but is much more focused on the engineering aspect of the work. The corrosion engineer, through 2-3 years of experience and certifications, is qualified to train other employees on field testing, corrosion control design, and can DOT (Department of
Transportation) operator qualify our field personnel.

- Pipeline Engineer - This position blends engineering and business. This engineer is responsible for engineering large pipeline projects and managing the budget for each capital investment. This position may or may not involve supervision.
- Principal Engineer - This is a professional level engineer position who is basically a resident expert in a specific area of the gas business. These are typically called “Subject Matter Experts.” This position generally does not involve supervision.
- Manager/Director/VP - This would be managing large groups within PG&E including engineers. There are several other career paths too... PG&E employees have the advantage of many diverse job opportunities at hand without having to leave the company.

Sara Burke - Informational Interview completed September 5, 2006
Informational Interviews - Tiet Pham

Tiet Pham

Cal Poly - B.S. in Mechanical Engineering, December 2003

Employer:

Meggitt Defense Systems Inc. - Irvine, CA

Job Title:

Mechanical Engineer

How long in current position:

Three years as of September 2007

Description of overall job duties and responsibilities:

Develop and design environmental control systems for combat systems (both land vehicles and aircraft). Manage day-to-day engineering requirements of mature products. Interface with customers (engineers and end users).

What is a typical day like?

On a typical day, I will check email and check the day’s agenda. Usually there is a need to contact either the customer or vendors to answer questions or address concerns about parts, specifications, etc. I will assist Production by troubleshooting problems in the process or in the end product. I will spend approximately one quarter of my time emailing or on the phone. The rest of my day, I will perform analysis (structural, thermal, etc.) and design work. Most design is done in SolidWorks.

What personal qualities or abilities are important to being successful in this position?

Time management and interpersonal skills. Understanding a situation and being able to perform a quick diagnosis.
What technical skills are important to being successful in your job?

Excel, SolidWorks, ProEngineer, and technical communication. Having a solid math and fundamental engineering background.

What part of this job do you find most satisfying?

Completion of a project. A sense of accomplishment. The knowledge that the equipment you are working on makes a difference in a soldier's life.

What part of this job do you find most challenging?

Time management.

What type of training was offered for your position?

SolidWorks, Cosmos, ProEngineer, Program Management, and Earned Value Management training.

What advice would you give to students thinking about majoring in Mechanical Engineering?

Build a solid fundamental engineering background first. Technical communication skills second. Interpersonal communication skills third. These are your main tools.

What are possible career paths/promotional opportunities from your current position?

Project Engineer/Program Management. The opportunities to manage the development of new products or manage a development team.

Is there any other advice you would like to share?

The ability to work with other engineers and other disciplines is important, especially when branching into a Project Engineer/Management role.

Tiet Pham - Informational Interview completed May 14, 2008
Nathan E. Keeney

Cal Poly - B.S. in Software Engineering, June 2004

Employer:

Wicked Good Software - Manchester, NH

Title:

Software Developer

How long in current position?

One year as of July 2005

What is a typical day like?

I live in San Jose and telecommute via RDC (Remote Desktop Client). I communicate with my boss and coworkers via email, phone, and MSN Instant Messenger. I spend most of my
time implementing new features (in Java) in our School Management software suite, and about a quarter of my hours fixing bugs in older modules. I only test the features and fixes that I code.

**What personal qualities or abilities are important to being successful in this position?**

I am responsible for a large portion of the user interface for our software. I have to be willing to guarantee my boss that a new feature or bugfix is fully tested and ready to ship. Because I work on many different projects, sometimes four or five at once, I have to be able to manage my time effectively, switch projects without losing focus, and learn new technologies or codebases quickly.

**What technical skills are important to being successful in your position?**

Java, psychology of user interfaces, reporting tools (Crystal, Jasper), XML, SQL

**What part of this position do you find most satisfying?**

I have a large amount of responsibility and, because it is a small company, I spend a lot of my time actually designing and building new software. I do only my own testing.

**What part of this position do you find most challenging?**

The responsibility. If something doesn’t work on the client end, the customer service people come to me.

**What type of training was offered for your entry-level position?**

Only an introductory project which took most of my first summer. If I need an answer to something, I ask a co-worker.

**What advice would you give to students thinking about majoring in Software Engineering?**

People may tell you the major isn’t an advantage, and it isn’t. Yet. However, the standardization of the software industry is fast-approaching, and an engineering degree
will put you on the fast track to handle government-imposed regulations such as licensing and certification. The classes themselves are also more slightly oriented towards the construction of large-scale software projects, which is vastly more useful than theoretics and algorithms.

**What are possible career paths/promotional opportunities from your current position?**

Senior Software Developer; shares in the company.
MS Engineering

Informational Interviews - Will Conk

Will Conk

Cal Poly - M.S. in Engineering with a Specialization in Integrated Technology Management
B.S. in Industrial Engineering, December 2003

Employer:

Oakley Inc., Foothill Ranch, CA.

Title:

Demand Planner

How long in current position:

Since 2008

Description of overall job duties and responsibilities:

Forecasting and reporting for specific optical product categories under the Oakley umbrella.

What is a typical day like?

Building forecasts for new releases and continuously updating carryover forecasts. Checking in with buyers and build planners on daily weekly buy and build
schedules. Communicating with sales on projected availability. Helping key managers from several departments with ad hoc data analysis concerning supply and demand of current products.

What personal qualities or abilities are important to being successful in this position?

Good communication and presentation skills a must. Demand Planners work with almost every department in the company so being able to convey information and adapt to people's personalities is important.

What technical skills are important to being successful in your job?

Excel skills are key. Ability to pull data and use it to build decision making tools for you and management within the company. Understand the market your product sells in, and which products are popular in which regions. Knowledge of statistics and a deep understanding of supply chain are critical.

What part of this job do you find most satisfying?

Being able to work with so many departments within the organization along with having a large piece of ownership of our supply makes this job exciting. Also it gives you great exposure to executives.

What part of this job do you find most challenging?

Taking the blame when your forecast was way off or you missed something all together. Long lead times equals a lagging effect for product availability. Having excess inventory is a killer...

What type of training was offered for your position?

Here is your computer. Ready, set, go

What advice would you give to students thinking about majoring in Industrial Engineering?

Industrial Engineering without question is the most flexible degree of all engineering disciplines. You can get into manufacturing, sales, product development, distribution, supply chain... Or you can even get into an economically based business role like demand planning. If you are unsure what you want to do with your life but you are pretty good at
math and science, majoring in IE is an excellent decision. You will receive a very well balanced education in several engineering and business related fields and you will actually use what you learned in your career.

What are possible career paths/promotional opportunities from your current position?

Management positions in several different departments within the organization, from Product Development, Sales Analytics, Supply Chain, Operations, or Manufacturing. Our Senior VP of Operations is an IE grad from Cal Poly SLO.

Submitted August, 2011