Antoinette Kretsch  
Mechanical Engineering  
8/14/08  
Summer '08 Work Term  

The second part of my co-op work term was again spent in the Transmissions Group at Sikorsky Aircraft. I continued working for the same two programs- the H-60 Blackhawk helicopter and the H-92 helicopter. I worked with the same people and my responsibilities changed very little, apart from the fact that I was able to work more quickly and independently.  

On the Blackhawk side, I again helped with many tasks to support production. I wrote Developmental Engineering Orders and Engineering Work Reports to qualify part suppliers. I supported the Dynamics System ACE (Achieving Competitive Excellence) efforts by writing work instructions for designing and analyzing the transmission. I edited part of a helicopter design course by analyzing what information was proprietary to Sikorsky, to competitors in the industry, and what parts of the course are acceptable to use in foreign countries. I was fortunate enough to be paired with a recognized expert who literally wrote the Transmissions Design Manual, and I helped him do some conceptual design development. I accomplished many small tasks such as production design changes, evaluation of requests from manufacturing regarding drawings, and aircraft specification review.  

For the H-92, I was given a summer-long task of writing the Failure Modes and Effects Analysis for the helicopter. I was basing my work off of an 80 page table with 13 columns in size 4 font for the S-92 helicopter. The table included over 200 transmissions parts that would put the helicopter in danger if they were to fail in any way. The table listed the parts based only on a vague description so I spent a month combing through every part and assembly drawing that existed for the helicopter, cross referencing numbers on figures with the assembly drawings. Team members stopped printing out drawings and would search through the piles of papers on my desk when they needed to look at something! Once the list was finished, I determined what part numbers were changed from the S-92 to the H-92, and then I had to judge which components unique to the H-92 would cause failure. I edited the rest of the document to reflect the distinctness of the new aircraft and edited a new, more accurate set of figures.  

The fact that I have spent so much time at this company meant that I have become a resource for other interns and new employees in the Transmissions Department, Dynamics Group, and other groups throughout Sikorsky to find information, complete various tasks, and answer questions about the drive system. I was able to do most of my work on my own, which
involved writing things out and consulting with people throughout my department and other departments at Sikorsky (Parts Qualification, Test Engineering, Program Support, etc), and I was able to serve as a resource for the full-time engineers on some of these assignments. I have memorized more acronyms than I thought possible, and my H-92 boss frequently jokes that my knowledge of the H-92 transmission systems component list and drawings is so comprehensive I could start my own helicopter company one day. I think I prefer just working at Sikorsky!

My time working has given me a lot to think about in terms of my educational goals. I now have a strong interest in pursuing a graduate degree in either Mechanical Engineering or Manufacturing Engineering. I tried to seek out assignments that would allow me to apply skills I've learned in class, and I have a better idea of which classes to take that will make me a stronger employee. My professional goals have only been strengthened by my immersion in the professional engineering culture. I've attended a number of "lunch and learns" sponsored by various organizations throughout Sikorsky about helicopters, professionalism, leadership programs, etc. Sikorsky also sponsors an intern design competition during the summer that unfortunately I did not have enough time to participate in.

During my Fall term I had befriended a number of local interns who returned to the company over winter break, and I ended up living with one girl in an apartment in the Black Rock area of Fairfield this term. I visited NYC on a regular basis with some of the interns and my friends from Cornell. My apartment was only a few blocks from Long Island Sound so there were boat rides available and plenty of beaches for the weekends. I was able to pick my start date and end date, which I selected so I could spend as much time as possible working because I enjoy it so much. My supervisors were very open to me needing to take a few days off to return home for my sister's graduation and other commitments. My hours were extremely flexible, enabling me to leave work and drive to New York City or New Jersey and avoid weekend traffic.

I have enjoyed my time working at Sikorsky immensely. I strongly recommend this company to anybody who is at all curious about the day-to-day activities as a design engineer. I am thankful I have had such a positive experience with a company that truly embraces the purpose of a co-op program.

Student Signature: _____________________________________________

Supervisor Signature: ___________________________________________
JOB SUMMARY

My Co-op job was with Sikorsky Aircraft, located in Stratford, Connecticut. Sikorsky is one of the world's leading Helicopter Manufacturers. Sikorsky makes the UH-60 Blackhawk, the US Army's main utility Helicopter, and the VH-3, better known as Marine One, the presidential Helicopter.

I worked in the Research and Engineering Department, with the Dynamics and Internal Acoustics group. Work in Dynamics and Internal Acoustics was comprised of checking if vibration levels in the helicopters were acceptable and finding ways to reduce or eliminate vibration in the helicopters. The group covered everything from checking vibration levels on the cabin smoke detectors to advanced control systems designed to reduce vibration levels throughout the helicopter to virtually zero.

Upon arriving at Sikorsky for my first day of work, I was sent to orientation with around 10 other new employees, three of which were also co-op students. The orientation only covered general aspects of the job, such as safety in the office. All of my training was provided on the job. My coworkers showed me how to perform various tasks around the office and always answered any questions I had.

In my time at Sikorsky, I was able to work on a wide range of projects. These projects included setting up and running a wide range of computer simulations, analyzing flight test data, and creating computer programs to analyze the way various components, such as a helicopter's pilot's seat, vibrate. While working on these projects, I also attended meetings and made presentations. Finally, I had the job of overseeing the scanning of the group's library, to create a virtual library.

The office I worked in was at the Sikorsky main plant in Stratford, Connecticut. Stratford is about two hours outside New York City, on the Long Island Sound. Housing is not provided by Sikorsky, and I had to go about finding housing on my own. Craigslist proved to be a valuable resource in doing this. I ended up finding an apartment in Milford, a town right next to Stratford, but there are more options for housing further inland, in towns such as Hamden and Derby. Although there are bus lines running past the plant, I would highly recommend getting a car to get to and from the plant.

If you plan to work at Sikorsky, make sure you start filling out the paper work for Human Resources as soon as possible. When you do fax the paperwork to their office, make sure to send an email to Human Resources confirming you have done so, otherwise, they might lose your papers, as they did with mine.

Overall, having to deal with the Human Resources Department's shortcomings has been the only negative experience I had in my time at Sikorsky. I have been able to
work on a number of interesting projects and have gotten a good feel for life in the engineering workplace. I highly recommend this job to students who are considering taking part in the Co-op program.
Co-op Job Summary

Co-op Work Assignment:

For the first term of my Co-op I worked at Sikorsky Aircraft Corporation, a business unit of United Technologies Corporation located in Stratford, CT. Sikorsky manufactures commercial and military helicopters, maintains the fleet of presidential helicopters, and tests future aircraft designs. As an Engineering Co-op, I worked for the NVH Group (Noise, Vibration, & Harshness) run by Steve Lozano. The group, comprised of acoustic and vibration engineers, works in both an office environment near the flight field and a lab run by Stu Drost (my boss). Within the plant, the NVH group helps certify that each helicopter meets required acoustic and vibration levels through several stages of its development. Around the world, the NVH group helps troubleshoot acoustic and vibration fleet issues including customer complaints.

My first day mainly consisted of a thorough orientation involving a security briefing, EH&S information, an introduction to ACE (Achieving Competitive Excellence), and more paperwork/identification checks. When I finally met my supervisor, I got a full tour of the impressive plant – Engineering labs, transmission build-up centers, blade fabrication, hub assemblies, and huge bays with assembly lines building a bare airframe into a complete aircraft, all surrounded by precision machining tools for component fabrication. Outside the facility are a flight field, main rotor and tail rotor whirl stands, more transmission test facilities, and multiple hangers. Fortunately my work experience exposed me to many locations at the plant.

As a member of the NVH Lab, most of my responsibilities involved acquiring data and analyzing it. Below I will detail several tasks I continuously performed and some brief projects in which I actively participated.

- Acoustics Flight Analysis: Every aircraft, including bare and final assemblies, must go through an acoustic analysis to ensure that it meets FAA regulations for exposure to specific dB levels. Internally, different aircraft have different acoustic requirements depending on the customer (VIP or Utility). Given specific flight conditions, acoustic data is recorded at defined locations around the aircraft with calibrated microphones. Although I wasn’t allowed to fly in the production aircraft, I
performed octave band and FFT (Fast Fourier Transform) analyses on all the data using an HP 35670A. The data was then added to several databases where we could identify loud aircraft and even loud components.

- **Transmission Testing:** Every main transmission is run through specific in-flight loading conditions in a test stand before being installed on a helicopter. Our group acquires vibration data with accelerometers to ensure each transmission is aircraft-worthy. The 12 to 14 channels of data are then analyzed on the HP 35670A using an FFT analysis to identify problematic gearbox components within specific frequency bands. After reducing, all data was added to several databases for future accessibility.

- **Whirl Stand Testing:** Photodetectors placed on the ground track each blade as the stand hub rotates at a specific RPM and applies varying pitches. Lead and lag characteristics of each blade are measured. When I helped out at the whirl stand, we were testing new composite blades that were thought to have adverse lead/lag characteristics.

- **Chamber Panel Testing:** The NVH lab has reverberant and anechoic chambers for testing different acoustic materials to experimentally determine transmission characteristics. During my term, we tested many composite panels for the upcoming CH-53K Heavy Lift helicopter. Several testing procedures, such as ASTM 2249 or ASTM E90, have thorough requirements to ensure testing practices are consistent in every lab. I gradually learned the B&K Pulse software we used for data acquisition and analysis, including its powerful frontend setup, convenient TEDS support (Transducer Electronic Datasheet), and very customizable tools and displays.

- **Engine Shaft Balance:** The high speed engine shafts are prone to unsatisfactory vibrations and can be balanced using different set screws. I could not work on the production aircraft, but I helped update the databases with shaft balance results, including the set screw type (steel, aluminum, etc.), location, amplitude reduction, etc. Using such data helped the crew chiefs determine where to put the weights.
- **AAG Flight Test**: AAG (Associated Aircraft Group) is a subsidiary of Sikorsky in New York that provides maintenance, charter services, and management for its fleet of S-76 helicopters. My boss and I traveled to their facility to perform an in-flight rotor vibration test in a specific seat location where the customer complained about "too much vibration." Using two accelerometers mounted to the seat frame and two on the seat cushions, transmissibility measurements were recorded onto a CADU for later processing.

- **Seat Cushion Testing**: As a follow-up to the AAG Flight Test, my boss decided to test the effectiveness of visco-elastic polyurethane foams (memory foams) for seat padding compared to the standard, hybrid-durometer stack-ups. By mounting an S-76 VIP seat to our lab shaker, we were able to excite vibrations in all three axes (individually) as I sat in the seat with different foam configurations. By recording all 12 channels with the Pulse software, we were able to identify damping effects for specific configurations in comparison to the standard foam cushion.

**Assessment of Learning and Development:**

As a member of the acoustic and vibration group, I learned many practical engineering skills and a genuine respect for laboratory work. Dynamics courses were particularly helpful in understanding vibration characteristics of the aircraft and its components. In particular, frequency response, transmissibility, rap testing, shaker tests, and others were all covered in MAE 3260, but beyond those simple lab experiments at school I didn’t see the real application of my knowledge. At Sikorsky I actually used accelerometers, a high capacity shaker, and an HP analyzer almost every day and now fully understand how they work and why they are important to the industry.

The acoustic concepts of sound pressure and waves were relatively new to me in terms of an educational background, but I quickly grew a sustained interest. The acoustic engineers taught me about everything – speakers, crossover, amps, graphic equalizers, microphones, sound meters, dB vs. dBA, transmission loss, acoustic materials, and chamber tests. I have a personal interest in music so it was great to learn about the engineering side of acoustics – I almost consider myself an audiophile now.
I learned a lot about vibrations and acoustics, but my plunge into the real world of engineering taught me more important lessons about the professional atmosphere – respect, punctuality, do your best at everything, take notes, follow up, listen, don’t rush, and try to have fun. Everything above is obvious and you should know before starting work anywhere, but actually practicing it can sometimes be difficult.

**Life Outside of Co-op:**

Fortunately my house is close to the Stratford plant, so I lived at home during my first term. Although I don’t have firsthand knowledge to help with housing in the area, I’ve heard that the HR department has helped many Co-op students if interested. I decided to drive to work which took about 40 minutes in the morning (I typically got in at 7 AM) and about an hour in the afternoon due to traffic on I-95. Apparently the Metro-North train system goes through Stratford and provides another possibility if you’d rather take mass transit. In terms of social activities, New Haven is pretty close to Stratford and provides many options including interesting food, live music performances, clubs, shopping, etc. like many cities. I’ve lived on the shoreline for most of my life so I don’t go very often any more, though I recently attended the Shubert Theater to see a play and ate at the restaurant Zinc (kind of expensive, but very interesting choices). There are also many colleges and universities in Connecticut where you might have friends. If you’re into light travel, New York City and Boston aren’t too far away either.

**Evaluation:**

Overall I couldn’t have asked for a better Co-op experience this first term. It felt good to actually put some of what I learned in school to use. My favorite part of the job was probably its variability – some projects were routine, but many were random or new analyses for everyone working there. Some days you would work around the clock on a project with many data sets and many angles of approach until the data told you a convincing story, which made the calm days a nice breather. Working at Sikorsky with engineering professionals was a great motivator to learn more and better when I return to Cornell University.
Tricia Hevers  
Mechanical Engineering  
Sikorsky Aircraft  
Spring and Summer 2010

During the spring and summer of 2010 I completed two back to back terms at Sikorsky Aircraft with the Dynamics and Internal Acoustics group. Sikorsky Aircraft is a leading, worldwide helicopter manufacturer based in Stratford, Connecticut. Their products include military aircraft such as the Blackhawk, Sierra, Romeo, CH-53K, Canadian MHP, and the presidential fleet (VH-3D, VH-60 N). They also produce commercial aircraft such as the S-92 and S 76-D. During my time at Sikorsky, I was able to work on most of these aircraft (except for the CH-53K). The Dynamics and Internal Acoustics group is responsible for ensuring that the aircraft maintains acceptable vibration levels and avoids unwanted phenomena during all modes of operation.

Working in the Dynamics and Internal Acoustics group allowed me to work on a wide variety of projects. During my first co-op semester I was able to be involved in several long term, hands-on projects. In fact, doing consecutive co-op assignments allowed me to become involved in several long term projects that I wouldn’t have been able to participate in otherwise. I got to measure vibration data off of the Sierra fleet, crawl under a military helicopter, and fly in the company’s S 76-D. The most interesting project that I got to work on during the first half of my assignment was modeling friction in Simulink.

In particular, the second half of my co-op term was spent working on a variety of long term projects. I had the opportunity to be involved in Sikorsky’s Active Rotor program, which looks to find different configurations to maximize different flight performance characteristics (ex. maximum endurance, fuel efficiency, etc.). During my time at Sikorsky I had the opportunity to take part in the program by participating in a whirl stand test. While participating in the test, I worked to monitor the system’s stability and helped to post-process the data by writing Matlab programs. This project was very rewarding because I knew that my work would help lay the foundation for the programs next portion, a wind tunnel test at NASA Ames.

In addition, I had the opportunity to work as a test engineer. Currently the dynamics group is involved in preparing for a flight test to test out a new “zero” vibration system. However to be approved for the flight test, the new vibration system was required to have a shut off mechanism in case the system was unable to suppress vibration. During the second half of my co-op term, I worked on testing one of these potential shut-off systems, an inertial switch. I was responsible for performing a MIL-STD-810G vibration test, documenting the test, and interacting with the manufacturer to acquire specification data. By being rigorous in my documentation, I was able to prove that the switch would suitable for the flight test. This accomplishment was significant because it would have cost thousands of dollars to redo the vibration and temperature tests to prove that the switch was flight worthy. Working with long term, in-depth projects was the most rewarding experience during my co-op with Sikorsky.

In addition to my hands-on work, I did a lot of programming in Matlab. My work with Matlab included everything from graphing flight test data to simulating ground resonance. Initially, I was very distressed about having to do programming at work. At Cornell I developed an intense
anxiety about programming and I was terrified to be in a position where I did programming on a daily basis. However, my experience at Sikorsky allowed me to work through this anxiety and develop a lot of confidence in my programming skills. I do not become anxious when I am asked to develop a program, in fact I revel in the challenge. My engineering work allowed me to strengthen my knowledge of dynamics, system dynamics, mechatronics, and programming.

Lastly, in addition to my engineering work, I also did a lot of typical intern and co-op jobs. I verified parts orders, made videos, and was responsible for maintaining the group’s digital library. I wasn’t particularly interested in this type of work; however I was able to keep it in balance by spending the majority of my time working on engineering projects.

In my free time I also participated in Sikorsky’s annual intern design competition. The competition challenges intern teams to redesign a specific helicopter or component. This years’ competition was to redesign the Schweizer 300c. I would highly recommend that future interns participate in the competition because it requires them to effectively work in a team, a skill that interns don’t often get to practice. In addition, the competition forces interns to learn about more about different systems and components of helicopters that they don’t work on in their ordinary jobs.

I was very fortunate to work with an incredible group of people. My co-workers were immensely talented and would do whatever they could to help me when I encountered a problem or had a question about my work. My boss and coworkers gave me enough space to think and work on my projects without being overly intrusive. However, I could go to them whenever I had a concern. In my opinion this was the right balance. Job training was provided on an as needed basis for the specific project at hand. A formal orientation was also provided for new hires. However, I didn’t find it helpful for co-op students since it was geared towards full time employees.

Sikorsky does not provide housing for co-ops and the student is left to figure it out for themselves. However they do provide relocation money, after you have already started (I received four thousand dollars). Although most people choose to drive back and forth to work, public transportation is available as well as an employee-run shuttle from Stratford’s train station to the plant. Since I didn’t have a car when I accepted the co-op position, I chose to use public transportation because buying a car and making insurance payments wouldn’t have made financial sense. The bus line is run by the Greater Bridgeport Transit Authority (GBTA) and stops in front of the plant’s first gate. The line makes several stops at the plant in the morning and afternoon, enabling the student to construct an appropriate work schedule. The bus line can also be used to go grocery shopping and to other places of interest. If you choose to use the bus line the available housing choices will be limited accordingly. However it is manageable. I was able to find an apartment (Camelot Apartments) right in Stratford’s town center (conveniently located right next to the train station) that was only a block away from my bus stop. Craigslist, local listings, and real estate agents can also be used to find appropriate housing.

The location also provides co-op students with a lot of social opportunities. New York City and New Haven are only a train ride away (on the Metro-North Line) and provide endless opportunities. In addition Boston and Providence are within a day’s drive. Sikorsky offers
several different clubs and recreational sports teams (kickball in the fall and softball in the spring). I highly encourage all interns and co-ops to participate in these sports teams even if they have no previous experience. The coordinators can help place you a team and it allows you to meet a lot of different people in different organizations across Sikorsky. Participating in the softball program really improved my social network.

Professional development is an important and often understated aspect of co-op. It is really important to get to know and speak with people who work in different fields. While working at Sikorsky I was able to make connections with lab technicians, aircraft mechanics, and a large number of engineers who worked in different departments than I did. Speaking with a large variety of people will allow you to get a better idea of what the organization is like and what kind of work you might be interested in doing full time, while also forcing you to step out of your comfort zone.

At the same time however you need to be cautious about people’s perspectives. Several members of my group and another engineering group had hard feelings towards each other. I spent a lot of time working and talking with both sets of people. At times I found myself placed in the middle of their argument and found that I was being pushed to feel a certain way. I was able to successfully balance this by keeping level headed about and not letting my opinion be swayed. In short, talk to as many people as possible, but keep a level head about it.

In addition, don’t allow academic prejudices to get in the way. Life in the work place is very different than life at Cornell. A lot of the basic knowledge in my job drew from some of the courses that I hated the most at Cornell. However, working in my group taught me that I am really interested in this kind of work. It showed me that taking a course or two at Cornell is not an accurate base to judge your interest or aptitude for a particular subject.

Overall, I would highly recommend working at Sikorsky Aircraft. It is truly one of the best co-op experiences available.

 Supervisor Signature: William Welsh

 Student Signature: Tricia E. Hevers
Co-op Job Summary

Co-op Work Assignment:

For the second term of my Co-op I again worked at Sikorsky Aircraft Corporation, a business unit of United Technologies Corporation located in Stratford, CT. The company is currently designing the next presidential helicopter in conjunction with Lockheed Martin for the upcoming government contract, as well as finishing design for the next heavy lift helicopter, the CH-53K. There have also been many strides with the X2 dual rotor helicopter that recently broke the helicopter speed record flying 259 mph. Sikorsky has many developing and current projects of interest in many engineering disciplines.

As an Engineering Co-op, I worked for the same NVH Group (Noise, Vibration, & Harshness) run by Steve Lozano, but more specifically in the Acoustics & Dynamics lab run by Stu Drost (my boss). Many of my activities were the same as those in the fall, including the acoustics flight analyses, transmission vibration testing, and chamber panel testing. Below I will detail several new projects in which I actively participated.

- **Test Vibration Database:** I helped compile most of the vibration data taken on the aircraft and the adjustments including pitch control rods, inboard/outboard blade tabs, and hub weights. The vibe flights include different speed regimes that consequently put different loading and torque on parts of the aircraft. With accelerometers located in specific locations around the aircraft, the disturbing vibrations can be traced to aircraft components. The main vibrations tracked by the vibe group are the harmonics of the rotor head frequency termed 1P, 2P, 3P, etc. By compiling this data into a currently developing computer database tool, we were able to track and analyze the variables through various polar charts to map the acquired phases and magnitudes.

- **Wireless Diagnostic System:** Although I wasn’t directly involved in this project, the PHD candidate in our group is helping develop a wireless, self-contained system on the blade to help better understand flight phenomena such as flutter, blade tracking, and ground effect. Many of these concepts are understood, but lack much test data to understand their effects on the aircraft. To solve this issue involves installing a wireless system with accelerometers, strain gages, and pressure transducers, among
other tools. I helped set up the test stand with a motor that spins a scaled down airfoil. My colleagues came up with various methods to power the system including a piezoelectric flap and electric fan.

- **WPB External Noise Testing:** My second to last week I was invited to join our team in West Palm Beach, Florida where Sikorsky has production and test facilities. Our goal was to acquire external noise on the upcoming S-76D commercial aircraft to better understand the acoustic effects on changing the aircraft’s nominal rotor speed during cruise and take off regimes. We set up a test array of microphones and took data for flyovers, approaches, and take offs. Specific humidity, wind speed and direction were required for the duration of testing, so early flights were necessary to meet the weather conditions. The test was complete after 4 exhausting, yet equally gratifying days of setup and data acquisition.

**Assessment of Learning and Development / Evaluation:**

Overall I am thoroughly satisfied with my time spent at Sikorsky Aircraft. This was my first introduction into engineering work and I still believe that engineering is the career path for me. Working with seasoned engineers showed me how much I have to learn, but has also proven that the most applicable knowledge comes from on the job experience. Having this base knowledge in acoustic and vibration test engineering, I find myself leaning toward a career in the aerospace industry. Just walking through the Stratford plant has exposed me to more avenues of engineering than I had ever considered which has been both enlightening and overwhelming. With one year of school left, I intend to use my studies to find the position for me.

Working in West Palm Beach was perhaps the most fun project I completed in my time here at Sikorsky. While at the facility I was given the opportunity to see the X2 aircraft and found myself astounded at the engineering brilliance and communal effort by the Sikorsky divisions to produce a world-record-breaking piece of machinery. I hope I am so fortunate to work on such forward thinking projects as the X2 when I enter the work force.

If I were to go through the same experience at Sikorsky again, I would have joined the Summer Intern Competition to completely redesign the next lightweight helicopter.
Due to summer schoolwork constraints, a variable schedule at work, and an unmotivated team, I chose not to pursue the competition. Although I didn't take advantage of the opportunity, I feel anyone with the time should do so for the chance to interface with students of different disciplines and aircraft knowledge.
Sikorsky
Aerostructures Quality Engineer

I completed the 2nd portion of my co-op at Sikorsky Helicopters. Within the organization, I was a part of the Aerostructures Quality Engineering department (QA). The QA department within Sikorsky performed all tasks related to completion of the main airframe of the helicopter. These include manufacturing (MFG) error reduction, discrepancy reports, and process refinement. Organizationally, a QA engineer is the link between MFG, Engineering, and Supplier Quality. For example:

An installation discrepancy is located when an aircraft is moved to final assembly, an area where all of the separate parts of an aircraft (tail cone, cabin, blades, etc.) begin to come together. While installing a wire harness in the cabin, a MFG worker encounters a mounting bracket that is coming into contact with another component. That worker will document the error, and a QA engineer is assigned to determine the root cause of the mistake. The root cause could be any one of several things:

1) An updated engineering blueprint is released and there is a tolerance error in the final assembly.
2) A MFG employee used incorrect fasteners.
3) The supplier has changed its manufacturing process, and the new part is being sent out incorrectly.
4) A new step in MFG (heat treat, water testing, durability testing) has caused an error in the final product.

Any one of these problems could cause the error that MFG found. The QA engineer is responsible for determining this, identifying corrective action, and creating a process to prevent a repeat of the same issue from occurring again.

The QA engineering environment tends to be fast paced and rushed. Since they mainly deal with correcting issues, they, as they put it, are “always putting out fires.” For me, this was a good thing. A fast paced, changing environment keeps a work day interesting.

I was assigned to complete an electronic discrepancy reporting process for a manufacturing location outside of Corporate and Final Assembly. This process replaces the current handwritten method that has been in place for decades. The project entailed development of a new procedure, software adjustments and workstation support, training, and process implementation. As many of you will see, the largest difficulty when working in MFG is convincing veteran workers to accept your new method. While process design has its own technical challenges, convincing an about-to-retire floor worker to adopt your solution instead of what they have been doing for 25+ years is easily the most difficult part.
Marcus A. Sabolis
Mas575@cornell.edu
Summer 2010
Sikorsky does a great deal of intern development as part of their program. There are weekly “lunch-and-learn” sessions that cover various topics related to career development. Some of these include resume building, personal branding, networking, and ethics. While Cornell prepares engineers technically, learning the business side of the world is essential to furthering your career.

My time at Sikorsky was very beneficial. The company itself is immense, providing many career options for a newly graduated student. Along with that, with United Technologies Corporation as your parent company, there is more than enough room for a complete and varied career.
Patrick Blonigan  
NetID: pjb236  
Employer: Sikorsky Aircraft  

7/15/2010  
Major: Mechanical Engineering  
Term: Summer 2010

JOB SUMMARY

My Co-op job was with Sikorsky Aircraft, located in Stratford, Connecticut. Sikorsky is one of the world’s leading Helicopter Manufacturers. Sikorsky makes the UH-60 Blackhawk, the US Army’s main utility Helicopter, and the VH-3, better known as Marine One, the presidential Helicopter. Also, Sikorsky is testing the X-2, an experimental helicopter designed to cruise at 250 Knots (288 mph), much faster than any current helicopters.

I worked in the Research and Engineering Department, with the Dynamics and Internal Acoustics group. Work in Dynamics and Internal Acoustics was comprised of checking if vibration levels in the helicopters were acceptable and finding ways to reduce or eliminate vibration in the helicopters. The group covered everything from checking vibration levels on the cabin smoke detectors to advanced control systems designed to reduce vibration levels throughout the helicopter to virtually zero.

Upon returning to Sikorsky for my summer term, I was sent to orientation with around 12 other new employees, most of which were co-op students and interns. The orientation only covered general aspects of the job, such as safety in the office. All of my training was provided on the job. My coworkers showed me how to perform various tasks around the office and always answered any questions I had.

In my time at Sikorsky, I was able to work on a wide range of projects. These projects included testing parts and components slated to be used on helicopter test flights, analyzing flight test data, and helping to design new helicopter vibration control systems. While working on these projects, I also attended meetings and made presentations. Finally, I had the job of overseeing the scanning of the group’s library, to create a virtual library.

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If you plan to work at Sikorsky, make sure you start filling out the paper work for Human Resources as soon as possible. When you do fax the paperwork to their office, make sure to send an email to Human Resources confirming you have done so; otherwise, they might lose your papers, as they did with mine. There were also issues
with securing a start date at Sikorsky. I requested May 24th and they refused, saying the earliest I could start was June 1st. However, with some help from my supervisor, I was able to start on time.

Another issue I encountered was with the process of getting my office computer set up. At Sikorsky, all software installations have to be approved and administered by the Computer Sciences Corporation (CSC), a division of the firm dealing with computer infrastructure. Submitting requests to CSC was a tedious task, and CSC tended to take their time to complete any requests. It was not until my forth week back at Sikorsky that my new computer had all the software I needed to complete the work assigned to me.

Overall, having to deal with the Human Resources Department’s and CSC’s shortcomings have been the only negative experiences I had in my time at Sikorsky. I have been able to work on a number of interesting projects and have gotten a good feel for life in the engineering workplace. I highly recommend this job to students who are considering taking part in the Co-op program.