Volume 1, 1

February 14, 2000

The Electron

Spinning your way to keep you informed

Institute of Electrical and Electronics Engineers Student Branch
University of Illinois at Chicago
750 S. Halsted 307 CCC (MC 118) Chicago, IL 60607
Phone (312) 355-0566 email: ieee@eecs.uic.edu
URL: http://www.eecs.uic.edu/~ieee

1999 IEEE Officers

President:
Bret Bohlin
Vice President:
Omar Shamsi
Treasurer:
Roberto Battaglia
Secretary:
Dawn Fuller
Public Relations:
Scott Newby
Membership Chairman:
Hoa Tang
Technical Team Leader:
Michael Muller
Web Manager:
Phillip Adenekan
Financial Committee Chair:
Johanna Conde

Upcoming Meetings

All meetings Begin at 4:30

- *IEEE Power Engineering Society* Feb 18th
- *Northrop Grumman* March 3rd
- *Lockheed-Martin* March 24th
- *Elections* April 14th

Inside this issue:

E-Bash	1
Technical Project Description	1
Professor Profile	2
Why join IEEE?	2
Stickney Water Reclamation Tour from last semester	3-4

E-Bash!

Welcome back to the first semester of the new millennium!.

There are many exciting and educational opportunities for students this semester. IEEE is one of the hosts of E-bash.

E-Week begins February 19th. UIC will begin National Engineers' Week on the 21st and will celebrate with a variety of events, ending with a huge party, E-Bash, the night of the 25th.

E-Bash this year will have a Mardi Gras masked ball! Each ticket sale will include a mask at the door if someone doesn't bring their own.

What is E-Week? E-Week is a week for the engineering college to show off their skills and ingenuity and also have fun while introducing students to the engineering discipline and its many promising opportunities.

There will be an array of exhibits as well as people on hand to answer questions. More information may be obtained at http://www.uic.edu/depts/enga/student/eweek.htm

IEEE still needs volunteers for setup and to participate in this extravaganza.

This would be an excellent way to become involved in IEEE while enhancing your knowledge of the engineering field and looks good on your resume when being interviewed by prospective employers.

National Engineers' Week

Please contact one of the officers if you are interested in becoming more involved with any of the activities during this week, or stop by 307 CCC for details.

Ongoing Technical Project Description

The Technical project IEEE is currently working on is for an air bustling system for printing presses at a nearby company and will allow the controller to adjust the airflow pressure underneath the paper, producing better print quality.

So far the control console is finished. However, the originally proposed electrically operated positional sensors proved to be too costly and we are currently investigating pneumatic device alternatives to move the linear actuators (positional controls for the air nozzles).

The finished design will allow the operator to save time and enable control of the press from a single location yielding an increase in production and time spent making adjustments.

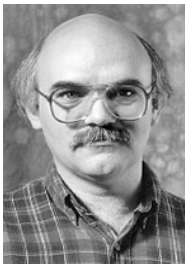
Currently, each time the operator needs to make an adjustment, it must be done manually by climbing a ladder near the press and adjusting it.

Our design, if implemented, will greatly decrease the time spent making adjustments and also will enable the company to increase production.

The current members of the project are Mike Muller, Max Magnell and Scott Newby.

If you are interested in joining the technical project team or have questions regarding air bustling, contact Mike or stop by the IEEE office in 307 CCC.

Professor Profiles



Professor Robert Becker

Professor Robert Becker was chosen as this months professor profile.

Professor Becker is a lecturer in the EECS department. He received both his Bachelors and Masters degrees from UIC and is an outstanding instructor.

He has received the Silver Circle Award, is a member of P.E.S.C., and has received the best advisor award for the 1992-1993 year.

This semester professor Becker is teaching EECS170: Fortran Programming, EECS 210: Electrical Circuit Analysis and EECS 265: Digital Systems.

The reason I chose Professor Becker for this month was to introduce him to students who do not know him. Professor Becker is very knowledgeable in the areas of circuit analysis and digital systems. He also is very easy to talk to and welcomes anyone having difficulties to come to his office hours to get help.

Professor Becker is a easy-going and very encouraging individual and I have found him to be a great help and resource for information.

Do you know of a good professor who you would like mentioned in an upcoming issue?

Email or stop by the IEEE office to inform one of the officers of a professor you would like to be included. This is a great way to inform students who don't know who to take or are just starting school at UIC to get a heads-up and get off to a good start.

What are the benefits of becoming a member of IEEE?

"Who you know and may meet at one of the meetings may land you an internship for now, or possibly a full time job for later."

IEEE Memberships

Local Member Benefits

Looks great on a resume' to be involved in the largest professional organization.

Involvement with students who have similar interests.

All the female engineers (the few and the brave) can easily find one another.

Tours we attend, such as Motorola, will be free to members, however non-members will have to pay.

Participate in IEEE events here at a discounted rate.
Keep up to date on industrial news.

Attend technical meetings.

Build leadership skills.

May attend members only tutoring sessions provided by other IEEE members. Underclassmen have the advantage of having upperclassmen give them a heads up on what's coming, and upperclassmen who tutor will have an excellent story to tell in an interview.

Stay more involved with campus events - makes UIC feel more like a home away from home.

NETWORKING will provide useful when hunting for that first job. Who you know and may meet at one of the meetings may land you an internship for now, or possibly a full time job for later. Get to know who's out there and who you might eventually be working for.

National Benefits

IEEE Scholarships and Awards
Discounts off car insurance and health insurance.

Reduced dues now if you join that will extend until 5 years after graduation. Save $ by joining now.

Textbooks and publications may be ordered at a discounted price.

IEEE news site - up to date info all the time.

Career information

on line resume' service
job listing service with very specific search pattern

industry database of IEEE employers

salary survey information
Industry information

keep up on previously printed information

receive magazines such as Spectrum

know what's going on in your field

Once you register on-line, have your own professional IEEE e-mail address
NETWORKING!

These benefits far outweigh the costs of the time spent coming to meetings and also learning new and exciting information.

So, stop by the IEEE office to pick up and fill out an application.

Stickney Water Reclamation Plant and Deep Tunnel Tour

IEEE Deep Tunnel Tour
10/19/1999

The metropolitan Water Reclamation District of Greater Chicago

At approximately 8:00 Tuesday morning about twenty students met in front of the Engineering Research Facility on the east side campus anxiously awaiting to be picked up by a UIC bus and begin our journey to the Stickney Water Reclamation Plant and then on to the Deep Tunnel pumping station in Hodgskins.

Once we arrived at Stickney, we were immediately greeted and ushered into the control room where we viewed a video of the water treatment process, the history of Chicago's water problems, and the drastic improvements due to the water treatment center and deep tunnel system.

After the Chicago fire in 1871, rapid development occurred along the Chicago River. The river was important because all the wastewater, including waste from industries, stockyards and farms were dumped into the river and carried out to Lake Michigan.

However in 1885 there was a huge storm, which carried this wastewater out past the water intake cribs located in Lake Michigan. This caused the drinking water to become polluted and Chicago was then known as "the city of death" due to all the deaths from the contamination. The Chicago Sanitary District (now the Metropolitan Water Reclamation District) was established to clean up the water system.

In 1892, the agency began construction on various channels and canals that would allow the flow of the Chicago River to be reversed. Reversing the rivers would allow for the wastewater to be diluted as it flowed into the final destination, the Mississippi River.

Work of the 28-mile stretch was completed in 1900 and became known as the Sanitary and Ship Canal. Two other channels, the North Shore and the Cal-Sag, were completed in 1907 and 1922 respectively. A total of 56 miles of diversion canals were built causing other Great Lakes states to become concerned of the possibility of lowering Lake Michigan's water level. The district responded by installing locks at the intake points of the lake, allowing them to control the amount of diversion.

This re-direction did not last long and the Board of Commissioners passed an ordinance in 1919 instructing the District to construct and operate sewage treatment plants. This would protect the Lake and drinking water source for the eight million people in the Chicago area and surrounding communities. The Metropolitan Water Reclamation District receives approximately 1.4 billion gallons of wastewater daily from residents and industries located in Cook County. This wastewater from 125 municipalities is sent to one of seven different service areas where it goes through an extensive treatment process.

We visited the Stickney Water Reclamation Facility, where the wastewater is directed through large screens to remove any debris that could cause damage to the machinery. From here it is sent to tanks where the heavy solids (sand and grit) are removed.

This water is now sent to primary settling tanks where fats and oils are skimmed off the top and the organic solids are removed after settling to the bottom.

A few hours later, this water is sent to aeration tanks where bacteria and other microbes are allowed to grow due to filtered air being pumped into the water. These microbes multiply and eat the organic materials and nutrients that remain in the water.

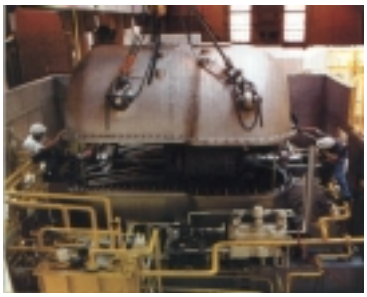
This water is pumped into a secondary settling tank where the now fat and sluggish microbes settle to the bottom of the tank and are removed with the organic residuals.

The newly cleaned water flows out of this secondary settling tank and back to the waterway. This reclaimed water, now with more than 95% of the impurities removed, is deposited into the system and is often cleaner than the original water in the system.

Mainstream Pumping Station entrance

"In 1892, the agency began construction on various channels and canals that would allow the flow of the Chicago River to be reversed."

"Urban waterfall " along the Calumet River in Blue Island, Illinois



The cover for a 10,000 horsepower air process blower is lowered into place after being overhauled.

"In the 1950's the treatment plants could accommodate approximately 1 billion gallons per day."

Stickney Water Reclamation Plant and Deep Tunnel Tour (Cont)

This whole process from start to finish takes approximately 12 hours.

Much of the solids that are removed during this process are centrifuged to remove moisture and replaced back into the ground in nearby communities.

This residual material is used in tollway banks, sod farms, and golf courses. The Industrial Waste Division monitors the levels of water for the presence of hazardous materials and heavy metals in the system. This monitoring system has drastically reduced the possibility of contamination and damage to the water system and wildlife.

After learning of this process at Stickney, we were taken to the Deep Tunnel pumping station in Hodgkins.

This tunnel system was created due to the combined sewer system that services Chicago and 51 other municipalities in Cook County.

With a combined sewer, rainwater mixes with the normal wastewater and results in an increase in wastewater output. This poses problems when it rains and during the winter months, since there are few places in the Chicago area where runoff may be absorbed.

In the 1950's the treatment plants could accommodate approximately 1 billion gallons per day. If this limit were exceeded, the runoff (raw sewage mixed with rainwater) was drained directly into the rivers and canals.

In the 1970's, after considering various plans to solve this problem, a bunch of engineers came up with the TARP or Tunnel and Reservoir Plan.

IEEE@UIC

WERE ON THE WEB!
WWW.EECS.UIC.EDU/~IEEE

Institute of Electrical and Electronics Engineers Student Branch
University of Illinois at Chicago
750 S. Halsted 307 CCC (MC 118) Chicago, IL 60607
Phone (312) 355-0566 email: ieee@eecs.uic.edu
URL: http://www.eecs.uic.edu/~ieee

The IEEE is a non-profit, technical professional association of more than 350,000 individual members in 150 countries.

Through its members, the IEEE is a leading authority in technical areas ranging from computer engineering, biomedical technology and telecommunications, to electric power, aerospace and consumer electronics, among others.

The IEEE ("eye-triple-E"), The Institute of Electrical and Electronics Engineers, Inc., helps advance global prosperity by promoting the engineering process of **creating, developing, integrating, sharing, and applying knowledge** about electrical and information technologies and sciences for the benefit of humanity and the profession.