



Institute of Industrial Engineers Rensselaer Chapter Newsletter

Upcoming Events

February

16-18 - IIE Regional
Conference
Rochester Institute
of Technology

19 - President's Day -
No class

March

5-9 Spring Break

9 - Drop Deadline

13 - [General Body Meeting](#)

19-23 - Advising Week

28 - DSES Wiffle Ball
Tournament
12-2 PM Location TBA

April

3 - [General Body Meeting](#)
[Officer Elections](#)

Hello and welcome back to school. I hope everyone is doing well as they prepare for their first round of tests. There are a number of developments in our IIE chapter.

First, February 16th-18th a group of 5 students along with Faculty Advisor, Professor Aboul-Seoud will be attending the IIE Regional Conference hosted by RIT. The conference includes speakers who are leaders in lean manufacturing, a technical paper competition, and provides a networking opportunity for attendees. In early March our IIE chapter will be hosting a Professional Society Fair for all departments in the school of engineering. This fair will be an opportunity for all of the professional societies on campus to advertise and gain new members. We are also obtaining a new website to be hosted by the National Organization that will allow us to host all of our back tests. Finally, we are working to host a faculty-student wiffle ball game during the Wednesday of GM week. Hopefully, the students will be able to overcome the athletic powerhouse of the DSES faculty who decimated the students in the volleyball game last year.

Sincerely,

WILLIAM LYNCH
President

Institute of Industrial Engineers

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From the Desk—A Faculty Note from Professor Willemain

What's Next?

As some of you know, my partners and I have had a software company (www.smartcorp.com) in the Boston area since 1984. (Before that we were consultants, but that's another story.) We sell statistical software for forecasting and inventory management. Our customers range from big and famous (GE, Siemens, Sony, McDonalds) to sinful (Godiva Chocolatier, Labatt Breweries, McDonalds again) to goofy (Disney).

Every company needs to find a way to anticipate its future so that it can align its resources and activities for maximum efficiency. Forecasts drive many core activities: raw materials purchasing, staff scheduling, financial planning, and inventory management. While forecasts can never be perfectly accurate, getting the forecasts close to right can pay great dividends.

Here are a few observations about forecasting in the business world that may be helpful to you at the start of your careers.

- Most companies seem to have poor or mediocre forecasting processes. That means that with what you IME's already know about statistics and some helpful software (not just mine – your old pals Minitab and SAS can be useful too), you have the capability to save a company many times your salary in the benefits that flow from improved forecast accuracy.
- Forecasting is not a purely statistical activity. Statistical forecasts provide an efficient and objective exploitation of a company's data, but a company always knows much more about its plans, products and competitive environment than the historical information frozen in its databases. For that reason, we recommend starting the forecasting process with a purely statistical forecast, then adjusting that forecast to allow for the seasoned judgment of knowledgeable managers and the special knowledge of sales people who are in close contact with customers.

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From the Desk—A Faculty Note from Professor Willemain

- There are many specialized approaches to statistical forecasting, each appropriate for a different kind of company or function. One tough example is forecasting retail sales. What makes this a tough problem is that marketing departments are always muddying the waters by intervening in the sales process with various kinds of promotions: coupons, price discounts, 2-for-the-price-of-1 deals, etc. Throw in a few blizzards, power outages or labor strikes and you get a chronically messy situation. Our software has to first statistically remove those “unnatural” influences, forecast the underlying product demand, and then build back in the effects of anticipated future promotions. A second tough example is forecasting demand for service parts (the fancy name for spare parts). Demand for service parts is usually “intermittent”, meaning a large percentage of the demand values are zero, with a few random nonzero demands mixed in. This erratic pattern makes it impossible to apply the usual theory based on the Normal distribution. We invented and patented a new system for accurately forecasting this nasty type of demand. The result is that we can better help our customers hit their inventory “sweet spot”, i.e., the level of inventory that properly balances the cost of carrying a larger inventory against the risk of stocking out of a critical part.
- Sometimes you can’t win for winning. Every now and then an odd and frustrating situation arises. I remember taking a call on our support line from a customer who complained that the forecasting process that used to take a whole week was now finished in one hour. His complaint? What was he supposed to do for the rest of the week?! (Watch out what kind of company you work for. If you detect that kind of attitude, run the other way as fast as you can.) We also have some long-standing customers who haven’t upgraded their system in 10 years – because our old stuff still does the job for them. Since every software company makes a large part of its revenue on upgrades and support payments, this is not the kind of good news we like to hear.
- Finally, don’t think that just because you are not hired into a job with “forecaster” in the title that you can get away without forecasting. If you end up managing inventory, scheduling production, managing sales, handling cash flow or doing any of several other jobs, you’ll end up being a part-time forecaster. At that point you’ll come to appreciate my company’s tag line: “See what’s next!”

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Working Professional Profile – Lindsay Denton

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- **The company you work for:**
TriTek Solutions
- **Your title:** Associate level Business Analyst
- **What it is that you do:**
We build ECM (enterprise content management) systems.
- **A typical day on the job:**
Depending on the stage of the project either analysis of their systems, system design, testing or user acceptance and training.
- **Which classes do you apply the most, which is most useful?**
Production and Operations Management and Cost Accounting (POMCA) and Information Systems, which taught me a surprising amount of information.
- **How did you get your job?**
Using the Redhawk Joblink
- **What is the best perk about your job?**
I get to travel all over the country and it is paid for by the company.

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Alpha Pi Mu

Alpha Pi Mu was established in 1949 within the School of Industrial and Systems Engineering at the Georgia Institute of Technology. Since receiving its charter from the national organization in 1985, the RPI Chapter has won fifteen Regional Outstanding Chapter Awards and has been ranked among the top ten chapters nationally for nine of the past ten years. The organization was founded to confer recognition upon outstanding Industrial Engineering students at the bachelor's level, and outstanding students in Industrial Engineering and closely related fields at the graduate level. Alpha Pi Mu is closely linked to the Institute of Industrial Engineers and has chapters in nearly all of the nation's ABET accredited, IE academic programs.

During the fall semester Alpha Pi Mu participated in various recruitment events including the NRB Open House, Medalist Weekend, Engineering Discovery Fair, Family Weekend and the RPI Open House in order to expand the DSES department. Officers could be seen speaking with potential students about the requirements an IME degree and the benefits of the DSES department. Additionally, invitations were given to eligible students to join APM. Eligibility is determined by academic merit. The top third of the senior class and the top fifth of the junior class are invited to join each year.

On February 28th, Alpha Pi Mu will be inducting its new members into the Society. There will be a brief initiation ceremony with refreshments to follow. This will celebrate the achievements of our new inductees and welcome them into the society.

SUDOKU

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	9	8		6	3	2		
2		5		9		3		4
6	5	1			2			3
8								9
3			6			5	2	7
5		7		8		4		6
		4	7	5		1	3	
	6				9			

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A Professional Portfolio: **DSES Student Version Description**

September 2006 Revision

A recommended practice for architects, engineers, writers, artists, sculptors, photographers, designers, and others who use creativity and inventiveness to solve problems or create a design or artifact is maintaining a portfolio of their work. In this context, a portfolio is defined as a collection of papers or works that are examples of the work and accomplishments of a person. A portfolio is maintained by the person themselves. New material is added and older material is purged. The portfolio is used by the author to show others the work that they have done. It is often used in job recruitment and is used by practicing professionals to recruit new customers. A person who writes greeting cards would build a portfolio of material they have written for use in job hunting. In engineer licensing, the portfolio is used to demonstrate design experiences to qualify the person for Professional Engineering licensure. Airplane pilots maintain flight logbooks that list each flight, flight duration, number of landings, type of aircraft, and flight conditions.

Building and Maintaining the Portfolio

To promote the practice of building a professional portfolio in your professional career, every DSES student is required to maintain a student portfolio beginning in the sophomore year that highlights important undergraduate work completed while a student at Rensselaer. The portfolio starts as a file folder. As graded work is returned, review and decide whether the work should become part of the portfolio. The best items to include are ones that clearly exhibit your problem solving, design, and communication skills. A quiz from Dynamic Systems is not good material for a portfolio. A design report from IED is good material as is a paper from your Psychology course that required you to research a topic and prepare a position paper on it.

While the student portfolio is typically dominated by course driven assignments, material from the full college years should be included. Add to the portfolio file published articles and completed project assignments from summer employment and COOP that show your skill and capabilities in problem solving, design and communication. Full copies of the assignment should be included. For work experiences external to Rensselaer, obtain permission of the employer or remove employer identification before including project reports. If the report was the product of a team effort, precede the report with a description of your role and contribution to the project. The general guideline for this part of building the portfolio in real time is add it in if you think it shows something about your capabilities as a problem solver or designer. There will be time later to prune material before someone else actually sees it. Between the sophomore and senior year, the portfolio file should grow from just one folder to several. You are urged to place actual paper documents in the file and not rely solely on electronic storage media.

Organizing the Portfolio

Several times during your undergraduate experience at Rensselaer, you will find having a portfolio useful. Interviewing for a COOP position or for summer professional employment is one of those times.

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Before using the portfolio, it is important that it be organized. The first step in organization is deciding what of the material placed in the file should be made available for someone else to see. You want the portfolio to show both breadth and depth of your work so don't just keep the newest material and discard the oldest. Retain those items that best exhibit your problem solving, design, and communication skills. Things to keep include final papers for a course work, a design report for IED, or a project in another course. Do not include exams or homework. Remember, you want to keep materials that give an impression of your professional capabilities to the reader who is often a job recruiter.

A general guideline for packaging the portfolio that you are showing to another is to place the material in a "holed binder" so material stays intact. Separate the material into three sections.

The first section should include:

- An updated one page statement of career objectives and plans following graduation.

- An up-to-date resume.

- A current transcript (or transcripts if a transfer student). An unofficial transcript is acceptable.

The second section consists of a summary of unique accomplishments organized chronologically. In this section, include information and documentation on awards received, participation in undergraduate research programs, special training received, descriptions and documentation of extracurricular activities and COOP and/or summer work experiences that reflect on your experience in engineering.

The third section of the portfolio is for the things you have collected during your college years to exhibit your design, problem solving, and communication skills. These include published articles and completed project assignments in course work, summer employment, and COOP that show your skill and capabilities in engineering. Full copies of the assignment should be included. This section should be organized chronologically from the freshman year through the senior year. For work experiences outside of Rensselaer, obtain permission of the employer or remove employer identification before including project reports. If the report was the product of a team effort, precede the report with a description of your role and contribution to the project.

Your portfolio should reflect your professionalism in both content and presentation. The portfolio is your property so keep track of it. If a recruiter wants to show it to someone else, go along with them if possible. If recruiter wants to take it, ask them to identify which items they want and copy those items for them. Losing the information the portfolio contains will set you back.

DSES Portfolio Review

In your senior year in DSES, you will be required to submit your portfolio to the department in the course Industrial and Management Engineering Design. The portfolio is part of the graded submissions of the class. The portfolio is due two to three weeks prior to semester end. This requirement cannot be waived and the grade in the course reflects portfolio style, content, and presentation.

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You May Be an Engineer...

- If the only jokes you receive are through e-mail
- If Dilbert is your hero
- If you have ever saved the power cord from a broken appliance
- If you see a good design and still have to change it
- If the salespeople at Circuit City can't answer any of your questions
- If you still own a slide rule and you know how to work it
- If your I.Q. number is greater than your weight
- If the microphone or visual aids at a meeting don't work and you shove up to the front to fix it
- If you can remember 7 computer passwords but not your anniversary
- If you have memorized the program schedule for the Discovery channel and have seen most of the shows already
- If you thought the real heroes of "Apollo 13" were the mission controllers
- If you think that when people around you yawn, it's because they didn't get enough sleep
- If you've ever tried to repair a \$5.00 radio
- If your 4 basic food groups are: 1. Caffeine 2. Fat 3. Sugar 4. Chocolate

An old Engineering Joke

SUDOKU SOLUTION

4	3	6	1	2	5	9	7	8
7	9	8	4	6	3	2	5	1
2	1	5	8	9	7	3	6	4
6	5	1	9	7	2	8	4	3
8	7	2	5	3	4	6	1	9
3	4	9	6	1	8	5	2	7
5	2	7	3	8	1	4	9	6
9	8	4	7	5	6	1	3	2
1	6	3	2	4	9	7	8	5

An engineering student was walking across campus when another engineer rides up on a shiny new motorcycle.

"Where did you get such a rockin' bike?" asked the first.

The second engineer replied, "Well, I was walking along yesterday minding my own business when a beautiful woman rode up on this bike. She threw the bike to the ground, took off all her clothes and said "Take what you want."

The second engineer nodded approvingly "Good choice, the clothes probably wouldn't have fit."