

**The University of Iowa College of Engineering
Student Development Center
Engineering Professional Development
Cooperative Education and Internship Program
2006-07 Annual Report**

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**The University of Iowa College of Engineering
Student Development Center/Engineering Professional Development
Cooperative Education and Internship Program**

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**The University of Iowa College of Engineering
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Using This Report

This report is a 5 year statistical documentation of participation in and results of The University of Iowa College of Engineering Co-op and Internship Program. The intended audience includes faculty, staff, employers, and to a lesser extent, students who need to obtain a more in-depth understanding of the program for a variety of purposes. The report will be most helpful to:

- **ABET Coordinators** seeking employer feedback, both quantitative and qualitative, including information related to Criteria A-K
- **Curriculum Committee Members** seeking an understanding of the effects of a period of curriculum related work on learning and course scheduling
- **Faculty and Staff Advisors** seeking information on potential employers and specific job titles/descriptions
- **Departmental and College Administrators** seeking to document College of Engineering preparation of students for careers after graduation
- **Employers** seeking information on salaries, student experience, and the program
- **Alumni and current/prospective students** conducting research on employers and engineering as a career
- **All Faculty and Staff** seeking information on co-op/internship salaries, employers, and participation of our students

The report is open to the public and will be available on the Engineering Professional Development site at www.engineering.uiowa.edu/epd on both the Student and Employer pages.

**The University of Iowa College of Engineering
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Cooperative Education and Internship Program**

Program Highlights

Number of Co-ops/Internships

- 224 Co-ops/Internship for 2006-07 (Breaks last year's record of 219)
- 144 Co-ops/Internships in Summer, 2007 (Summer 2006: 150(record))

Number of Students in Program

- 201 Students registered a co-op/internship in 2006-07 (Breaks last year's record of 195)

Number of Employers/Organizations

- 133 Hired/hosted a co-op/intern student (Summer 2006: 138 (record))

Salaries

- Average Co-op/Intern Salary: \$15.28/hr
- Average Co-op/Intern Summer Salary: \$14.68/hr

Program Summary

The Co-op and Internship Program facilitates the professional goals of students in the College of Engineering by teaching them how to plan and implement a comprehensive search for a co-op/internship using all their resources. In addition, the program actively recruits employers, and employer contacts, for on and off campus recruiting, alumni referrals, and job postings. As part of Engineering Professional Development, we sponsor speakers, job fairs, and network with current and former co-op/intern students to increase our employer partners. The Program provides quality assurance and documentation of results for students, employers, and other constituents within and outside the College of Engineering.

Specifically, the program gives students the option of exploring and developing their careers through periods of professional practice. These are institutionally supervised, professional, engineering related experiences in the business/industry, education/research or government/non-profit areas that are registered with the Co-op & Internship Program of the College of Engineering by students in the program. Qualified students may elect alternating periods of on-campus study with full-time work experience; or, may elect half-time work experience while taking at least 6 semester hours of classes. The experience can cover one to three semesters, a series of summers or a single summer. Students may apply to the program following their 1st year. Academic record and class status are considered prior to acceptance into the program.

Students are required to complete six assignments during each semester and/or summer of their experience. These assignments are designed to insure the co-op/internship includes:

- Goal Setting at Start
- Reflection on Progress/Process at Midterm
- Evaluation and Feedback at the End

Students will interview with Engineering Professional Development to evaluate their potential co-op/internship and obtain registration materials for the -0- credit hour co-op course. The will

complete several basic forms, including one signed by the student and employer describing the student's position, rate of pay, and length of time of the internship. Students will write a midterm paper analyzing the application of their skills in the professional environment as one of these assignments. This StAR analysis (Situation/task, Action, Results) should prepare them for future behavioral interviews, as well as analyzing the relationship between their scholarly work and its application in the 'real world.' At the end of the experience, both the student and the employer will complete evaluations of the experience. The Student Evaluation is not shared with the employer. The Employer Evaluation will be shared between the student and employer to insure feedback.

Student Benefits

Career Exploration
Career Development
Competitive Edge
Student Status on Fulltime Co-op

Employer Benefits

Recruiting for Top Talent
Fresh New Ideas/Attitudes
Technical Expertise and Knowledge

Students may also register a work experience in college or university laboratories and research centers, if the experience qualifies as relating to their curriculum and the student averages a minimum of 20/hrs per week. Students should check with the Director, Engineering Professional Development to see if the experience qualifies.

Some departments allow the student to use a registered co-op/internship in fulfillment of certain requirements of the departmental Professional Seminar. Students should check with their faculty advisor to explore this.

**The University of Iowa College of Engineering
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College of Engineering Statistical Summary

Experiences

<u>Year</u>	<u>Co-ops/Internships</u>	<u>Employers</u>	<u>Students</u>
2006-07	195 F.T./29 P.T. (66% Iowa)	133 (55% Iowa)	201
2005-06	205 F.T./14 P.T. (64% Iowa)	138 (49% Iowa)	195
2004-05	165 F.T./19 P.T. (69% Iowa)	111 (63% Iowa)	169
2003-04	140 F.T./12 P.T. (64% Iowa)	101 (55% Iowa)	132
2002-03	125 F.T./24 P.T. (72% Iowa)	86 (58% Iowa)	127

Salary Data

<u>Year</u>	<u>Yrly. Mean*</u>	<u>Summer Mean*</u>	<u>Median*</u>	<u>Mode*</u>	<u>Salary Range</u>
2006-07	\$15.28/hr	\$14.68/hr	\$12.25/hr	\$17.00/hr	\$5.70 - \$43.28/hr
2005-06	\$15.58/hr	\$14.69/hr	\$14.00/hr	\$17.00/hr	-0- to \$35.00/hr
2004-05	\$13.59/hr	\$13.58/hr	\$12.15/hr	\$17.00/hr	-0- to \$36.36/hr
2003-04	\$13.49/hr	\$13.28/hr	\$13.10/hr	\$14.25/hr	\$6.00 - \$27.27/hr
2002-03	\$12.39/hr	\$12.48/hr	\$12.00/hr	\$7.00/hr	\$5.00 - \$21.57/hr

*Mean, Median and Mode computations do not include volunteer positions

Distribution of Co-ops/Internships (not students) by Class

<u>Year</u>	<u>2nd yr</u>	<u>3rd yr</u>	<u>4th yr</u>	<u>Graduate Student</u>
2006-07	22%	32%	36%	10%
2005-06	14%	38%	32%	16%
2004-05	11%	42%	40%	7%
2003-04	20%	34%	39%	7%
2002-03	14%	33%	50%	3%

Summary of Employers/Organizations

<u>Year</u>	<u>Participating*</u>	<u>Active**</u>
2006-07	133	419
2005-06	138	353
2004-05	111	293
2003-04	101	240
2002-03	86	144

*Participating Employers Hired/Hosted one of our co-op/intern students this year

**Active Employers Hired/Hosted one of our co-op/intern students within the last 5 years and/or were active with the Co-op/Intern Program this year)

**The University of Iowa College of Engineering
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**Comparison of Departmental Salary Data
Full-Time Co-op/Intern Positions by Department (Hourly)**

<u>Dept.</u>		<u>N*</u>	<u>Salary Range</u>	<u>Mean*</u>	<u>Median*</u>	<u>Mode*</u>
BME	2006-07	22	\$5.70 - \$22.75	\$11.88	\$12.25	\$8.75
	2005-06	22	-0- to \$27.50	\$13.59	\$12.50	\$8.50&13.00
	2004-05	16	-0- to \$18.00	\$11.37	\$11.00	\$15.00
	2003-04	16	\$6.00 - \$27.00	\$12.45	\$11.86	\$9 & \$15
	2002-03	23	\$5.00 - \$18.50	\$9.75	\$8.50	\$7.00
CBE	2006-07	20	\$8.75 - \$36.25	\$15.50	\$16.15	\$16.50
	2005-06	16	\$10.00 - \$24.00	\$15.91	\$16.00	\$16.00
	2004-05	15	\$5.65 - \$22.16	\$13.35	\$12.15	\$17.05
	2003-04	14	\$7.50 - \$20.74	\$12.84	\$12.00	\$12.00
	2002-03	18	\$8.50 - \$18.75	\$15.33	\$16.47	\$17.22
CEE	2006-07	35	\$8.00 - \$36.05	\$13.51	\$13.69	\$13.69
	2005-06	27	\$9.50 - \$28.85	\$13.51	\$12.00	\$9.50
	2004-05	23	\$9.50 - \$28.85	\$12.81	\$12.00	\$9.50
	2003-04	17	\$8.50 - \$14.00	\$11.20	\$12.00	\$8.50 & \$14
	2002-03	18	\$7.50 - \$19.00	\$10.87	\$10.00	\$9.50
ECE	2006-07	28	\$9.00 - \$43.28	\$19.00	\$18.90	\$13.00
	2005-06	24	\$10.00 - \$35.00	\$16.65	\$15.00	\$15.00
	2004-05	26	\$8.00 - \$28.97	\$15.74	\$15.00	\$15.00
	2003-04	20	\$7.00 - \$27.27	\$15.67	\$15.12	\$15 & \$27
	2002-03	14	\$7.00 - \$17.75	\$14.22	\$13.75	\$11.50&16.00
IE	2006-07	14	\$11.50 - \$21.35	\$15.85	\$16.00	\$17.00
	2005-06	27	-0- to \$23.00	\$15.15	\$15.00	\$17.00
	2004-05	27	\$8.00 - \$24.00	\$12.80	\$12.00	\$17.00
	2003-04	29	\$11.00 - \$23.75	\$15.18	\$14.25	\$14.25
	2002-03	33	\$8.52 - \$18.06	\$13.72	\$14.24	\$14.25
ME	2006-07	57	\$8.50 - \$29.54	\$15.96	\$16.50	\$17.00
	2005-06	39	\$8.00 - \$34.56	\$16.05	\$17.00	\$17.00
	2004-05	39	\$8.00 - \$36.36	\$14.84	\$14.00	\$17.00
	2003-04	23	\$9.00 - \$18.18	\$12.89	\$13.00	\$13.00
	2002-03	23	\$9.00 - \$19.25	\$14.71	\$14.25	\$14.25

Summer Mean Salaries (Hourly) by Department*

<u>Dept.</u>	<u>2007</u>	<u>2006</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>
BME	\$11.28	\$13.59	\$10.53	\$12.18	\$9.58
CBE	\$15.15	\$15.60	\$12.84	\$12.53	\$15.22
CEE	\$12.91	\$13.09	\$12.97	\$11.17	\$10.35
ECE	\$18.00	\$16.65	\$15.76	\$15.35	\$13.61
IE	\$15.96	\$14.75	\$12.05	\$14.94	\$13.73
ME	\$15.15	\$15.23	\$14.13	\$12.26	\$13.87

*Does not include non-paying positions

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2006-07 Summary of Active Employers

(List of Companies/Organizations That Hired/Hosted Last 5 Yrs. And/Or Are Active in Our Program This Year)

3M	St. Paul, MN
Abbott Labs	Abbott Park, IL
AbelConn, LLC	New Hope, MN
Accenture	Chicago, IL
Accenture	Milwaukee, WI
Accumed LLC	Hillsboro, OR
Aceryg	Houston, TX
Advanced Heat Treat	Waterloo, IA
Advanced Micro Devices	Sunnyvale, CA
Advanced Specialties	Iowa City, IA
AGEP Summer Research Group	Iowa City, IA
Alcoa	Bettendorf, IA
Alcon Research Ltd.	Irvine, CA
Alliant Energy	Cedar Rapids, IA
Allsteel	Muscatine, IA
American Profol	Cedar Rapids, IA
Analex Corp.	Littleton, CO
Aptima	Woburn, MA
Aramark	Rockford, IL
Argonne National Lab	Argonne, IL
Ashton Engineering Associates	Davenport, IA
AY McDonald	Dubuque, IA
Bechtel	Frederick, MN
Beck Engineering	Spirit Lake, IA
Berlex Laboratories	Richmond, CA
BFA, Inc	Orlando, FL
Biomec Cardiovascular	Bloomington, MN
Bobcat	Bismark, ND
Boeing Corp.	Philadelphia, PA
Bolton & Menk	Minneapolis, MN
Boston Scientific-Scimed	Maple Grove, MN
BP	Iowa City, IA
BP	Houston, TX
Brook, Borg, Skiles Architecture Engineering	Des Moines, IA
Brown Medical	Spirit Lake, IA
Burgess Norton Inc.	Geneva, IL
Burlington Northern Santa Fe RR	West Burlington, IA
Burns and McDonnell	Kansas City, MO
Butler Co (IA) Engineer	Allison, IA
CAE Technology	Livonia, MI
Cambrex	Charles City, IA
Cargill	Cedar Rapids, IA

Cargill	Eddyville, IA
Cargill	Gainesville, GA
Cargill	Hammond, IN
Cargill	Sydney, OH
Cargill	Vernon, CA
Case-New Holland	Burlington, IA
Caterpillar	Mossville, IL
Caterpillar	Peoria, IL
Catheters and Disposables Technologies, Inc	Plymouth, MN
Cedar River Paper	Cedar Rapids, IA
Cellular Engineering Technology	Coralville, IA
Centro	North Liberty, IA
Cerner	Kansas City, MO
CH2M Hill	Englewood, CO
City of Coralville Engineer	Coralville, IA
City of Dubuque	Dubuque, IA
City of Iowa City	Iowa City, IA
City of Iowa City Engineering	Iowa City, IA
City of Iowa City Public Works	Iowa City, IA
City of Marion Engineering Department	Marion, IA
City of Naperville, IL	Naperville, IL
City of Sioux City	Sioux City, IA
City of Urbandale	Urbandale, IA
City of West Chicago	West Chicago, IL
Civco	Kalona, IA
Clapsaddle-Garber Associates	Marshalltown, IA
Clemson University REU Program	Clemson, SC
Cleveland Clinic	Cleveland, OH
Clipper Windpower	Cedar Rapids, IA
Cook, Inc.	Bloomington, IN
Craig Knoche & Associates	Geneva, IL
DaimlerChrysler	Portland, OR
DePuy Orthopaedics Inc	Warsaw, IN
Des Moines Water Works	Des Moines, IA
Dewild, Grant, Reckert and Associates	Sioux City, IA
DJH Engineering Center	Salt Lake City, UT
Dubuque County Highway Department	Dubuque, IA
Eagle Alloy	Muskegon, MI
Eaton Corporation	Arden, NC
Eaton Corporation	Shenandoah, IA
Eigen	Grass Valley, CA
Elgin Sweeper	Elgin, IL
Elkay Mfg.	Broadview, IL
Eli Lilly and Co.	Indianapolis, IN
Emerson-Fisher	Marshalltown, IA
Engineered Products	Waterloo, IA
Engineered Seal Products	Cedar Rapids, IA
Engineered Systems, Inc	Aurora, IL
Engineering Mechanics Corp.	Columbus, OH

Engineering Ministries International	India
Engineering Plastic Components	Grinnell, IA
Epic Systems	Verona, WI
Equistar Chemical	Clinton, IA
ESCO Group	Marion, IA
Excel	Ottumwa, IA
Exelon	Cordova, IL
F.H. Paschen	Chicago, IL
Federal Aviation Administration	Washington, D.C.
Federal Mogul Ignition Products	Burlington, IA
Feed & Grain Systems	Tipton, IA
Fermi National Accelerator Laboratory	Batavia, IL
Florida Power, Light & Energy – Duane Arnold Nuclear Plant	Palo, IA
FMC-Ulker	Jedda, Saudi Arabia
Freescale Semiconductor	Lake Zurich, IL
Ft. Dodge Animal Health	Ft. Dodge, IA
Gammeler US Corp.	Hannover Park, IL
Gateway, Inc.	North Sioux City, SD
GE Consumer & Industrial	Selmer, TN
GE Corporate Research Center	Schenectady, NY
GE Global Research Center	Niskaya, NY
GE Healthcare	Milwaukee, WI
GE Industrial	West Burlington, IA
Gelita USA	Sioux City, IA
Genencor, Inc.	Cedar Rapids, IA
Genencor, Inc.	Palo Alto, CA
General Mills	Cedar Rapids, IA
Geotechnical Services, Inc	Urbandale, IA
Glen Ellyn Public Works	Glen Ellyn, IL
Globus Medical	Phoenixville, PA
GM Chassis Center	Troy, MI
Goodwin and Marshall Engineers	Grapevine, TX
Guardian Automotive	Morehead, KY
Guardian Industries	DeWitt, IA
Habitat for Humanity	Iowa City, IA
Hall and Hall Engineers	Hiawatha, IA
Hamilton Sundstrand Corp.	Rockford, IL
Hancher Auditorium	Iowa City, IA
Harbor Branch Ocean Institute	Fort Pierce, FL
Harrison Steel Casting	Attica, IN
Harvey Products	Harvey, IL
HBK Engineering	Chicago, IL
HDL, Inc.	San Jose, CA
HDR	Corpus Christi, TX
Hearth & Home Technologies	Mt. Pleasant, IA
Hendrickson Intl.	Wheeling, IL
Hendrikson Mfg	Woodridge, IL
Hewlett Packard	Corvallis, OR
HJ Heinz	Muscatine, IA

HNI	Muscatine, IA
HNTB Corp.	Kansas City, MO
HON Tech Center	Muscatine, IA
Honeywell	Minneapolis, MN
Howard R. Green Company	Cedar Rapids, IA
HSR Associates, Inc.	Madison, WI
Hutchinson Technologies	Hutchinson, MN
Hygia, Inc.	Birmingham, AL
IAESTE: NorskHydro	Bergen, Norway
IBM	Rochester, MN
Ideal Industries	Sycamore, IL
Illinois DOT: Schaumburg	Schaumburg, IL
Illinois Institute of Technology	Chicago, IL
Implex, Inc.	Cedar Knolls, NJ
Ingersoll Production Systems	Rockford, IL
Innovative Software Engineering	Coralville, IA
Integrated DNA Technologies	Iowa City, IA
Intel	Rio Rancho, NM
Intermec	Cedar Rapids, IA
International Truck and Engine Corp.	Melrose Park, IL
Iowa County Engineer	Marengo, IA
Iowa Dept. of Natural Resources	
P2 Program: Accument	Decorah, IA
Iowa Dept. of Natural Resources	
P2 Program: Electrolux	Webster City, IA
Iowa Dept. of Natural Resources	
P2 Program: GKN Armstrong Wheels	Armstrong, IA
Iowa Dept. of Natural Resources	
P2 Program: Goodyear	Mt. Pleasant, IA
Iowa Dept. of Natural Resources	
P2 Program: Hospital Systems	W. Des Moines, IA
Iowa Dept. of Natural Resources	
P2 Program: John Deere Engine Works	Waterloo, IA
Iowa Dept. of Natural Resources	
P2 Program: Loparex	Iowa City, IA
Iowa Dept. of Natural Resources	
P2 Program: Mercy Medical Center	Cedar Rapids, IA
Iowa Dept. of Natural Resources	
P2 Program: Rockwell Cedar Rapids	Cedar Rapids, IA
Iowa Dept. of Natural Resources	
P2 Program: Veterans Administration Medical Center	Iowa City, IA
Iowa Dept. of Natural Resources	
P2 Program: Woodharbor Doors	Mason City, IA
Iowa Department of Transportation	Ames, IA
Iowa Department of Transportation	Britt, IA
Iowa Department of Transportation	Cedar Rapids, IA
Iowa Department of Transportation	Davenport, IA
Iowa Department of Transportation	Iowa City, IA
Iowa Department of Transportation	Mt. Pleasant, IA

Iowa Department of Transportation	Sioux City, IA
Iowa Spine Research Center	Davenport/IC, IA
Iowa State University	Ames, IA
Iowa State University – Dr. Kessler Lab	Ames, IA
Iowa State University Human Computer Interface Lab	Ames, IA
IPSCO Steel Inc.	Muscatine, IA
John Deere Agricultural Management Solutions	Urbandale, IA
John Deere Des Moines	Ankeny, IA
John Deere Dubuque	Dubuque, IA
John Deere Foundry	Waterloo, IA
John Deere Harvester	East Moline, IL
John Deere Moline	Moline, IL
John Deere Product Engineering Center	Waterloo, IA
John Deere Tech Center	Moline, IL
John Deere Waterloo	Waterloo, IA
John Deere World Wide Product Development	Moline, IL
Johns Hopkins University	Baltimore, MD
Johnson Controls, Inc.	Cedar Rapids, IA
Johnson County Auditor	Iowa City, IA
Jones Microbiology Institute	North Liberty, IA
Keck Graduate Institute/REU	Claremont, CA
Kemin Industries	Des Moines, IA
Kiewit Western Co.	Elgin, IL
Kinze Mfg	Williamsburg, IA
KLA Tencor	Milpitas, CA
Kraft Foods	Davenport, IA
KT Engineering	Huntsville, AL
LAN Engineering	Irvine, CA
Lawrence Berkley National Lab	Berkley, CA
Lear Corporation	Iowa City, IA
Leco Corporation	St. Joseph, MO
Legacy Clinical Research and Technology	Portland, OR
Lennox Industries	Marshalltown, IA
Lightwaves Systems	Cedar Rapids, IA
Littlefuse	Des Plaines, IL
LMS CADSI	Coralville, IA
Loparex	Iowa City, IA
Loram	Hamel, MN
Loram	Medina, MN
Los Alamos National Lab	Los Alamos, NM
Lozier Corp.	Omaha, NB
M.A. Ford Mfg.	Davenport, IA
MacLean Power Systems, Inc	Franklin Park, IL
Manhard Consulting	Lombard, IL
Mannik and Smith Group, Inc.	Maumee, OH
Marchese Surveying	Bartlett, IL
Marquette University	Milwaukee, WI
Masterlock Europe	Paris, France
Matkin Engineering	Fairfield, IA

Mayo Foundation/Mayo Clinic	Rochester, MN
Maytag-Amana	Amana, IA
Maytag-Newton	Newton, IA
McClure Engineering	Coralville, IA
MCEER – Cornell U	Ithaca, NY
McInerney’s	Iowa City, IA
McKesson	Dubuque, IA
Medical College of Wisconsin	Milwaukee, WI
MedImmune	Gaithersburg, MD
Medtronic Minimed	Northridge, CA
Medtronic, Inc.	Minneapolis, MN
Metzeler Automotive Profile System	Frederick, OK
MidAmerican Energy	Bettendorf, IA
MidAmerican Energy	Council Bluffs, IA
MidAmerican Energy	Davenport, IA
MidAmerican Energy	Urbandale, IA
MidAmerican Energy	Rock Island, IL
MidAmerican Energy	Sioux City, IA
Midwest Industries	Ida Grove, IA
Milkhaus Laboratories, Inc.	Providence, RI
Minarik Corp.	South Beloit, IL
Miracle Tool	Davenport, IA
Missouri DOT: Kansas City	Kansas City, MO
Mitsubishi Motors	Normal, IL
MMS Consultants	Iowa City, IA
Mokim Services Inc.	Clinton Township, MI
Monsanto	Muscatine, IA
Motorola-Florida	Plantation, FL
Motorola-Illinois	Arlington Heights, IL
Motorola-Illinois	Libertyville, IL
MPC Products	Skokie, IL
MTA	Davenport, IA
Naomi’s Kitchen	North Liberty, IA
NASA – Ames	Moffitt Field, CA
NASA – Langley	Langley, VA
NASA – Marshall Space Flight Center	Huntsville, AL
National Institutes of Health	Bethesda, MD
National Institutes of Health: Stroke Diagnostics Lab	Washington, D.C.
National Instruments, Inc.	Austin, TX
Nationwide Insurance	Des Moines, IA
Natural Source Energy Systems	Wheeling, IL
NEC USA	Princeton, NJ
Newport News Shipbuilding	Newport News, VA
NNW Engineers	Iowa City, IA
Northrup Grumman Life Support	Davenport, IA
Northrup Grumman	Rolling Meadows, IL
Northwest Airlines	Minneapolis, MN
Northwestern U. Materials Research Center	Evanston, IL
Novel Electronics	Muenchen, Germany

NSF: Materials Research Science & Engineering Center	Minneapolis, MN
Omaha Public Power	Nebraska City, NB
Opus Architects	Minnetonka, MN
Oral B Labs	Iowa City, IA
Pacific Earthquake Engineering Research	Berkeley, CA
Pacific NW National Lab	Richland, WA
Packer Engineering	Naperville, IL
Parr Instruments	Moline, IL
PB Leinrtz USA	Davenport, IA
PCL Construction Services	Tampa, FL
PCL Construction Services	Tukwila, WA
Pella Corp	Pella, IA
Penford Products	Cedar Rapids, IA
Philips Medical	Highland Heights, OH
Polaris Industries	Spirit Lake, IA
Polk County Dept. of Public Works	Des Moines, IA
Procter and Gamble	Cincinnati, OH
Pure Fishing	Spirit Lake, IA
R.G. Ray Corp.	Buffalo Grove, IL
Racine Paving	Richmond, IL
RBF Consulting	Irvine, CA
Rehabilitation Institute of Chicago	Chicago, IL
REU: Lerner Research Institute	Cleveland, OH
REU-U of CA at Berkeley	Berkeley, CA
REU-U of IL at Chicago	Chicago, IL
REU-U of Kansas	Lawrence, KS
REU-U of MA at Amherst	Amherst, MA
Reukert and Milke	Sussex, WI
Ricardo Inc.	Burr Ridge, IL
River Cities Engineering	Davenport, IA
Riverway Clinic	Anoka, MN
Rock Island Arsenal	Rock Island, IL
Rockford Department of Public Works	Rockford, IL
Rockwell Collins	Cedar Rapids, IA
Rockwell Collins	Coralville, IA
Rockwell Collins	Bellevue, IA
Rockwell Collins	Manchester, IA
Ruettiger Tenelt & Associates	Joliet, IL
Rush University Medical Center: Gait Lab	Chicago, IL
Scheck and Sires Orthopedics	Oak Brook Terrace, IL
Science Applications International Corporation	Washington, DC
Seagate Technologies	Minneapolis, MN
Seaquist General Plastics	Poincy, France
SEC Design	Lake Forest, IL
Sheaffer and Roland	Geneva, IL
Shive-Hattery Inc.	Iowa City, IA
Siemens Medical Solutions	Malvern, PA
Siemens Corporate Research, Inc.	Princeton, NJ
Silgan Plastics	Norcross, GA

Skill-Bosch Power Tool	Chicago, IL
Skyway Event Systems	Minneapolis, MN
Spaceco, Inc.	Rosemont, IL
Square D Corp.	Cedar Rapids, IA
St. Croix of Park Falls	Park Falls, WI
Standard Locknut	Westfield, IN
Stanley Environmental	Coralville, IA
Strand Associates	Madison, WI
Straub Foundation: Summer Student Research Program-Hawaii	Honolulu, HA
Superior Environmental	Bay City, MI
Terex	Cedar Rapids, IA
Terracon	Cedar Rapids, IA
Texas Tech University Environmental Research Station	Chariton, IA
The Weidt Group	Minneapolis, MN
Third Wave Systems	Minneapolis, MN
Trane	Sioux Falls, SD
TriCity Energy, LLC	Keokuk, IA
TURCK	Plymouth, MN
Tyco Healthcare Mallinckrodt	Hazelwood, MO
U.S. HHS Indian Health Service	Nashville, TN
U.S. HHS Indian Health Service	South Dakota
UCLA REU Program	Los Angeles, CA
UCSC REU Program	Santa Clara, CA
UI Cancer Research	Iowa City, IA
UI Career Center	Iowa City, IA
UI Chilled Water Plant	Iowa City, IA
UI CoE	Iowa City, IA
UI CoE BME	Iowa City, IA
UI CoE CBE	Iowa City, IA
UI CoE CEE	Iowa City, IA
UI CoE: CLOG/CBCB Lab	Iowa City, IA
UI CoE: GROK Lab	Iowa City, IA
UI CoE: HFSM Lab	Iowa City, IA
UI CoE: Human Factors Lab	Iowa City, IA
UI CoE: IATL	Iowa City, IA
UI CoE: Metal Fatigue/Fracture Lab	Iowa City, IA
UI CoE: OPL	Iowa City, IA
UI College of Medicine	Iowa City, IA
UI Dept. of Biology	Iowa City, IA
UI Dept. of Chemistry	Iowa City, IA
UI Dept. of Pharmacy	Iowa City, IA
UI Dept. of Physics	Iowa City, IA
UI Dept. of Physiology	Iowa City, IA
UI Dept. of Psychiatry	Iowa City, IA
UI Dept. of Radiology	Iowa City, IA
UI Design/Construction Services	Iowa City, IA
UI Facilities Management	Iowa City, IA
UI Howard Hughes Medical Institute	Iowa City, IA
UI IIHR	Iowa City, IA

UI ITS	Iowa City, IA
UI ME Dept	Iowa City, IA
UI Orientation Services	Iowa City, IA
UI Pediatric Cardiology Lab	Iowa City, IA
UI Power Plant	Iowa City, IA
UI Water Treatment Plant	Iowa City, IA
UIHC Facilities Services	Iowa City, IA
UIHC Imaging	Iowa City, IA
UIHC Internal Medicine Lab	Iowa City, IA
UIHC Medical Research Labs	Iowa City, IA
UIHC Radiology Laboratory	Iowa City, IA
UIHC: Cancer Research Lab	Iowa City, IA
UIHC: Neurology	Iowa City, IA
UIHC: Orthopaedic Biomechanics Lab	Iowa City, IA
UIHC: Pediatrics Lab	Iowa City, IA
Unilever HPC	Rolling Meadows, IL
University of Alabama-Birmingham REU	Birmingham, AL
University of Hawaii MSURF	Manoa, HA
University of Maine	Orono, ME
University of Nebraska: P3 Abengoa	York, NB
University of Nebraska: P3 Pfizer	Lincoln, NB
UOP	McCook, IL
UPS	Palatine, IL
US Air Force ROTC National Internships	Kirtland AFB, NM
US Army Corps of Engineers	Rock Island, IL
USDA Natural Resources Conservation Services	Red Oak, IA
UTC Power	South Windsor, CT
VA Medical Center	Iowa City, IA
Van Gorp Corp.	Pella, IA
Veenstra and Kimm	West Des Moines, IA
VIDA Diagnostics	Iowa City, IA
Village of Fox Point	Fox Point, WI
Village of Glen Ellyn	Glen Ellyn, Illinois
Village of Lombard	Lombard, IL
Village of Wheeling	Wheeling, IL
Village of Whitefish Bay	Whitefish Bay, WI
Virginia Tech Mechanical Engineering Lab	Blacksburg, VA
Vital Images, Inc.	Plymouth, MN
Washington County Engineer	Washington, IA
Whirlpool	Amana, IA
WL Gore and Associates	Flagstaff, AZ
Winegard Construction	Burlington, IA
XWires	Iowa City, IA
Zimmer	Warsaw, IN
Zurich North America	Schaumburg, IL

**The University of Iowa College of Engineering
Student Development Center/Engineering Professional Development
Cooperative Education and Internship Program**

2006-07 Summary of Participating Employers

(Alphabetical List of Companies/Organizations That Hired a Co-op/Intern in 2006-07)

Accenture	Chicago, IA
Accenture	Milwaukee, WI
Accumed LLC	Hillsboro, OR
Acergy	Houston, TX
Advanced Heat Treat	Waterloo, IA
AGEP Summer Research Group	Iowa City, IA
Alcon Research Ltd.	Irvine, CA
Allsteel	Muscatine, IA
Bechtel	Frederick, MN
Beck Engineering	Spirit Lake, IA
Boeing Corp.	PA
Boston Scientific	Maple Grove, MN
Burns & McDonnell	Kansas City, MO
Cambrex	Charles City, IA
Cargill	Cedar Rapids, IA
Cargill	Gainseville, GA
Cargill	Sydney, OH
Cargill	Vernon, CA
Caterpillar	Mossville, IL
Caterpillar	Peoria, IL
Cedar River Paper Co.	Cedar Rapids, IA
Cellular Engineering Technology	Coralville, IA
Cerner Corp.	Kansas City, MO
City of Iowa City	Iowa City, IA
Civco Medical Instruments	Kalona, IA
Cleveland Clinic	Cleveland, OH
Clipper Windpower	Cedar Rapids, IA
Eaton Corp.	Arden, NC
Eigen	Grass Valley, CA
Eli Lilly and Co	Indianapolis, IN
Epic Systems	Verona, WI
Equistar Chemical	Clinton, IA
Exelon Nuclear	Cordova, IL
Fermi National Laboratory	Batavia, IL
Florida Power, Light & Energy – Duane Arnold Nuclear Plant	Palo IA
Freescale Semiconductor	Lake Zurich, IL
GE Global Research	Niskaya, NY
Geotechnical Services, Inc.	Urbandale, IA
Globus Medical	Phoenixville, PA
Goodwin and Marshall Engineers	Grapevine, TX
Habitat for Humanity	Iowa City, IA
Hall and Hall Engineers	Hiawatha, IA

Harbor Branch Ocean Institute	Fort Pierce, FL
HDR Engineers	Corpus Christi, TX
Hearth & Home Technology	Mt. Pleasant, IA
HON	Muscatine, IA
Honeywell	Minneapolis, MN
HR Green	Cedar Rapids, IA
Ingersoll Production Systems	Rockford, IL
Innovative Software Engineering	Coralville, IA
Integrated DNA Technologies	Coralville, IA
Intel	Folsom, CA
Iowa Dept. of Natural Resources	
P2 Program: Accument	Decorah, IA
Iowa Dept. of Natural Resources	
P2 Program: Electrolux	Webster City, IA
Iowa Dept. of Natural Resources	
P2 Program: Goodyear	Mt. Pleasant, IA
Iowa Dept. of Natural Resources	
P2 Program: Hospital Systems	W. Des Moines, IA
Iowa Dept. of Natural Resources	
P2 Program: John Deere Engine Works	Waterloo, IA
Iowa Dept. of Transportation	Ames, IA
Iowa Dept. of Transportation	Cedar Rapids, IA
Iowa Dept. of Transportation	Mt. Pleasant, IA
ISU Research Laboratories	Ames, IA
ISU-Dr. Kessler Lab	Ames, IA
John Deere Dubuque Works	Dubuque, IA
John Deere Harvester Works	East Moline, IL
John Deere Waterloo Works	Waterloo, IA
Johnson Controls	Cedar Rapids, IA
Jones Microbiology Institute	North Liberty, IA
Kemin Industries	Des Moines, IA
KLA Tencor	Milpitas, CA
Leco Corp.	St. Joseph, MO
Lennox Industries	Marshalltown, IA
Littlefuse	Des Plaines, IL
Loram	Hamel, MN
Loram	Medina, MN
McClure Engineering	North Liberty, IA
McKesson	Dubuque, IA
Metzeler Automotive Profile System	Frederick, OK
MidAmerican Energy	Council Bluffs, IA
MidAmerican Energy	Davenport, IA
MidAmerican Energy	Urbandale, IA
MidAmerican Energy	Bettendorf, IA
MidAmerican Energy	Sioux City, IA
Midwest Industries	Ida Grove, IA
Miracle Tools	Davenport, IA
Monsanto	Muscatine, IA
Motorola	Libertyville, IL

NASA-Ames	Moffitt Field, CA
NASA-Langley	Hampton, VA
Natural Source Energy Systems	Wheeling, IL
NNW Engineers	Iowa City, IA
Northwest Airlines	Minneapolis, MN
Opus Architects	Minnetonka, MN
PB Leinertz USA	Davenport, IA
Philips Medical	Highland Hgts, OH
Rehabilitation Institute of Chicago	Chicago, IL
REU-U of CA at Berkley	Berkeley, CA
REU-U of Illinois at Chicago	Chicago, IL
REU-U of Kansas	Lawrence, KS
REU-U of Massachusetts at Amherst	Amherst, MA
River Cities Engineering	Davenport, IA
Rock Island Arsenal	Rock Island, IL
Rockwell Collins	Cedar Rapids, IA
Rockwell Collins	Coralville, IA
Scheck and Sires Orthopedics	Oak Brook Terrace, IL
SEC Design	Lake Forest, IL
Silgan Plastics	Norcross, GA
Strand Engineering	Columbus, IN
The Weidt Group	Minneapolis, MN
Third Wave Systems	Minneapolis, MN
TriCty Energy, LLC	Keokuk, IA
UI Cancer Research	Iowa City, IA
UI CoE CEE Laboratories	Iowa City, IA
UI CoE CLOG/CBCB	Iowa City, IA
UI CoE OPL	Iowa City, IA
UI CoE	Iowa City, IA
UI Dept. of Physics	Iowa City, IA
UI Howard Hughes Medical Institute	Iowa City, IA
UI IIHR	Iowa City, IA
UI ITS	Iowa City, IA
UI Orientation Services	Iowa City, IA
UI Power Plant	Iowa City, IA
UI Water Treatment Plant	Iowa City, IA
UIHC Dept. of Neurology	Iowa City, IA
UIHC Dept. of Orthopedics	Iowa City, IA
United Parcel Service	Palatine, IL
UOP	McCook, IL
U.S. HHS Indian Health Service	Nashville, TN
UTC Power	South Windsor, CT
Veenstra and Kimm Engineers	W. Des Moines, IA
VIDA Diagnostics	Coralville, IA
Village of Lombard	Lombard, IL
Whirlpool	Amana, IA
Winegard Construction	Burlington, IA

**The University of Iowa College of Engineering
Student Development Center/Engineering Professional Development
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2006-07 Summary of Participating Employers

(Departmental List of Companies/Organizations That Hired a Co-op/Intern in 2006-07)

BME

Accenture	Chicago, IL
Accumed LLC	Hillsboro, OR
AGEP Summer Research Group	Iowa City, IA
Alcon Research Ltd.	Irvine, CA
Cellular Engineering Technology	Coralville, IA
Cerner Corp.	Kansas City, MO
Civco Medical Instruments	Kalona, IA
Cleveland Clinic	Cleveland, OH
Globus Medical	Phoenixville, PA
Harbor Branch Ocean Institute	Fort Pierce, FL
Iowa Dept. of Natural Resources	
P2 Program: Hospital Systems	W. Des Moines, IA
Jones Microbiology Institute	North Liberty, IA
Miracle Tools	Davenport, IA
Philips Medical	Highland Hgts, OH
Rehabilitation Institute of Chicago	Chicago, IL
REU-U of CA at Berkley	Berkeley, CA
Rockwell Collins	Cedar Rapids, IA
Scheck and Sires Orthopedics	Oak Brook Terrace, IL
TriCty Energy, LLC	Keokuk, IA
UI Cancer Research	Iowa City, IA
UI Howard Hughes Medical Institute	Iowa City, IA
UI Orientation Services	Iowa City, IA
UIHC Dept. of Neurology	Iowa City, IA
UIHC Dept. of Orthopedics	Iowa City, IA
U.S. HHS Indian Health Service	Nashville, TN
VIDA Diagnostics	Coralville, IA

CBE

Boston Scientific	Maple Grove, MN
Cambrex	Charles City, IA
Cargill	Cedar Rapids, IA
Cargill	Gainseville, GA
Cargill	Sydney, OH
Cedar River Paper Co.	Cedar Rapids, IA
Eli Lilly and Co	Indianapolis, IN
Iowa Dept. of Natural Resources	
P2 Program: Accument	Decorah, IA
ISU Research Laboratories	Ames, IA
ISU-Dr. Kessler Lab	Ames, IA

Kemin Industries
MidAmerican Energy
Monsanto
PB Leinertz USA
REU-U of Illinois at Chicago
REU-U of Kansas
REU-U of Massachusetts at Amherst

Des Moines, IA
Council Bluffs, IA
Muscatine, IA
Davenport, IA
Chicago, IL
Lawrence, KS
Amherst, MA

CEE

Advanced Heat Treat
Bechtel
Burns & McDonnell
City of Iowa City
Exelon Nuclear
Florida Power, Light, & Energy- Duane Arnold Nuclear Plant
Geotechnical Services, Inc.
Habitat for Humanity
Hall and Hall Engineers
HDR Engineers
HR Green
Iowa Dept. of Natural Resources
 P2 Program: Goodyear
Iowa Dept. of Natural Resources
 P2 Program: John Deere Engine Works
Iowa Dept. of Transportation
Iowa Dept. of Transportation
Iowa Dept. of Transportation
McClure Engineering
MidAmerican Energy
NNW Engineers
Opus Architects
Strand Engineering
Third Wave Systems
UI CoE CEE Laboratories
UI IIHR
UI ITS
UI Water Treatment Plant
United Parcel Service
UOP
Veenstra and Kimm Engineers
Village of Lombard

Waterloo, IA
Frederick, MN
Kansas City, MO
Iowa City, IA
Cordova, IL
Palo, IA
Urbandale, IA
Iowa City, IA
Hiawatha, IA
Corpus Christi, TX
Cedar Rapids, IA

Mt. Pleasant, IA

Waterloo, IA
Ames, IA
Cedar Rapids, IA
Mt. Pleasant, IA
North Liberty, IA
Sioux City, IA
Iowa City, IA
Minnetonka, MN
Columbus, IN
Minneapolis, MN
Iowa City, IA
Iowa City, IA
Iowa City, IA
Iowa City, IA
Palatine, IL
McCook, IL
W. Des Moines, IA
Lombard, IL

ECE

Eaton Corp.
Eigen
Epic Systems
Equistar Chemical
Fermi National Laboratory
Freescale Semiconductor

Arden, NC
Grass Valley, CA
Verona, WI
Clinton, IA
Batavia, IL
Lake Zurich, IL

GE Global Research
Ingersoll Production Systems
Innovative Software Engineering
Intel
John Deere Waterloo Works
KLA Tencor
Leco Corp.
Littlefuse
McKesson
MidAmerican Energy
MidAmerican Energy
River Cities Engineering
Rockwell Collins
Rockwell Collins
UI CoE CLOG/CBCB
UI CoE OPL
UI CoE
UI Dept. of Physics
Winegard Construction

Niskaya, NY
Rockford, IL
Coralville, IA
Folsom, CA
Waterloo, IA
Milpitas, CA
St. Joseph, MO
Des Plaines, IL
Dubuque, IA
Davenport, IA
Urbandale, IA
Davenport, IA
Cedar Rapids, IA
Coralville, IA
Iowa City, IA
Iowa City, IA
Iowa City, IA
Iowa City, IA
Burlington, IA

IE

Accenture
Allsteel
Civco Medical
Honeywell
Integrated DNA Technologies
Johnson Controls
Lennox Industries
Loram
Metzeler Automotive Profile System
NASA-Ames
Rockwell Collins
Whirlpool

Milwaukee, WI
Muscatine, IA
Kalona, IA
Minneapolis, MN
Coralville, IA
Cedar Rapids, IA
Marshalltown, IA
Hamel, MN
Frederick, OK
Moffitt Field, CA
Coralville, IA
Amana, IA

ME

Accenture
Acergy
Allsteel
Boeing Corp.
Cargill
Cargill
Caterpillar
Caterpillar
Civco Medical Instruments
Clipper Windpower
Florida Power, Light & Energy – Duane Arnold Nuclear Plant
Hearth & Home Technology
HON
Iowa Dept. of Natural Resources

Chicago, IA
Houston, TX
Muscatine, IA
PA
Cedar Rapids, IA
Vernon, CA
Mossville, IL
Peoria, IL
Kalona, IA
Cedar Rapids, IA
Palo IA
Mt. Pleasant, IA
Muscatine, IA

P2 Program: Electrolux
John Deere Dubuque Works
Loram
MidAmerican Energy
Motorola
Nasa-Langley
Natural Source Energy Systems
Northwest Airlines
Rock Island Arsenal
Rockwell-CR
SEC Design
Silgan Plastics
The Weidt Group
UI CoE OPL
UI Power Plant
UTC Power
Whirlpool

Webster City, IA
Dubuque, IA
Medina, MN
Council Bluffs, IA
Libertyville, IL
Hampton, VA
Wheeling, IL
Minneapolis, MN
Rock Island, IL
Cedar Rapids, IA
Lake Forest, IL
Norcross, GA
Minneapolis, MN
Iowa City, IA
Iowa City, IA
South Windsor, CT
Amana, IA

UND

Beck Engineering
Goodwin and Marshall Engineers
John Deere Harvester Works
John Deere Waterloo Works
MidAmerican Energy
Midwest Industries

Spirit Lake, IA
Grapevine, TX
East Moline, IL
Waterloo, IA
Bettendorf, IA
Ida Grove, IA

**The University of Iowa College of Engineering
Student Development Center/Engineering Professional Development
Cooperative Education and Internship Program**

Biomedical Engineering

Summary

Experiences

<u>Year</u>	<u>Co-ops/Internships</u>	<u>Employers</u>	<u>Students</u>
2006-07	27 F.T./6 P.T. (52% Iowa)	26 (54% Iowa)	33
2005-06	25 F.T./1 P.T. (46% Iowa)	21 (38% Iowa)	25
2004-05	19 F.T./7 P.T. (53% Iowa)	21 (66% Iowa)	24
2003-04	16 F.T./6 P.T. (59% Iowa)	19 (58% Iowa)	21
2002-03	23 F.T./10 P.T. (70% Iowa)	23 (54% Iowa)	31

Salary Data

<u>Year</u>	<u>Salary Range</u>	<u>Mean*</u>	<u>Median*</u>	<u>Mode*</u>
2006-07	\$5.70/hr - \$22.75/hr	\$11.88/hr	\$12.25/hr	\$8.75/hr
2005-06	-0- to \$27.50/hr	\$13.59/hr	\$12.50/hr	\$8.50/hr & \$13.00/hr
2004-05	-0- to \$18.00/hr	\$11.37/hr	\$11.00/hr	\$15.00/hr
2003-04	\$6.00/hr - \$27.00/hr	\$12.45/hr	\$11.86/hr	\$9.00/hr & \$15.00/hr
2002-03	\$5.00/hr - \$18.50/hr	\$9.75/hr	\$8.50/hr	\$7.00/hr

*Mean, Median and Mode computations do not include volunteer positions

Distribution of Experiences (not students) by Class

<u>Year</u>	<u>2nd yr</u>	<u>3rd yr</u>	<u>4th yr</u>	<u>Graduate Student</u>
2006-07	24%	26%	39%	11%
2005-06	23%	39%	23%	15%
2004-05	12%	27%	58%	3%
2003-04	30%	26%	35%	9%
2002-03	33%	33%	32%	2%

Employers, Locations, and Position Descriptions, 2003-07

Abbott Laboratories
Biological screening/global products research and development

Abbott Park, Illinois

Accenture
Business consulting intern; work with project managers and group leaders in definition of client problems and solutions

Chicago, Illinois

Accumed LLC Product Development Intern; part of the team charged with the development of total replacement prosthesis of a joint in the upper extremities...design and execution of a data collection protocol to acquire anatomical data from CT and X-Ray images...data will be used to create a model of the articulating surface to assist in prosthesis design	Hillsboro, Oregon
AGEP Summer Research Group Resident Assistant (RA) for the Alliance for the Graduate Education and the Professoriate (AGEP)/ Alliance 2007 Summer Research Program	Iowa City, Iowa
Alcon Research Ltd. Ophthalmic engineering...work in the research & design sector...focus on vitreoretinal consumables...modeled the part using Pro/Engineering...sent the part out to an SLA vendor to be rapid prototyped...talking to extrusion vendors in order to critique the design in order to ensure manufacturability and minimize cost...compile the advice/quotes...to choose the best option.	Irvine, California
Alliant Energy Update GIS map of Dubuque County and surrounding areas/update other diagrams	Cedar Rapids, Iowa
Allsteel Ergonomic testing and analysis, studying and analyzing competitors products	Muscatine, Iowa
Analex Corporation Provide engineering consulting for a start-up medical device company	Littleton, Colorado
Biomec CardioVascular Quality Assurance Engineering Intern for medical device company	Bloomington, Minnesota
Brown Medical Assist BME Design Engineers and Contracts/Sales Mgr. in work on tennis elbow strap, illiotibial hand strap and thumb keeper splint; also, fasciitus splint and toe clamp.	Spirit Lake, Iowa
Caterpillar Assist ergonomic team members in current projects, develop new projects including the use of sensors and seat suspension	Peoria, Illinois
Catheter and Disposables Technology, Inc Supplier evaluation and assistance in quality issues, research and data collection in manufacturing build cycle times and trending, writing SOP and training for tensile tester, laser micrometer, and tipping machine	Plymouth, Minnesota
Cellular Engineering Technology Emerging biotech company intern...research with non-embryonic stem cells	Coralville, Iowa
Cerner Assist with the design and development of web-based training courses for clinical end users of Cerner Millennium solutions. Meeting with course content experts and sponsors, using software development tools, executing all applicable tasks in the course development process, and other tasks to support WBT Development Team's efforts	Kansas City, Missouri

Civco Medical Instruments Use ProEngineer and AutoCAD to make/update drawings and specifications/assist in testing and quality inspection of devices, documentation of devices to ISO 9001 and 46001 procedures	Kalona, Iowa
Clemson University Medical/Biological engineering research	Clemson, South Carolina
Cleveland Clinic Develop an organ culture system for human and porcine mitral valves	Cleveland, Ohio
Cook, Inc. Design and development of various styles of medical/surgical devices	Bloomington, Indiana
DePuy Orthopaedics, Inc Responsible for biomechanical testing and analyses/research support for all orthopaedic device product development teams/perform basic scientific studies	Warsaw, Indiana
Engineering Systems Inc. Organizing and researching data and information on lower limb injury study supporting ongoing engineering projects	Aurora, Illinois
Environmental Research Center, Texas Tech University Field and lab study of the effectiveness of riparian buffers at reducing movement of atrazine and nitrates into surface waters	Chariton, Iowa
Ft. Dodge Animal Health Technical Services Intern for veterinary pharmaceutical company, validating equipment and processes, designing, executing, and filing reports about experiments which comprehensively prove that the process or device does what it is supposed to do, within pre-established tolerances	Ft. Dodge, Iowa
GE Corporate Research and Development Participate in 3D Digital Mammography Project/Responsible for 3D image reconstruction and processing algorithm development	Schenectady, New York
GE Global Research Center CT reconstruction algorithm development	Niskaya, New York
Globus Medical Research Engineer, responsible for planning, coordination, successful execution and publication of various research projects for spine surgeons, residents, and product development	Phoenixville, Pennsylvania
Harbor Branch Ocean Institute Intern for ongoing project related to underwater imaging system...dealing with improving the quality of images acquired under oceans	Ft. Pierce, Florida
Hygia Health Services Medical devices, research and design, materials and product testing	Birmingham, Alabama

Illinois Institute of Technology	Chicago, Illinois
Performing necessary background research and experiments, presenting results for Summer Diabetes Research Projects, specifically to develop a minimally invasive glucose meter, which has no negative side effects and provides an accurate measure of current blood glucose levels	
Implex, Inc.	Cedar Knolls, New Jersey
Mechanical testing of biomedical prototypes and products to determine mechanical performance and properties	
Iowa Department of Natural Resources P2 Program: Hospital Systems	West Des Moines, Iowa
Assist hospitals and healthcare facilities in conducting mercury assessments, environmental audits, and energy conservation	
Iowa Department of Natural Resources P2 Program: Mercy Medical Ctr.	Cedar Rapids, Iowa
Reduction/management of regulated medical waste, general facility recycling, pollution prevention projects	
Iowa Spine Research Center/Palmer College of Chiropractic	Iowa City/Davenport, Iowa
Calibration and testing of force transducers, LA 600 motion analysis system, and development of software for biomechanical data analysis and computer systems	
Iowa State University Human Computer Interface Lab	Ames, Iowa
Virtual Cell Project, creating an interactive virtual cell environment for research and teaching at both the undergraduate and high school levels	
Jones Microbiology Institute	North Liberty, Iowa
Pharmaceutical testing for various companies	
Keck Graduate Institute/REU	Claremont, California
Conduct original research, with presentations and poster session, in elucidating the role of sterols in plant development using a proteomics approach	
Lerner Research Institute/REU	Cleveland, Ohio
Design and implementation of software programs for quantitative image analysis, fluorescence Microscopy and microCT in analysis of cell culture and bone, quantitative image acquisition and quantitative processing of CTP colonies and 3D bone specimens	
Marquette University/REU	Milwaukee, Wisconsin
Quantifying trunk compensatory movements after stroke	
Mayo Foundation/Mayo Clinic	Rochester, Minnesota
Rewrite data analysis programs written in C into Matlab/Application of programs	
Medical College of Wisconsin	Milwaukee, Wisconsin
Summer Research Training Program: Biomedical Research/Anesthesiology	
MedImmune	Gaithersburg, Maryland
Support of cell line production; molecular/cellular biological research	

Medtronic, Inc. Review clinical data/information and oversee data correction and distribution of data clarification forms to centers and subsequent receipt of clarifications and updates for the clinical database; also, assist study manager in providing interim and final reports and presentations	Minneapolis, Minnesota
Medtronic Minimed Mechanical Engineering Intern, medical device company	Northridge, California
Miracle Tools of America Database development, time studies to determine cost of production and pricing of tools	Davenport, Iowa
National Institutes of Health Create program for virtual colonoscopy	Bethesda, Maryland
National Institutes of Health Stroke Diagnostics Lab Perform research in the area of medical radiology, work on a project to model inflammation in the brain after ischemic stroke. In this model of stroke, a rat is injected with an ultras-small superparamagnetic iron oxide contrast agent to visualize macrophages in the brain after transient occlusion of the middle cerebral artery	Washington, DC
Novel Electronics Research in posturography	Muenchen, Germany
Northrup Grumman Life Support, Inc. Data acquisition testing and documentation/wrote procedures and performed research on various projects/researched patents	Davenport, Iowa
Pacific Northwest National Laboratories Basic research	Richland, Washington
Palmer College of Chiropractic Spine research and testing of procedures/processes	Davenport, Iowa
Philips Medical CT clinical science group intern works closely with marketing and the Research and Development departments...assists both departments in the product delivery chain...main function of the group is to investigate new areas of applications, getting consumer reviews on the current products and doing comparative analysis of what other competitors have in similar products	Highland Heights, Ohio
Rehabilitation Institute of Chicago Summer Internship in Neural Engineering (SINE) program...conducting an experiment on the gait cycle of stroke subjects, with the hopes to later form a rehabilitation method to correct their walking pattern	Chicago, Illinois
REU-University of Alabama-Birmingham Research into chemical analysis and engineering	Birmingham, Alabama
REU-U of CA at Berkeley Studying a kinesin-II motor protein and its role in cell division in order to identify a possible drug target for <i>Trypanosoma brucei</i> , the parasite that causes African sleeping sickness...project is largely based on studying the morphology and life cycle of mutants that are deficient in this protein using immunofluorescence	Berkeley, California

microscopy techniques...also using biochemical techniques to purify portions of this kinesin for antibody purification and subsequent localization within the trypanosome.

REU-University of California at Los Angeles
Biological engineering research

Los Angeles, California

Rockwell Collins, Inc.
Various projects involving hardware/software development and testing, image analysis, and web development for aircraft and internal applications

Cedar Rapids, Iowa

Rush University Medical Center Gait Lab

Chicago, Illinois

Engineering Assistant, data acquisition and processing, assist with testing of study subjects

Scheck and Sires Orthopedics

Oak Brook Terrace, Illinois

Orthopedic Student Intern...design and fabrication of orthopedic devices...patient interaction...practitioner observation, assistance, and case review

Siemens Corporate Research, Inc.

Princeton, New Jersey

Design medical image analysis algorithms and develop related softwares

Siemens Medical Solutions

Malvern, Pennsylvania

Basic and applied research on imaging software and applications

Straub Foundation: Summer Student Research Program

Honolulu, Hawaii

Studying vascular ultrasound applications in clinical setting, an objective analysis to compare the accuracy of the handheld doppler to the duplex ultrasound scan in diagnosing venous disease

TriCity Energy, LLC

Keokuk, Iowa

Biodiesel engineering and design firm... formulate and design a process to make Tri-City Energy's glycerin marketable and profitable

Tyco Healthcare Mallinckrodt

Hazelwood, Missouri

Research and development, responsible for many different types of integrity testing to ensure that plastic syringes can withstand the pressure of power injection and that the product within the syringe remains sterile

UI Dept. of Orthopedics and Rehabilitation

Iowa City, Iowa

Research and experimentation on the effects of oxygen on chondrocyte cells

UI Howard Hughes Medical Institute

Iowa City, Iowa

Muscular Dystrophy research laboratory assistant

UIHC/UI Cancer Research

Iowa City, Iowa

Perform research projects requiring multiple tissue culture experiments pertaining to different drug and radiation treatments for cancer cells, while also maintaining the lab

UIHC Facilities Services

Iowa City, Iowa

Verify UIHC engineering systems equipment layouts and collect inventory/historical data to assist in implementation of FS Facilities Management Information System

UIHC Internal Medicine Laboratory Assistant	Iowa City, Iowa
UIHC Medical Research Laboratories Assist in the design and modification of a tissue culture system consisting of a rotating bioreactor experiencing simulated microgravity to enhance visualization of neurovirus expression in vitro	Iowa City, Iowa
UIHC Dept. of Neurology Research in neurological degenerative diseases, Alzheimer's and Parkinson's specifically	Iowa City, Iowa
UIHC Orthopedic Biomechanics Laboratory Engineering research assistant/image analysis of bone fragment geometry and physical testing	Iowa City, Iowa
UIHC Pediatrics Department Prepare agarose gels for radiation hybrid mapping project/technical support	Iowa City, Iowa
UIHC Radiology Laboratories Write code for uses in functional brain mapping	Iowa City, Iowa
Unilever HPC Formulation and development team/hair care products	Rolling Meadows, Illinois
University of Iowa Biomedical Engineering Department Writing of programs in C used to determine velocities of cells	Iowa City, Iowa
University of Iowa College of Engineering Software development	Iowa City, Iowa
University of Iowa College of Engineering Orientation Services Mentor and advise incoming 1 st year engineering students, provide guidance on scheduling, adjustment to the college, and interact with parents	Iowa City, Iowa
University of Iowa College of Medicine Developing software for PIC microprocessors/circuit design/testing and debug	Iowa City, Iowa
University of Iowa Department of Biology Field sampling, data measurement, and data analysis	Iowa City, Iowa
University of Iowa Department of Physics Web Development	Iowa City, Iowa
U.S. HHS Indian Health Service Engineering intern	Nashville, Tennessee
VIDA Diagnostics Develop, test, and document medical image processing software	Iowa City, Iowa
Vital Images, Inc. Responsible for design, code, test and documentation of imaging software	Plymouth, Minnesota

W.L. Gore and Associates

Flagstaff, Arizona

Working in the Manufacturing Research and Development Group responsible for the design and development of the Gore Excluder and Gore TAG endovascular aortic repair devices, designed to correct aortic aneurysms in the abdominal and thoracic aortic regions. While working with this team I have participated in new device design, bench top device deployment and testing, medical imaging of deployed devices, and animal studies of preliminary device designs

Zimmer Orthopedics

Warsaw, Indiana

Design and production of hip/shoulder joints

Student End-of-Term Survey Data, 2003-7

Students are required to complete an evaluation of their experience at the end of each semester. Part of the evaluation includes rating 10 areas and selecting an overall rating using the following scale:

0-NA 1-Unsatisfactory 2-Improvement Needed 3-Satisfactory 4-Above Average 5-Excellent

<u>Mean Survey Ratings</u>	<u>06-07</u>	<u>05-06</u>	<u>04-05</u>	<u>03-04</u>	<u>02-03</u>
Formal Training Received	3.9	3.8	4.4	4.4	3.7
Informal Training Received	4.1	4.4	4.7	4.2	4.3
Feedback on Work Performed	4.0	4.4	4.6	4.4	4.1
Supervision Received	4.1	4.2	4.5	4.3	3.8
Interaction with Co-Workers	4.3	4.7	4.6	4.8	4.6
Quantity of Work Assigned	3.9	4.1	4.2	4.4	4.0
Level of Responsibility Assigned	4.1	4.5	4.3	4.6	4.4
Abilities Utilized	3.9	4.2	4.2	4.5	3.9
Relevance of Academic Preparation To Work Position	3.5	3.8	4.1	3.6	3.8
Career/Professional Knowledge Gained	4.6	4.5	4.5	4.6	4.4
Overall Rating	4.4	4.5	4.6	4.5	4.4

Students have the opportunity to comment on the ratings, their work duties, influence of the experience on their future, and suggestion for the program.

Student Comments, 2006-07

“...worked with 11 hospitals to identify devices containing mercury and recommended alternatives...created an energy stat baseline for each facility...looked at facility recycling and discharged waste procedures and recommended improvements.”

“...had an excellent, educational summer!”

“...medical knowledge not utilized, but general problem solving and communication skills were essential.”

“...team was helpful and patient...other interns were great to meet and hang out with...”

“...audited CRTM Matrices, converted documentation process to new MethodM process, assigned service requests...created reports on service requests...installed service packages into client computer systems...developed roadmaps for upcoming client projects...”

“...learned a lot about myself and managing people, planning tasks/events and working with new approaches in decision-making...”

“...evaluation of medial image processing algorithm and investigating new application areas...”

“...collect and analyze measurements from CT and X-Ray images to be integrated into device design...performed design analysis in FEA environment...designed a testing jig and protocol for obtaining geometric data from dried bone specimens...provided sketches for surgical instruments...”

“...needed more mechanical design/analysis tools to be effective in device development...great experience...collaborated with team members in different projects...participated in social and professional events...”

“...actually enjoy going to work! It’s very laid back and I’m constantly learning...want to work in a hospital n my future so this is a great first step to get a feel for the environment.”

“...protein purification (batch, FPLC, gel filtration, buffer) exchange...protein expression trouble shooting...immunolocalization...lab has been excellent to work in...excellent experience...”

“...job this summer is most likely the best job ever.”

“...automated and tested verification software, used LDRA testbed and understand to calculate code metrics, aided in dxl script creation, updated test environment files...”

“...work could be hard and frustrating and made me wish I knew so much more so that I could be productive, but I liked my team, I liked the flexibility, I liked the company...learned a lot...already excited about getting my next internship...”

“...performed drug analysis and activity test on mice and collected muscle tissue sample to prepare for viewing...had enough preparation for the job...”

Employer End-of-Term Survey Data, 2003-7

Employers are required to complete an evaluation of the student and the experience at the end of each semester. This evaluation is shared with the student. The evaluation includes rating 15 areas and selecting an overall rating. Employers are advised to consider job duties, corporate co-op/intern benchmarks, assignments and expectations, and comparison with other student co-ops/interns. The following scale is used:

0-NA 1-Unsatisfactory 2-Improvement Needed 3-Satisfactory 4-Above Average 5-Excellent

<u>Mean Survey Ratings</u>	<u>06-07</u>	<u>05-06</u>	<u>04-05</u>	<u>03-04</u>	<u>02-03</u>
Quality of Work	4.6	4.6	4.8	4.8	4.8
Quantity of Work	4.6	4.4	4.6	4.5	4.5
Oral Expression	4.4	4.4	4.3	4.1	4.6
Written Expression	4.2	4.4	4.2	4.4	4.2
Problem Solving Skills	4.6	4.6	4.4	4.2	4.7
Academic Preparation	4.4	4.3	4.5	4.1	4.3
Ability to Use Resources	4.5	4.8	4.6	4.4	4.8
Completion of Assignments	4.6	4.6	4.9	4.7	4.8
Acceptance of Responsibility	4.8	4.8	4.8	4.6	4.8
Acceptance of Criticism	4.9	4.6	4.6	4.3	4.5
Ability to Take Direction	4.7	4.4	4.8	4.7	4.8
Relationships With Others	4.7	4.5	4.6	4.6	4.8
Work Attitudes (e.g., initiative, Enthusiasm)	4.9	4.6	4.4	4.8	4.5

Appropriate Appearance	4.7	4.6	4.6	4.4	4.7
Potential for Permanent Hire	4.8	4.7	4.7	4.9	4.9
Overall Rating	4.8	4.6	4.8	4.5	4.6

Employers have the opportunity to comment on the ratings, special abilities of the student, work description, and if the student will be returning.

Employer Comments, 2006-2007

“...exceeded expectations on all assignments...written and verbal communication were excellent...offered another summer internship opportunity for the summer of 2008.”

“...coded on 3D waterfall display in C using OpenGL...ability to independently search for answers to problems...”

“...very responsible, good work ethic...worked well with many types of people...”

“...quick learner and able to apply engineering concepts learned in the classroom, willingness to share knowledge with fellow employees, promoted positive work environment...”

“...strong understanding of background literature, very independent work and strong initiative to propose new experiments, good experimental skills...”

“...1 year of school...evaluations rates her with other coops/interns which have at least 2 yrs of school so she did quite well...would be welcome back in the future...”

“...completely managed his own time, scheduled his site visits and educated numerous operations and medical staff...enthusiasm for improving the environment and saving operational expenses is contagious...”

“...very good attention to detail and excellent technical writing skills...uses all resources to better understand and solve a problem very well...”

**The University of Iowa College of Engineering
Student Development Center/Engineering Professional Development
Cooperative Education and Internship Program**

Chemical and Biochemical Engineering

Summary

Experiences

<u>Year</u>	<u>Co-ops/Internships</u>	<u>Employers</u>	<u>Students</u>
2006-07	21 F.T./0 P.T. (57% Iowa)	18 (61% Iowa)	20
2005-06	20 F.T. (60% Iowa)	17 (47% Iowa)	19
2004-05	15 F.T. (60% Iowa)	12 (50% Iowa)	14
2003-04	15 F.T. (40% Iowa)	14 (36% Iowa)	14
2002-03	18 F.T./1 P.T. (74% Iowa)	14 (77% Iowa)	14

Salary Data

<u>Year</u>	<u>Salary Range</u>	<u>Mean*</u>	<u>Median*</u>	<u>Mode*</u>
2006-07	\$8.75 - \$36.25/hr	\$15.50/hr	\$16.15/hr	\$16.50/hr
2005-06	\$10.00 - \$24.00/hr	\$15.91/hr	\$16.00/hr	\$16.00/hr
2004-05	\$5.65 - \$22.16/hr	\$13.35/hr	\$12.15/hr	\$17.05/hr
2003-04	\$7.50 - \$20.74/hr	\$12.84/hr	\$12.00/hr	\$12.00/hr
2002-03	\$8.50 - \$18.75/hr	\$15.33/hr	\$16.47/hr	\$17.22/hr

*Mean, Median and Mode computations do not include volunteer positions

Distribution of Co-ops/Internships (not students) by Class

<u>Year</u>	<u>2nd yr</u>	<u>3rd yr</u>	<u>4th yr</u>	<u>Graduate Student</u>
2006-07	-0-	57%	33%	10%
2005-06	-0-	65%	30%	5%
2004-05	-0-	47%	53%	-0-
2003-04	13%	47%	40%	-0-
2002-03	10%	45%	45%	-0-

Employers, Locations, and Position Descriptions, 2003-07

3M Austin, Texas
Sterilization assurance project in medical division

3M St. Paul, Minnesota
Synthesis, compounding, testing, and reporting results of experimental materials for development of dental restoratives/Prepared samples for lab testing involving mixing, syringing, and coating polymers

Abengoa Bioenergy Systems/University of Nebraska P2 Pollution prevention and control program intern; develop a fugitive dust emission plan, sludge management	York, Nebraska
Advanced Micro Devices, Inc. Linewidth standard characterization and implementation in production CD SEM system	Sunnyvale, California
Aramark Production Management Intern-Operations Support, research ways to reduce costs associated with fluid discharge and reclamation, supervision and management duties as assigned	Rockford, Illinois
Argonne National Laboratory Team member in program aimed at a generalized understanding of how the three-dimensional structure of a membrane protein defines its function/wet chemistry in lab/work closely with principal investigator on the bioinformatics of membrane proteins	Argonne, Illinois
Boston Scientific Design assurance intern...take newly discovered stent or methodology...test and retests it for compliance, both to what the Research and Division says the stent or method can or should do, and for the compliance to the governing body standards such as 21CFR part 211, 212 (FDA regulations) and the United States Pharmacopeia (USP) GAMP	Maple Grove, Minnesota
BP Corporation Update wellbore utility chart design, create forecast for production in Cheyenne West oil field and track new well performance, predict performance using decline curve analysis	Houston, Texas
BP Corporation Completing RAR/ARR; installing alarm and strobes in facilities; improvement of the flare system; using new program to maximize reporting of air emissions	Iowa City, Iowa
Burgess-Norton, Inc. Working with new technology group in assessing new products and processes and materials engineering	Geneva, Illinois
Cambrex Production engineering, emissions control standards and implementation, design	Charles City, Iowa
Cargill Process improvement projects for plant, updating documentation, maintenance projects	Cedar Rapids, Iowa
Cargill Quality Control and production testing	Eddyville, Iowa
Cargill Packaging Supervisor/Project Engineer Intern...modification of a pre-existing line in oil fill room...decide where to place new equipment so 5-quart line would run most efficiently...alteration of a bottle unscrambler so that it unscrambled the bottles from a different position on the line than the manufacturers intended	Gainesville, Georgia
Cargill Design and construction of heat recovery and waste reduction system in food starch plant	Hammond, Indiana

Cargill Chemical Design Project Engineer Intern, focusing efforts towards testing, installing, and optimizing run procedures for a proposed Reverse Osmosis Disk Centrifuge system	Sydney, Ohio
Cedar River Paper Process Engineer Intern, assist process engineers in the implementation of projects to optimize productivity, optimize savings, and eliminate bottle necks in the paper making process	Cedar Rapids, Iowa
Deere Technology Center Metallurgical research and testing; process evaluation; quality control	Moline, Illinois
Eli Lilly and Company Study enzyme kinetics of drug metabolizing CYP enzyme variants	Indianapolis, Indiana
Emerson-Fisher Controls International, Inc. Sales support engineer co-op/provided day to day support for sales representatives/responsibilities include pricing, product selection, materials	Marshalltown, Iowa
Engineered Seal Products Engineering Intern, develop marketing information, spectroscopy and quality assurance, materials processing and testing	Cedar Rapids, Iowa
GE Healthcare CT Detectors area of General Electric Healthcare's Diagnostic Imaging branch, design processes by which the oxidation and hydration of terbium oxide could be determined	Milwaukee, Wisconsin
Gelita USA Assist with AutoCad drawings and engineering projects	Sioux City, Iowa
Genencor, Inc Purification of proteins in R & D environment with aim of scaling up processes to work in industrial environment	Palo Alto, California
General Mills Plant engineering staff in food products facility	Cedar Rapids, Iowa
HJ Heinz Engineering Intern, production, plant processes, and quality, projects included Product Heating Systems, Deaerator Conversion, Water Use Reduction and Pouch Film Waste Reduction	Muscatine, Iowa
HamiltonSundstrand Corporation Engine and Control Systems engineering project team	Rockford, Illinois
Hutchinson Technologies Inspect, characterize and analyze parts to insure highest production quality	Hutchinson, Minnesota
IPSCO Steel Materials and process design/improvements	Muscatine, Iowa

Iowa Department of Natural Resources P2 Program/Accument Reclaim water that is used in non-contact process cooling on two furnaces and then returned directly to the city via the sewer system...filtering and reusing what is currently waste oil or using longer lasting oils to reduce the volume of oil that passes through the plant	Decorah, Iowa
Iowa Department of Natural Resources P2 Program/AutoProfile Monitor waste products generated from manufacturing processes, including rubber; design and implement waste reduction policies and procedures	Keokuk, Iowa
Iowa Department of Natural Resources P2 Program/Dial Corp. Resource conservation projects, process improvements, and pollution control	Ft. Madison, Iowa
Iowa Department of Natural Resources P2 Program/Fansteel Research and recommend alternatives to processes which produce a high amount of pollution, in order to reduce pollutants and create an economic benefit to the company	Creston, Iowa
Iowa Department of Natural Resources P2 Program/Pella Reduce quantity of paint used during production by reducing overspray waste.	Pella, Iowa
ISU Research Laboratories Undergraduate Research Assistant...research into aptamer based catalyst design...using aptamers, or DNA samples, as a catalyst for coupling two small molecules	Ames, Iowa
ISU – Dr. Kessler Laboratory Undergraduate Research Intern, sponsored by WISE...polymer research into applications and manufacturing	Ames, Iowa
John Deere Product Engineering Center Learning about gasket materials and their proper application/coordinate activities between material suppliers, part manufacturers, and John Deere/working on installing and operating UniForce program to aid in testing out gaskets.	Waterloo, Iowa
John Deere Waterloo Works Testing of purchased painted parts to insure quality control/assist in development of paint reclaim and paint process improvements for the final paint line	Waterloo, Iowa
Kraft Foods Plant engineering intern in food processing plant	Davenport, Iowa
Kemin Industries Intern in the world wide research and development group...future projects...expertise in genetic engineering, biochemistry and medium to large scale fermentations	Des Moines, Iowa
Lawrence Berkeley National Lab Run reduction reactions of pyruvate, carbon dioxide/analyze products on CE, perform thermal analyses of Polymers and synthesize monomes for polymerization	Berkeley, California
Los Alamos National Laboratory Basic and applied research on various project teams	Los Alamos, New Mexico

Maytag-Newton Materials development, testing and procedures, customer support	Newton, Iowa
Mid American Energy Generation Engineering Department Intern at the Council Bluffs Energy Center...performance engineering for all three units at CBEC...project manager for the scaffold and insulation contractors that are supporting the six-week unit outage.	Council Bluffs, Iowa
Monsanto AST project design and implementation for salt tank level probe coupling testing, testing and documentation of interlocks and MCB compression fitting, other process/plant engineering projects as assigned	Muscatine, Iowa
NSF: Materials Research Science and Engineering Center Zeolite synthesis and characterization	Minneapolis, Minnesota
Northwestern University Material Research Center Research Assistant on various projects involving application and testing of materials	Evanston, Illinois
PB Leinertz USA Plant Maintenance Intern...gelatin manufacturing facility... include process safety management compliance, capital project development, plant energy conservation and process improvement project development	Chicago, Illinois
Penford Products Team member of Customer Applications Group of R & D/provide service to customers of corn and starch products/ID types of starch using microscopy, staining and other methods/pilot projects working with new coatings/testing and analysis of paper products, corn starch products, and paper coating products	Cedar Rapids, Iowa
Polaris Industries Work on paint system to reduce MAP's, reverse osmosis, plasma cleaner redesign to remove the contamination from mixtures	Spirit Lake, Iowa
Procter and Gamble Product Development Intern, Fabric and Home Care/cite scale up recommendations for a process after testing whether process conversion from batch to continuous was feasible	Cincinnati, Ohio
REU – U of Illinois at Chicago Research project couples electrophysiology and neurochemistry to further understand the microenvironment around an ischemic stroke area in the brain	Chicago, Illinois
REU – U of Kansas Test the solubility of sulfuric acid in several room temperature ionic liquids using titration...results of these tests would then be used in the future to decide the applicability of using these ionic liquids as solvents in the production of methyl esters for biodiesel	Lawrence, Kansas
REU – U of Massachusetts at Amherst Developing a gel that can be placed on a person's organs to supply the organs with oxygen during surgery	Amherst, Massachusetts
Science Applications International Corporation Reviewing and analyzing greenhouse gas emissions reports	Washington, D.C.

University of Hawaii at Manoa Research and data collection with Manoa Summer Undergraduate Research Program	Manoa, Hawaii
UI College of Engineering Chemical and Biochemical Engineering Laboratory Assistant/Research and data analysis	Iowa City, Iowa
UI Department of Chemistry Lab/Research Assistant	Iowa City, Iowa
UI Department of Physiology Physiology lab research assistant	Iowa City, Iowa
UI Engineering Orientation Services Orientation advisor for incoming freshmen and parents, and transfer students to the College of Engineering, mentoring, scheduling, and advising	Iowa City, Iowa
UI Water Treatment Plant Lab testing, environmental systems, Oakdale plant operations	Iowa City, Iowa
University of Nebraska at Lincoln P3 Program: Pfizer Provide technical assistance to the Environmental Health and Safety Department of Pfizer Genetics	Lincoln, Nebraska
Virginia Tech University Research into fuel cells, using ionic polymer membranes as actuators/sensors	Blacksburg, Virginia

Student End-of-Term Survey Data, 2003-7

Students are required to complete an evaluation of their experience at the end of each semester. Part of the evaluation includes rating 10 areas and selecting an overall rating using the following scale:

0 – NA 1-Unsatisfactory 2-Improvement Needed 3-Satisfactory 4-Above Average 5-Excellent

<u>Mean Survey Ratings</u>	<u>06-07</u>	<u>05-06</u>	<u>04-05</u>	<u>03-04</u>	<u>02-03</u>
Formal Training Received	3.5	3.9	3.7	3.6	3.5
Informal Training Received	3.9	4.1	4.1	4.0	4.1
Feedback on Work Performed	3.9	3.9	4.0	3.8	3.6
Supervision Received	3.6	3.7	3.9	3.6	3.7
Interaction with Co-Workers	4.3	4.5	4.3	4.3	4.6
Quantity of Work Assigned	3.6	4.1	4.3	3.7	4.1
Level of Responsibility Assigned	4.5	4.3	4.5	3.7	4.5
Abilities Utilized	3.9	4.2	4.0	3.4	4.0
Relevance of Academic Preparation To Work Position	3.7	3.3	3.4	3.3	3.6
Career/Professional Knowledge Gained	4.5	4.6	4.8	3.8	4.5
Overall Rating	4.2	4.2	4.5	3.7	4.4

Students have the opportunity to comment on the ratings, their work duties, influence of the experience on their future, and suggestion for the program.

Student Comments, 2006-07

“...investigated using ionic liquid solvents and catalysts in esterification reactions...solubility testing, running HPLC, setting up reactions...literature searches...presentations.”

“...actual research performed was very enjoyable...experience changed my decision about grad school and convinced me I want my Ph.D.”

“...supervise computer automation of chemical dosing pumps into boiler and plant steam...correct plans and assist in reliability maintenance...”

“...experienced, professional, supportive environment...”

“...rewrote and organized process safety management documentation and updated in company’s database...designed safety relief headers for ammonia refrigeration compressor room...wrote up expenditure request to install headers...”

“...enjoyable to work here and felt like I was using skills I had learned and even learning new skills...”

“...design pumping/piping system for emergency use...troubleshoot and repair steam heating system...help process engineer with...operations...learned much about practical engineering...excellent experience!”

“...positive feedback is excellent when I complete assignments...always feel comfortable asking how I’m doing...”

“...analyzed the current use of different oils at the facility along with water usage in heat treat...researched ways to reduce the consumption of oil and water, or recycle used product...proposed the best methods to management, highlighting economic and environmental benefits...”

“...fermentation research for extractive fermentation process...”

“...assessed solid waste system, found opportunities for money and environmental savings...designed and implemented an industrial process plastics recycling program...saved (company) over \$100K/yr, reduced landfill stream by 30% and improved process efficiency.”

Employer End-of-Term Survey Data, 2003-7

Employers are required to complete an evaluation of the student and the experience at the end of each semester. This evaluation is shared with the student. The evaluation includes rating 15 areas and selecting an overall rating. Employers are advised to consider job duties, corporate co-op/intern benchmarks, assignments and expectations, and comparison with other student co-ops/interns. The following scale is used:

0 – NA 1-Unsatisfactory 2-Improvement Needed 3-Satisfactory 4-Above Average 5-Excellent

<u>Mean Survey Ratings</u>	<u>06-07</u>	<u>05-06</u>	<u>04-05</u>	<u>03-04</u>	<u>02-03</u>
Quality of Work	4.2	4.5	4.4	4.4	4.5
Quantity of Work	4.2	4.1	3.8	4.3	3.8
Oral Expression	3.9	4.0	4.1	3.9	4.0
Written Expression	4.1	4.3	4.4	4.1	4.2
Problem Solving Skills	4.1	4.2	4.0	4.4	3.8
Academic Preparation	3.8	3.9	3.8	4.4	4.0
Ability to Use Resources	4.5	4.4	4.3	4.4	4.0
Completion of Assignments	4.2	4.5	4.2	4.5	3.6
Acceptance of Responsibility	4.5	4.4	4.5	4.6	4.1
Acceptance of Criticism	4.0	4.2	4.1	4.4	4.0
Ability to Take Direction	4.2	4.4	4.3	4.6	4.0

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Relationships With Others	4.2	4.5	4.4	4.5	4.3
Work Attitudes (e.g., initiative, Enthusiasm)	4.3	4.4	4.5	4.7	4.5
Appropriate Appearance	4.2	4.2	3.8	4.1	3.5
Potential for Permanent Hire	4.4	4.3	4.4	4.5	4.5
Overall Rating	4.4	4.4	4.4	4.5	4.5

Employers have the opportunity to comment on the ratings, special abilities of the student, work description, and if the student will be returning.

Employer Comments, 2006-2007

“...a good representative of your engineering school...good work ethic, ability to pick-up and implement new concepts, persistence, diligence, independence, good core academics...”

“...worked with primary reactions for methylester production...constructed a reactor...tremendous drive, enthusiasm, and ability to adapt to new situations...”

“...writing skills are some of the best I’ve ever seen...strong initiative and work ethic...”

“...great addition to any team...designed a pumping method for a large vessel and oversaw installation...used all of his resources very effectively, including operations personnel, fellow engineers, vendors...demonstrated a very effective communication style and ability to work in a team...”

“...oil reclamation...water use reduction...good at communicating with operators and management to address issues...very tactful with approach to touchy subjects...”

“...fermentation and processing research for extractive fermentation process...effectively managed research experiments with supplied resources...would be encouraged to apply for position...”

“...preparation of perfluorocarbon based microemulsion gel with triblock copolymer, and characterization using rheology instrument and small angle X-ray scattering instrument after phase stability investigation...”

“...(intern) is quality focused...has an analytical mind in approaching solutions to problems...always professional...extremely resourceful on his own...”

**The University of Iowa College of Engineering
Student Development Center/Engineering Professional Development
Cooperative Education and Internship Program**

Civil and Environmental Engineering

Summary

Experiences

<u>Year</u>	<u>Co-ops/Internships</u>	<u>Employers</u>	<u>Students</u>
2006-07	37 F.T./12 P.T. (76% Iowa)	31 (68% Iowa)	40
2005-06	31 F.T./5 P.T. (58% Iowa)	29(52% Iowa)	32
2004-05	25 F.T./3 P.T. (86% Iowa)	18(78% Iowa)	27
2003-04	20 F.T./1 P.T. (86% Iowa)	14 (86% Iowa)	18
2002-03	18 F.T./4 P.T. (66% Iowa)	18 (72% Iowa)	18

Salary Data

<u>Year</u>	<u>Salary Range</u>	<u>Mean*</u>	<u>Median*</u>	<u>Mode*</u>
2006-07	\$8.00 - \$36.05/hr	\$13.51/hr	\$13.69/hr	\$13.69/hr
2005-06	\$9.50 - \$28.85/hr	\$13.51/hr	\$12.00/hr	\$9.50/hr
2004-05	\$9.50 - \$28.85/hr	\$12.81/hr	\$12.00/hr	\$9.50/hr
2003-04	\$8.50 - \$14.00/hr	\$11.20/hr	\$12.00/hr	\$13.10/hr
2002-03	\$7.50 - \$19.00/hr	\$10.87/hr	\$10.00/hr	\$9.50/hr

*Mean, Median and Mode computations do not include volunteer positions

Distribution of Experiences (not students) by Class

<u>Year</u>	<u>2nd yr</u>	<u>3rd yr</u>	<u>4th yr</u>	<u>Graduate Student</u>
2006-07	20%	31%	31%	18%
2005-06	14%	33%	28%	25%
2004-05	4%	32%	39%	25%
2003-04	10%	48%	38%	4%
2002-03	4%	27%	64%	5%

Employers, Locations, and Position Descriptions, 2003-07

Advanced Heat Treat Waterloo, Iowa
Metallurgical heat treating facility intern...project management, quality assurance, and documentation

Advanced Specialties Iowa City, Iowa
Consulting engineering

Alliant Energy Cedar Rapids, Iowa
Analyze lifting points on power plants and calculate maximum lifting load, design a method to improve the lifting points

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Ashton Engineering Engineering Intern/structural and civil engineering assignments on bridges/fabrication/roads	Davenport, Iowa
Bechtel Overall systems design and engineering for hydraulic and hydrologic projects	Frederick, Minnesota
BFA Environmental Consultants Engineering consulting firm focusing on environmental impact and amelioration of negative effects of various public and private development projects	Orlando, Florida
Bolten and Menk Engineers Consulting engineer, development projects for private and governmental clients	Chaska, Minnesota
Burns and McDonnell Project Controls group intern for Construction-Design Build (CDB) global practice	Kansas City, Kansas
Butler County Engineer Construction surveying and inspection	Allison, Iowa
CH2M Hill Assist in preparation of environmental impact assessment for Mexican regulatory agency/document coordination/environmental permitting of Liquefied Natural Gas Terminal in northeastern Mexico/translation	Englewood, Colorado
Cargill Research separating coal combustion flyash from the bottom ash and finding beneficial uses for both materials, process leader for ash separation and testing of ash for content	Eddyville, Iowa
City of Iowa City Engineering Surveying and inspection/plan review/highway and subdivision projects	Iowa City, Iowa
City of Marion Engineering Department Sidewalk inspections, materials testing, construction inspection, surveying and traffic studies	Marion, Iowa
City of Naperville Civil Engineering Intern/field surveys and inspections/development of maps and drawings utilizing AutoCAD and/or ArcView GIS	Naperville, Illinois
City of Sioux City Surveying, storm sewer mapping, various CAD drawing and city engineering projects	Sioux City, Iowa
City of West Chicago AutoCAD maps for alley improvement/oversaw resurfacing project and contractors/occupancy inspections	West Chicago, Illinois
City of Urbandale Sidewalk and subdivision inspections, utility locates, sign and streetlight inventory program, sanitary sewer capacity analysis, and traffic studies	Urbandale, Iowa
Clapsaddle-Garber Associates Consulting Engineering Intern	Marshalltown, Iowa

Coralville City Engineer Public works projects and subdivision inspections/surveying, material collection, AutoCAD drafting	Coralville, Iowa
Craig R. Knoche and Associates Preliminary engineering and CAD drafting of civil engineering documents/writing and assembly of site evaluation reports/surveying	Geneva, Illinois
Des Moines Water Works Engineering inspection, surveying, and other projects as assigned	Des Moines, Iowa
DeWild, Grant, Rickert and Associates Engineering Consulting engineering on various projects	Sioux City, Iowa
Dubuque County Highway Department Surveying, assisting County Engineer, Inspection and Testing	Dubuque, Iowa
Exelon Nuclear Intern for the Design Engineering Department at the Quad Cities Nuclear Plant, and work with mechanical, electrical, structural engineers	Cordova, Illinois
F.H. Paschen Logging RFIs, transmittals, submittal processing, reviewing subcontractor insurance certifications and setting-up project field offices	Chicago, Iowa
Florida Power, Light, & Energy – Duane Arnold Nuclear Plant License renewal process intern...collect, analyze, and organize documentation for licensing of nuclear station	Palo, Iowa
Geotechnical Services, Inc. Soil testing, concrete testing, and some environmental testing	Urbandale, Iowa
Habitat for Humanity Construction design intern...project management...volunteer recruitment	Iowa City, Iowa
Hall and Hall Engineers Project engineering consulting firm...storm sewer, water main, and pavement reconstruction projects	Hiawatha, Iowa
Howard R. Green Company Construction inspection for highway project/property surveys and inventories	Cedar Rapids, Iowa
HBK Engineering Surveying and drafting; certifications and drilling projects	Chicago, Illinois
HDR Engineers Consulting engineering intern...company focus is on petroleum energy companies designing docks for things like oil and LNG tankers...ocean engineering problems such as the erosion of the beaches	Corpus Christi, Texas
HNTB Corp. Field work on water resources/drainage of highway pavement spreadsheet analysis, inlet design, pipe design, and culvert design	Kansas City, Missouri

HSR Associates, Inc. Structural engineering and architectural shop drawings, specs, correspondence, and organization	Madison, Wisconsin
Hall and Hall Engineering Project drafting and design, management on municipal projects and private projects as necessary	Hiawatha, Iowa
Illinois DOT: Schaumburg Construction inspection and documentation of reconstruction project on state highway, project includes paving, retaining wall and bridge construction, storm sewer and traffic signal installation	Schaumburg, Illinois
Iowa County Engineer Project inspection/culvert design/construction surveying/bridge inventory	Marengo, Iowa
Iowa Dept. of Natural Resources P2 Program at GKN Armstrong Wheel Research and implementation of program to reduce use and disposal of oil in the manufacturing process	Armstrong, Iowa
Iowa Department of Natural Resources P2 Program at Goodyear Formulate a plan to reduce company's landfill waste to zero by the end of 2007	Mt. Pleasant, Iowa
Iowa Department of Natural Resources P2 Program at John Deere Engine Works Analysis and implementation of an industrial plastics recycling program	Waterloo, Iowa
Iowa Department of Natural Resources P2 Program at VA Med. Ctr. Study and implementation of programs to manage use and disposal of refrigerant	Iowa City, Iowa
Iowa Department of Natural Resources P2 Program at Wells Dairy Evaluate water and waste reduction opportunities	LeMars, Iowa
Iowa Department of Transportation Conduct traffic analysis/perform safety analysis on roadways and construction zones/records and documentation	Ames, Iowa
Iowa Department of Transportation Preparation of estimates, quantities, etc. for upcoming highway projects	Cedar Rapids, Iowa
Iowa Department of Transportation Preparation of estimates, quantities, etc. for upcoming highway projects	Davenport, Iowa
Iowa Department of Transportation Project Engineering Intern...highway design and construction	Mt. Pleasant, Iowa
Kiewit Western Co. Field engineering on lakefront highway project/materials and tools costing and purchasing/coordinated concrete pours: calculating quantity, ordering, placement	Elgin, Illinois
LAN Engineering Consulting engineering projects	Irvine, California

LMS CADSI Preparation of validation documents for DADS 9-6.02 requested by clients/conceiving and implementing models using software and theoretically validating results/develop model for V-belt to simulate the effect of friction forces in a belt	Coralville, Iowa
MMS Consultants Survey technician, construction boundaries, thimble GPS, robotics	Iowa City, Iowa
Manhard Consulting Consulting engineering internship	Lombard, Illinois
Mannik and Smith Group, Inc. AutoCad, construction/site project work/inspection, surveying, and reporting/documentation	Maumee, Ohio
Matkin Engineering Structural engineering contracting; drafting and project planning	Fairfield, Iowa
McClure Engineering Surveying, GPS, running level lines, creating and modifying drawings using AutoCAD, Figuring slopes, grads and property lines	Coralville, Iowa
Mid-American Energy Gas Engineering department, working with the integrity management of the gas transmission lines, new regulations for transportation of gas, and cathodic protection of the pipe	Sioux City, Iowa
Missouri DOT Contract administration, inspection of highway contracts, material testing and sampling	Kansas City, Missouri
NNW Inc. Software development, CAD design and field data collection	Iowa City, Iowa
Opus Architects Associate structural engineer, structural analysis and design, review design drawings, specifications, subcontractors' calculations, job site observation	Minnetonka, Minnesota
PCL Civil Constructors, Inc Field engineer on pier remediation, concrete and grout testing on micro-piling and sister shafts Quantity take-offs and monitor subcontractors	Tampa, Florida
PCL Construction Services, Inc Field engineer intern for the superstructure on the C755 Link Light Rail Project	Tukwila, Washington
Packer Engineering Site visits/case research/consulting engineering projects	Naperville, Illinois
Polk County Department of Public Works Construction surveys/preliminary project surveys/paving inspection/traffic safety data collection	Des Moines, Iowa

RBF Consulting Assist with design and plan preparation for school, irrigation and drainage improvements	Irvine California
Racine Paving Estimating jobs, field inspections, and surveying	Richmond, Iowa
Reukert and Milke Construction review technician, surveying	Sussex, Wisconsin
Ruettiger Tenelt & Associates Consulting engineering intern, overlook site plans, take-off development plans, creating demolition plans on AutoCAD	Joliet, Illinois
Rockford Department of Public Works Gather field survey data/inspection of construction work in progress/documents quantities and procedures and prepares pay estimates	Rockford, Illinois
Sheaffer and Roland Assist engineers with wastewater, stormwater, and water supply facilities design, and field services	Geneva, Illinois
Shive-Hattery Inc. Concrete and soil testing and analysis/reporting and documentation/surveying	Iowa City, Iowa
Stanley Environmental Assist on environmental engineering consulting projects	Coralville, Iowa
Strand Associates Inspection of municipal development projects	Madison, Wisconsin
Superior Environmental Corporation Research; real estate transfer assessments; investigation sampling	Bay City, Michigan
Terracon Testing and analysis/inspection/construction projects	Cedar Rapids, Iowa
Third Wave Systems Engineering intern	Minneapolis, Minnesota
UI College of Engineering Civil/Environmental Engineering Dept Engineering research and analysis	Iowa City, Iowa
UI Design/Construction Services Civil Engineering duties as assigned, primarily at Blank Honors Center	Iowa City, Iowa
UI College of Engineering Orientation Services Orientation Advisor for 1 st Year Engineering Students	Iowa City, Iowa
UI IIHR Assist with research and project development	Iowa City, Iowa

UI ITS Client support and technical installation	Iowa City, Iowa
UI Water Treatment Plant Engineering Intern/construction and maintenance projects	Iowa City, Iowa
UPS Maintenance management and dispatching, computer maintenance management system	Palatine, Illinois
UOP Research and development...chemical processes...plant processes and operations	McCook, Illinois
US Army Corps of Engineers, Rock Island District Engineering intern for Rock Island District on Mississippi River, various projects	Rock Island, Illinois
U.S. HHS Indian Health Service Sanitation engineer on reservation	South Dakota
USDA Natural Resources Conservation Service Assist engineer with surveying, design and supervision of runoff control structures	Red Oak, Iowa
Veenstra & Kimm Project inspector on paving project/surveying and contractor compliance	West Des Moines, Iowa
Village of Fox Point City engineering internship, inspection and testing	Fox Point, Wisconsin
Village of Glen Ellyn Assist staff engineers with design plan development, construction oversight and field duties/surveying/pavement and sidewalk inspection	Glen Ellyn, Illinois
Village of Lombard Inspections, municipal engineering, pavement projects	Lombard, Illinois
Village of Wheeling Assist village engineers with drafting and printing projects/inspections for sidewalks, driveways, parking lots and sewer systems	Wheeling, Illinois
Village of Whitefish Bay City engineer assistant, surveying, testing and inspection	Whitefish Bay, Wisconsin
Washington County Engineer Surveying; drawing; bridge and road inspection	Washington, Iowa

Student End-of-Term Survey Data, 2003-7

Students are required to complete an evaluation of their experience at the end of each semester. Part of the evaluation includes rating 10 areas and selecting an overall rating using the following scale:

The University of Iowa College of Engineering Student Development Center/Engineering Professional Development Cooperative Education and Internship Program

0 – NA 1-Unsatisfactory 2-Improvement Needed 3-Satisfactory 4-Above Average 5-Excellent

<u>Mean Survey Ratings</u>	<u>06-07</u>	<u>05-06</u>	<u>04-05</u>	<u>03-04</u>	<u>02-03</u>
Formal Training Received	3.5	3.7	3.8	4.0	4.0
Informal Training Received	4.4	4.2	4.3	4.7	4.0
Feedback on Work Performed	3.9	3.7	4.4	3.8	4.5
Supervision Received	3.7	3.9	4.3	4.0	4.3
Interaction with Co-Workers	4.4	4.5	4.6	4.6	4.8
Quantity of Work Assigned	3.7	3.9	4.0	3.7	4.2
Level of Responsibility Assigned	3.9	3.9	4.2	3.9	4.2
Abilities Utilized	3.7	3.7	4.0	3.6	3.8
Relevance of Academic Preparation To Work Position	3.4	3.2	3.7	3.1	3.3
Career/Professional Knowledge Gained	4.2	4.5	4.4	4.8	4.5
Overall Rating	4.0	4.1	4.2	4.3	4.5

Students have the opportunity to comment on the ratings, their work duties, influence of the experience on their future, and suggestion for the program.

Student Comments, 2006-07

- “...bridge construction inspection and supervising other workers doing bridge construction inspection...”
- “...very positive experience...consider (supervisors) to be mentors for my career...”
- “...summer construction intern...practical application of engineering design...registered and led volunteers...long, hard but satisfying work...”
- “...always learning new things...exactly what I hope to do...invaluable experience.”
- “...project editing and design...attended public meetings...Autoturn, field visit for I-80...cross-section editing...”
- “...enjoyed all aspects of this co-op...after this experience I am both looking forward to going back to college to get my engineering degree and entering the work place as an engineer.”
- “...preliminary design assessment and design...excellent experience...”
- “...reduced landfill waste to zero by end of 2007...”
- “...majority of my work revolved around researching materials, which involved examining original construction plans and vendor drawing for the materials used to build the component or structure...”
- “...still processing my experience and how it will affect my future plans. I still may pursue a career in the power industry, but it will most likely not be in license renewal.”
- “...preparing and weighing soil isotope samples, but also went out to the field in the truck twice a week to survey, take samples and do other tasks...had own schedule, was always doing something new, and learned and had fun too.”
- “...assist infrastructure engineers with installing, replacing, and fixing campus voice and data lines...manage and verify...”
- “...inspected concrete and asphalt rehab projects...completed IDR’s...measured quantities and prepared payout data...prepared test cylinders...a municipal engineer’s job often involves looking out for the public’s interest through inspection and revision...”

Employer End-of-Term Survey Data, 2003-7

Employers are required to complete an evaluation of the student and the experience at the end of each semester. This evaluation is shared with the student. The evaluation includes rating 15 areas and selecting an overall rating. Employers are advised to consider job duties, corporate co-op/intern benchmarks, assignments and expectations, and comparison with other student co-ops/interns. The following scale is used:

0 – NA 1-Unsatisfactory 2-Improvement Needed 3-Satisfactory 4-Above Average 5-Excellent

<u>Mean Survey Ratings</u>	<u>06-07</u>	<u>05-06</u>	<u>04-05</u>	<u>03-04</u>	<u>02-03</u>
Quality of Work	4.2	4.5	4.3	4.5	4.4
Quantity of Work	4.1	4.5	4.1	4.2	4.4
Oral Expression	3.8	4.2	4.1	4.2	4.1
Written Expression	4.0	4.0	4.0	4.3	4.0
Problem Solving Skills	4.0	4.4	4.1	4.2	4.3
Academic Preparation	3.9	4.2	4.1	4.0	4.2
Ability to Use Resources	4.2	4.6	4.2	4.4	4.2
Completion of Assignments	4.2	4.7	4.3	4.7	4.7
Acceptance of Responsibility	4.4	4.6	4.2	4.5	4.6
Acceptance of Criticism	3.7	4.3	4.1	4.6	4.4
Ability to Take Direction	4.2	4.6	4.2	4.5	4.4
Relationships With Others	4.5	4.7	4.5	4.8	4.4
Work Attitudes (e.g., initiative, Enthusiasm)	4.4	4.5	4.3	4.8	4.7
Appropriate Appearance	4.2	4.6	4.3	4.5	4.1
Potential for Permanent Hire	4.5	4.6	4.3	4.4	4.7
Overall Rating	4.3	4.5	4.2	4.7	4.8

Employers have the opportunity to comment on the ratings, special abilities of the student, work description, and if the student will be returning.

Employer Comments, 2006-07

“...implement full plastic recycling program...data collection, analysis, resource gathering, layout, training...very good analytical skills..great ability to fit in an get things done...learns fast...”

“...works well to resolve contractor’s questions and asks questions when appropriate...shows ability to oversee work of others...very enthusiastic...potential is excellent...”

“...amazingly good at this for such a short time in the field...very precise...great math...great people skills...”

“...quick learner...able to pick up basic CADD and Geopak to do tasks needed...”

“...would like to have him back for another term...good example for others...determination, diligent, self-motivated, analytical...”

“...great at her job bringing an excellent work ethic and wonderful personality to the job...”

“...able to complete his tasks with very little supervision...communicates well with others...requesting more work when tasks were completed...”

“...willing to take on challenges...office and field support for technicians and engineers...able to understand problem and use resources to solve the issue...”

“...(academic preparation) was adequate, but I don’t think schools do enough to prepare students for the reality of environmental engineering, which is knowing regulations and how to comply...”

**The University of Iowa College of Engineering
Student Development Center/Engineering Professional Development
Cooperative Education and Internship Program**

Electrical and Computer Engineering

Summary

Experiences

<u>Year</u>	<u>Co-ops/Internships</u>	<u>Employers</u>	<u>Students</u>
2006-07	29 F.T./6 P.T. (66% Iowa)	25 (52% Iowa)	33
2005-06	32 F.T./4 P.T. (78% Iowa)	21 (66% Iowa)	30
2004-05	29 F.T./3 P.T. (75% Iowa)	16 (63% Iowa)	28
2003-04	23 F.T./2 P.T. (48% Iowa)	19 (42% Iowa)	22
2002-03	14 F.T./3 P.T. (82% Iowa)	13 (77% Iowa)	15

Salary Data

<u>Year</u>	<u>Salary Range</u>	<u>Mean*</u>	<u>Median*</u>	<u>Mode*</u>
2006-07	\$9.00 - \$43.28/hr	\$19.00/hr	\$18.00/hr	\$13.00/hr
2005-06	\$10.00 - \$35.00/hr	\$16.65/hr	\$15.00/hr	\$15.00/hr
2004-05	\$8.00 - \$28.97/hr	\$15.74/hr	\$15.00/hr	\$15.00/hr
2003-04	\$7.00 - \$27.27/hr	\$15.67/hr	\$15.62/hr	\$15 & \$27
2002-03	\$7.00 - \$17.75/hr	\$14.22/hr	\$13.75/hr	\$11.50/hr & \$16.00/hr

*Mean, Median and Mode computations do not include volunteer positions

Distribution of Experiences (not students) by Class

<u>Year</u>	<u>2nd yr</u>	<u>3rd yr</u>	<u>4th yr</u>	<u>Graduate Student</u>
2006-07	38%	25%	16%	21%
2005-06	12%	22%	33%	33%
2004-05	3%	47%	35%	15%
2003-04	12%	36%	28%	24%
2002-03	6%	35%	53%	6%

Employers, Locations, and Position Descriptions, 2003-07

3M Engineering Intern/Optical Components Program	Austin, Texas
3M Software engineering, designing and debugging user interface, troubleshooting	St. Paul, Minnesota
Alcoa Area project work, maintenance driven improvements to production line and safety improvements	Bettendorf, Iowa

American Profol Plastic film coatings manufacturer, projects included obtaining a quote for the design, fabrication, and installation for a new transfer and conveying system for plastic resin from railcar to storage silo and finally to production line, other plant engineering capital projects include upgrading corona station, modifying steam hood, and serving as leader of 'Cost Team' from engineering and accounting to identify cost saving initiatives	Cedar Rapids, Iowa
Cargill Provide knowledge and advice to maximize use of electronics in plant processes	Cedar Rapids, Iowa
Caterpillar Testing electrical systems for truck-type tractors	Peoria, Illinois
Cerner Corporation Software development and implementation in health care industry	Kansas City, Missouri
Eaton Corporation Engineer intern...design and manufacture contactor based transfer switches	Arden, North Carolina
Eigen Research Computer Scientist at the R&D department reporting directly to the CTO...research and development in the area of new diagnostic product designs, sustaining engineering products and implementations in C/C++...medical image processing, segmentation, registration, image analysis, programming and improvement of existing sustaining products	Grass Valley, California
Epic Systems Software engineering intern	Verona, Wisconsin
Equistar Chemical Maintenance electrical engineering co-op...plant maintenance and engineering...project implementation and documentation	Clinton, Iowa
ESCO Group Power transmission and generation consulting, instrumentation and controls	Marion, Iowa
Federal Aviation Administration Develop Electro-Magnetic Interference (EMI) test plan for newly acquired Instrument Landing System (ILS)	Washington, DC
Fauske and Associates Software development for nuclear industry and electronic component design/test	Burr Ridge, Illinois
Federal Mogul Ignition Products Drawing electrical wiring diagrams on AutoCAD for use by electricians when troubleshooting plant equipment	Burlington, Iowa
Fermi National Accelerator Laboratory Intern/Networking Group of the Beams Division	Batavia, Illinois

Freescale Semiconductor Wireless and Mobile Systems Group intern... design everything in the analog realm that fits into a transceiver, such as amplifiers, PLLs, VCOs, and dividers	Lake Zurich, Illinois
GE Global Research Center Develop Bayesian model-based vessel junction detection algorithm to increase accuracy of lung nodule detection CAD system	Niskaya, New York
Guardian Automotive Process monitoring to map defects and document manufacturing parameters	Morehead, Kentucky
HDL, Inc Associate Software Support Engineer/work with to develop model checking software	San Jose, California
Hamilton-Sundstrand Assist with the design and analysis of a regional jet aircraft electric power system, perform analysis Required for completion of electric system architecture design	Rockford, Illinois
Hancher Auditorium Assistant working on sound projects relating to shows, events, and other performances	Iowa City, Iowa
Harrison Steel Casting Development of Furnace Department Training, initiation of project in furnace department	Attica, Indiana
Hewlett Packard Assist engineers with program testing and projects	Corvallis, Oregon
IBM Hardware design, working on programming in Verilog to design a floating point unit processor, Perl script and other testing for new server manufacturing test and control programs	Rochester, Minnesota
IC-Media Corporation Digital integrated circuit design	Mesa, Arizona
Ingersoll Production Systems Electrical engineering intern at machine manufacturing center	Rockford, Illinois
Innovative Software Engineering Software engineering intern...testing and quality assurance...regression testing	Coralville, Iowa
Intel Writing tests to validate the Device under tests (DUTs) and also in analyzing output waveforms and debugging DUT errors..the tests are written using specman-e, one of the industry standard HVLs (Hardware Verification Languages)	Folsom, California
Intermec Develop automated test programs in Visual C++ for FROD readers	Cedar Rapids, Iowa

John Deere and Company, Inc. Design of the electric transmission control for prototype vehicle	Moline, Illinois
John Deere Product Engineering Center Upgrade existing desktop tools used for tractor network analysis and design, build, and test a desktop simulator for system-level testing of released software assemblies	Waterloo, Iowa
John Deere Waterloo Works Software engineering intern... develop a simulator using a GUI interface to evaluate a wired remote control for a radio	Waterloo, Iowa
John Deere World Wide Development Engineering Intern with Cab & Electrical team, responsible for world-wide design, development and validation of electrical systems, components, sensors, and software for harvesting vehicles, responsibilities included working with experienced software and hardware engineers to develop/test embedded software for vehicle systems and sub-systems, executing product verification and validation activities for sensors, actuators, controllers and software	Silvis, Illinois
Johnson Controls Engineering Co-op/environmental systems and controls	Cedar Rapids, Iowa
KLA Tencor Build a wafer surface image scan program	Milpitas, California
Leco Corporation Software testing engineering intern	St. Josephs, Missouri
Lightwaves Systems Research and development of software tools for communications industry	Cedar Rapids, Iowa
Littlefuse Engineering project intern...design a new production method for a certain fuse type in the automotive manufacturing department	Des Plaines, Illinois
Maytag-Amana Built, repaired, and programmed control boards, learned Perl and wrote tools for other projects, designed and built process management/training website, provided advanced research into possible integration with products	Amana, Iowa
McKesson Web developer for manufacturing facility	Dubuque, Iowa
Mid-American Energy Power transmission engineering	Cedar Rapids, Iowa
Mid American Energy Substation engineering group intern... new electrical substations are designed, older substations are maintained, and any other situations involving the substations handled	Davenport, Iowa

Mid American Energy Engineering intern...assigned to MEC's Wind Division and am working on the Pomeroy Wind Project...200 million dollar project to build a large scale wind farm in Pocahontas County of western Iowa	Urbandale, Iowa
Motorola Engineering internship in Radio Systems Division	Schaumburg, Illinois
NEC USA Design built in self test circuit for delay fault	Princeton, New Jersey
National Instruments High speed sources programming, create test suite of 50 cases, design of expandable and modular architecture	Austin, Texas
Northrup Grumman Support for the administration of engineering and other computing systems, exercise and update disaster recovery plans, implementation of six sigma process improvement projects	Rolling Meadows, Illinois
Omaha Public Power Various engineering projects for power generation at public utility	Nebraska City, Nebraska
Procter and Gamble Manufacturing controls and systems projects	Iowa City, Iowa
REU- University of California at Los Angeles Develop a webpage interface for existing CENS tools	Los Angeles, California
REU - University of California at Santa Clara Test and evaluate high speed and high accuracy A/D Converters for astronomy grade CCD controller system	Santa Clara, California
River Cities Engineering Create a central computer system that would be able to monitor and control the distribution of two municipal power stations from one central location	Davenport, Iowa
Rockwell Collins, Inc. Various projects involving hardware/software development and testing, image analysis, and web development for aircraft and internal applications	Cedar Rapids, Iowa
Rockwell Collins Manufacturing Electrical Engineer Intern, pull data, analyze and make changes to keep production moving and more efficient, getting the data ready for the monthly and weekly Failure Review Board (FRB)	Coralville, Iowa
Seagate Technologies Engineering Intern on Transducer Development Team of hard disc drive manufacturer, mapping material properties of various compositions of alloy for evaluation of alternative, more efficient, compositions	Minneapolis, Minnesota
Siemens Medical Solutions Basic and applied research in medical imaging	Malvern, Pennsylvania

UI College of Engineering Laboratory Assistant/dental simulator project/analyzing and testing results	Iowa City, Iowa
UI Department of Physics Computer Systems and support	Iowa City, Iowa
UI Department of Psychiatry Computer support/software	Iowa City, Iowa
UI College of Engineering CLOG/CBCB Daily processing of sequence data, auditing of status webpages, submission of data to public databases	Iowa City, Iowa
UI College of Engineering GROK Lab Program microcontroller for robot servo motor control	Iowa City, Iowa
UI College of Engineering Human Factors Lab Design software and hardware for instrumented vehicle as part of a human factors research study	Iowa City, Iowa
UI College of Engineering IATL Program a microchip dsPIC to interface with 802.15.4 radio, perform experiments and analyze results	Iowa City, Iowa
UI College of Engineering OPL Engineering and avionics research/application	Iowa City, Iowa
UI Design and Construction Services Engineering projects oversight, inspections, quality assurance and compliance	Iowa City, Iowa
UIHC Neurology Radiological research and studies	Iowa City, Iowa
USAF ROTC National Internship Design and manufacture reusable frame to wrap carbon fiber	Kirtland AFB, New Mexico
Utah State University Space Dynamics Laboratory/REU Participating in EE work on EWINDS project	North Logan, Utah
Vital Images, Inc. Responsible for design, code, test and documentation of imaging software	Plymouth, Minnesota
Winegard Construction Write code for embedded applications...work on different development boards which use different RTOS(Real time operating systems)	Burlington, Iowa

Student End-of-Term Survey Data, 2003-7

Students are required to complete an evaluation of their experience at the end of each semester. Part of the evaluation includes rating 10 areas and selecting an overall rating using the following scale:

0 – NA 1-Unsatisfactory 2-Improvement Needed 3-Satisfactory 4-Above Average 5-Excellent

<u>Mean Survey Ratings</u>	<u>06-07</u>	<u>05-06</u>	<u>04-05</u>	<u>03-04</u>	<u>02-03</u>
Formal Training Received	3.9	3.8	3.7	3.9	3.2
Informal Training Received	4.5	4.5	4.3	4.4	4.2
Feedback on Work Performed	4.4	4.2	4.2	4.1	4.3
Supervision Received	4.3	3.9	4.0	4.0	4.2
Interaction with Co-Workers	4.6	4.4	4.5	4.5	4.5
Quantity of Work Assigned	3.9	4.0	4.1	4.2	4.1
Level of Responsibility Assigned	4.3	4.1	4.1	4.4	4.1
Abilities Utilized	4.0	4.1	3.9	4.3	4.2
Relevance of Academic Preparation To Work Position	3.5	3.8	3.9	3.5	3.5
Career/Professional Knowledge Gained	4.4	4.4	4.6	4.6	4.5
Overall Rating	4.5	4.4	4.5	4.5	4.2

Students have the opportunity to comment on the ratings, their work duties, influence of the experience on their future, and suggestion for the program.

Student Comments, 2006-07

- “...assembled various circuit boards and modules, then testing them using various instruments...modified ...boards...programming FRGA’s using VHDL...schematics...great experience.”
- “...test case revision, scripting in scml, writing up issues on devtrack, working as a team to test software...”
- “...learned 3 programs and then used those programs to help write the beginning of an application that will be used in the medical arena...”
- “...developed algorithms for image processing, coded the algorithms, oversaw project members and high school intern and prepared presentations and demos for managers and executives...”
- “...great experience in ‘real world’...”
- “...in charge of updating an internal website...working with the code but also interacting with co-workers to gather information...”
- “...started by designing the software and writing a spec. Then I actually wrote the software to auto-generate test equations, using Python scripts. I also provided support to one of their programs’ test rig, by updating the database tool...”
- “...assigned a large project and then some smaller things to work on...learned a lot about the software design process and working with lots of people with different areas of expertise...”
- “...data collection, analysis, and interpretation for the purpose of developing predictive cost-estimation tools...”

Employer End-of-Term Survey Data, 2003-7

Employers are required to complete an evaluation of the student and the experience at the end of each semester. This evaluation is shared with the student. The evaluation includes rating 15 areas and selecting an overall rating. Employers are advised to consider job duties, corporate co-op/intern benchmarks, assignments and expectations, and comparison with other student co-ops/interns. The following scale is used:

0 – NA 1-Unsatisfactory 2-Improvement Needed 3-Satisfactory 4-Above Average 5-Excellent
 The University of Iowa College of Engineering Student Development Center/Engineering Professional Development
 Cooperative Education and Internship Program

<u>Mean Survey Ratings</u>	<u>06-07</u>	<u>05-06</u>	<u>04-05</u>	<u>03-04</u>	<u>02-03</u>
Quality of Work	4.5	4.6	4.2	4.4	4.4
Quantity of Work	4.2	4.3	4.1	4.1	4.3
Oral Expression	3.8	4.2	3.8	4.0	4.1
Written Expression	4.0	4.1	4.0	4.2	4.1
Problem Solving Skills	4.5	4.4	4.3	4.1	4.5
Academic Preparation	4.0	4.1	3.9	4.0	4.1
Ability to Use Resources	4.4	4.4	4.4	4.5	4.4
Completion of Assignments	4.6	4.5	4.1	4.4	4.6
Acceptance of Responsibility	4.6	4.3	4.5	4.5	4.4
Acceptance of Criticism	4.6	4.3	4.2	4.3	4.4
Ability to Take Direction	4.6	4.5	4.2	4.7	4.6
Relationships With Others	4.5	4.6	4.3	4.7	4.5
Work Attitudes (e.g., initiative, Enthusiasm)	4.6	4.7	4.5	4.5	4.6
Appropriate Appearance	4.4	4.2	4.0	4.3	4.5
Potential for Permanent Hire	4.5	4.5	4.4	4.4	4.9
Overall Rating	4.4	4.5	4.4	4.5	4.4

Employers have the opportunity to comment on the ratings, special abilities of the student, work description, and if the student will be returning.

Employer Comments, 2006-07

“...assignments were completed before they were due...good worker, would hire him...likes challenges, works well with others...”

“...demonstrated energy in his approach to the job...quick to ask for more work...creative and resourceful and helped uncover several serious problems with our software system...”

“...creative approach to problem solving...”

“...strong C coding skill...”

“...excellent work put into all projects with great results...took direction and needed minimum supervision to complete tasks...”

“...ability to learn new material quickly...ability to work with various departments...identifying potential failure mode and use creative solution to problem solve...”

“...great presentation to VPs and Directors...defined and completed large project...able to work around problem and still convey total solution envisioned...”

“...excellent work...showed thorough understanding of our website and our business...utilized all resources provided to him and found several others on his own...ability to find and understand concepts that were totally new to him...was really impressed...”

“...excellent working knowledge of the C programming language...good working knowledge of DC electronics... both of these skills are essentials for an embedded software engineer...”

**The University of Iowa College of Engineering
Student Development Center/Engineering Professional Development
Cooperative Education and Internship Program**

Industrial Engineering

Summary

Experiences

<u>Year</u>	<u>Co-ops/Internships</u>	<u>Employers</u>	<u>Students</u>
2006-07	14 F.T./2 P.T. (63% Iowa)	15 (54% Iowa)	15
2005-06	32 F.T./2 P.T. (71% Iowa)	20 (60% Iowa)	28
2004-05	31 F.T./3 P.T. (74% Iowa)	24 (63% Iowa)	29
2003-04	35 F.T./1 P.T. (64% Iowa)	20 (57% Iowa)	30
2002-03	33 F.T./4 P.T.(68% Iowa)	21 (66% Iowa)	27

Salary Data

<u>Year</u>	<u>Salary Range</u>	<u>Mean*</u>	<u>Median*</u>	<u>Mode*</u>
2006-07	\$11.50 - \$21.35/hr	\$15.85/hr	\$16.00/hr	\$17.00/hr
2005-06	-0- to \$23.00/hr	\$15.15/hr	\$15.00/hr	\$17.00/hr
2004-05	\$8.00 - \$24.00/hr	\$12.80/hr	\$12.00/hr	\$17.00/hr
2003-04	\$11.00 - \$23.75/hr	\$15.18/hr	\$14.25/hr	\$14.25/hr
2002-03	\$8.52 - \$18.06/hr	\$13.72/hr	\$14.24/hr	\$14.25/hr

*Mean, Median and Mode computations do not include volunteer positions

Distribution of Experiences (not students) by Class

<u>Year</u>	<u>2nd yr</u>	<u>3rd yr</u>	<u>4th yr</u>	<u>Graduate Student</u>
2006-07	18%	18%	59%	5%
2005-06	-0-	44%	44%	12%
2004-05	12%	42%	40%	6%
2003-04	14%	24%	59%	3%
2002-03	14%	37%	49%	-0-

Employers, Locations, and Position Descriptions, 2003-07

3M Austin, Texas
Evaluate and convert spreadsheets to Excel/Stress-strain engineering modeling algorithms for rubber material analysis

3M St. Paul, Minnesota
Project work in changeover improvements, downtime reduction, product flow improvements, and process mapping, photometric measurements on reflective material, literature reviews

Accenture Intern Analyst/analyze why a particular product offering failed to meet sales and uptake goals in the consumer goods and services industry	Chicago, Illinois
Accenture Business consulting intern...development and documentation of demand management, requirements management, and release planning processes...assist in the collection, summarization, analysis, and presentation of the FY08 demand for Global Delivery Excellence Products, Services, and Programs	Milwaukee, Wisconsin
Allsteel Various projects in manufacturing plant, including quality, documentation, new product testing	Muscatine, Iowa
Berlex Laboratories Immunology research	Richmond, California
Boston Scientific-Scimed Scimed Engineering Intern/apply Lean Manufacturing to production line	Maple Grove, Minnesota
Case-New Holland Manufacturing engineering team, inventory call-off reduction project	Fargo, North Dakota
Caterpillar Inc. Sand reclamation and automation, vendor coordination, castings presentation	Mapleton, Illinois
Centro, Inc. Database development, time and cost studies, design and fabrication of safety guides	North Liberty, Iowa
Civco Medical Instruments Assist in product development and design, manage multiple projects, AutoCAD	Kalona, Iowa
DJH Engineering Project engineering	Salt Lake City, Utah
Daimler Chrysler Vehicle System Tech Center Testing and evaluation, project work on human factors in cab design	Portland, Oregon
Dubuque County Highway Department Surveying Crew Member	Dubuque, Iowa
Emerson-Fisher Controls International, Inc Sales engineering, pricing and estimating, evaluation of customer technical requirements, support of field engineering staff	Marshalltown, Iowa
Excel Process engineering in meatpacking industry	Ottumwa, Iowa

FMC-Ulker Corporation Engineering Production Intern in food manufacturing factory, work with other production engineers to improve efficiency of production lines, operators and employees, help prepare production plans/reports/schedules and help implement preventive maintenance schedules	Jedda, Saudi Arabia
Gammerler 3D modeling using SolidWorks, plant engineering projects	Hannover Park, Illinois
Gateway Computers, Inc. Update plant drawings, time studies using EASE, AutoCAD	North Sioux City, SD
GE Industrial Engineering Intern in medium voltage and breaker production line area	West Burlington, Iowa
General Mills Manufacturing process intern	Iowa City, Iowa
Guardian Industries, Inc. Verification of plant utility electrical blueprints, systems testing	DeWitt, Iowa
Harvey Products Production Engineering Intern, create an accurate and automated log of the inventory control process, including all material received, shipped, produced and on-hand during the process of agglomerating raw material into a pellet, which is the desired finished product	Harvey, Illinois
Hearth and Home Technologies Reduction of scrap costs in the Pipe Department, data collection and analysis of individual manufacturing cells and their scrap rate, inspection of parts, coordination with operators and engineers in evaluation of processes and materials, presentation of results	Mt. Pleasant, Iowa
HON Determine process for tube mill including inventory levels, other manufacturing engineering	Muscatine, Iowa
Honeywell Engineering intern in plant facility...design and build IRU (inertial reference units)...lean initiatives and manufacturing environment	Minneapolis, Minnesota
Howard R. Green Company Survey data, property inspection, records and documentation, AutoCAD, aviation department, site work	Cedar Rapids, Iowa
Integrated DNA Technologies Construct simulation model using Arena software to create a predictive model with greater accuracy than present system	Coralville, Iowa
Intel Industrial Engineering Intern	RioRancho, New Mexico

Iowa Department of Natural Resources P2 Program: Loparex Pollution Prevention Intern, main project was finding recycler capable of dealing with 200 tons of mixed paper/month, the waste paper inherent in production of release film coated with silicone and/or polypropylene	Iowa City, Iowa
Iowa Department of Natural Resources P2 Program: Rockwell Pollution Prevention Intern, projects to reduce GHG emissions throughout facilities, assist enrollment in programs to enhance commitment to energy and climate change management —Chicago Climate Exchange (CCX) and US EPA Climate Leaders, assisted Rockwell personnel in completion of the Carbon Disclosure Project (CDP4) questionnaire	Cedar Rapids, Iowa
Iowa Department of Natural Resources P2 Program: Star Building Reduce electrical peak demand and overall natural gas consumption, plant lighting upgrade, other projects	Monticello, Iowa
Iowa Department of Natural Resources P2 Program: VA Medical Ctr. Reduce and eliminate mercury use throughout the facility	Iowa City, Iowa
John Deere Construction and Forestry Manufacturing engineering, backhoe fabrication, cost reduction studies, material flow and system improvements	Dubuque, Iowa
John Deere Harvester Works Implementation of Kanban inventory system, maintaining parts database, and training of wage employees	East Moline, Illinois
John Deere Ottumwa Works with worldwide combine production, sales engineering and support	Ottumwa, Iowa
John Deere Foundry Industrial Engineer in foundry, create operator mechanical detailed work instructions for production and prototype parts, Pro-E work	Waterloo, Iowa
John Deere Waterloo Works Tractor assembly plant, Continuous Improvement Team for parts standardization of coding over platforms	Waterloo, Iowa
Johnson Controls Systems Technician III...designing graphics, submitting proposals, creating operating and maintenance manuals, and engineering small heating and cooling projects	Cedar Rapids, Iowa
KT Engineering Manufacturing processes, drawing, vendor research	Huntsville, Alabama
Lennox Industries Manufacturing/Process engineering position	Marshalltown, Iowa
Loram Railroad maintenance repair, rebuild, redesign...manufacturing engineering intern	Hamel, Minnesota
Lozier Mfg. Process/Manufacturing Engineering	Omaha, Nebraska

MasterLock Europe Export Assistant, pre-production product information study, Germany market study	Paris, France
Maytag-Amana Appliances, Inc. Manufacturing Engineer, commercial and industrial product lines, maintenance and safety evaluation and improvements, line fixturing and jigs, time studies	Amana, Iowa
Maytag-Newton Manufacturing Engineering, sub-assembly outsourcing project, data collection and analysis	Newton, Iowa
Metzeler Automotive Profile System Audit the bills of materials, verify the accuracy of the weights and lengths of all parts from extrusion, review the findings with the Engineering and Operations Manager, submit changes to accounting, and assist the plant industrial engineer on other various projects	Frederick, Oklahoma
Mid-American Energy Holdings Company Project work on gas combustion turbines, data analysis, design	Des Moines, Iowa
Motorola Assist program management department with process improvements in mobile device software development	Libertyville, Illinois
Naomi's Kitchen Establish procedures and write operations manual, analyze and refine processes and operations, marketing and customer service	North Liberty, Iowa
NASA – Ames Human Factors Research Intern... examined different designs of display symbology as an aid to combat brownout crashes	Moffitt Field, California
Nationwide Insurance Checks and Balances Industrial Engineering Intern, Document Solutions Team, process improvement projects including data gathering and analysis, process mapping, simulation, proposals, business case development and IT system design and improvement	Des Moines, Iowa
Newport News Shipbuilding Engineering Intern/perform weight and center of gravity calculations/shock design criteria for surface ships/analysis using Nastran for Windows	Newport News, Virginia
Pella Corporation Manufacturing process intern	Pella, Iowa
Pure Fishing Research and design, quality and plant engineering	Spirit Lake, Illinois
R.G. Ray Corporation Work on team developing company policies, procedures, work instruction and forms that will enable ISO14001 certification for environmental management systems	Buffalo Grove, Illinois

Riverway Clinic EMR Implementation Team, workflow operations study and optimization	Anoka, Minnesota
Rockwell Collins LEAN Manufacturing, process support, AutoCad	Bellevue, Iowa
Rockwell Collins Manufacturing process improvements, software development, project work, learn programming in ASP, Access database to determine cost-drivers on project, cost analysis of GPS receiver	Cedar Rapids, Iowa
Rockwell Collins Manufacturing support, automated production center technical support	Coralville, Iowa
Rockwell Collins Technical support for production lines	Manchester, Iowa
Square D Corporation Purchasing/Electronics Development Department	Cedar Rapids, Iowa
Silgan Plastics Corporation Facilities engineering, work flow study, customer presentations	Norcross, Georgia
Standard Locknut Lean Manufacturing Team in contract machining plant for automotive, aerospace and railroad industries, reorganizing warehouse, inventory control and tracking, database development	Westfield, Indiana
UI College of Engineering HFSM Lab Laboratory assistant	Iowa City, Iowa
University of Iowa College of Engineering Orientation Services Mentor and advise incoming 1 st year engineering students, provide guidance on scheduling, adjustment to the college, and interact with parents	Iowa City, Iowa
Whirlpool-Amana Manufacturing Engineering Intern in the Maintenance department, organize and schedule work orders, increase plant efficiency and productivity, and design/analyze special projects throughout the plant	Amana, Iowa
Zurich North America Risk management and evaluation	Schaumburg, Illinois

Student End-of-Term Survey Data, 2003-7

Students are required to complete an evaluation of their experience at the end of each semester. Part of the evaluation includes rating 10 areas and selecting an overall rating using the following scale:

0 – NA 1-Unsatisfactory 2-Improvement Needed 3-Satisfactory 4-Above Average 5-Excellent

<u>Mean Survey Ratings</u>	<u>06-07</u>	<u>05-06</u>	<u>04-05</u>	<u>03-04</u>	<u>02-03</u>
Formal Training Received	3.7	3.9	3.6	3.8	3.9
Informal Training Received	4.3	4.4	4.2	4.1	4.4
Feedback on Work Performed	3.8	4.0	4.2	4.3	4.4
Supervision Received	3.8	4.2	4.2	4.2	4.2
Interaction with Co-Workers	4.6	4.5	4.2	4.6	4.8
Quantity of Work Assigned	3.9	4.0	4.4	4.1	4.1
Level of Responsibility Assigned	4.3	4.2	3.8	4.3	4.3
Abilities Utilized	4.3	4.0	4.0	3.9	4.1
Relevance of Academic Preparation To Work Position	3.5	3.8	3.2	3.5	3.6
Career/Professional Knowledge Gained	4.4	4.5	4.6	4.5	4.6
Overall Rating	4.1	4.3	4.2	4.3	4.4

Students have the opportunity to comment on the ratings, their work duties, influence of the experience on their future, and suggestion for the program.

Student Comments, 2006-07

“...worked with 2 engineers daily...assigned my own projects...developed graphics for customer to control and monitor points installed in temperature controls...assisted with engineering of larger projects...”

“...designed experiment for...vertical motion simulator...calculating flight paths, developing subjective pilot ratings, organizing pilot run order...ran experiment...14 pilots through about 4 weeks...gave a presentation at the Flight Symbology Working Group Conference...fantastic internship.”

“...support engineers with product development...manage and execute change orders...design test fixtures, perform testing and drive design projects...”

“...have been made Project Manager of 2 projects...increased responsibility and have had to go outside of my comfort zone...great experience...”

“...would not have known what professional life would be like until this. It was the best experience I could get...”

“...demand management-organizing and analyzing data from the different work proposals...requirement management-research to sign the process...create deliverables...”

Employer End-of-Term Survey Data, 2003-7

Employers are required to complete an evaluation of the student and the experience at the end of each semester. This evaluation is shared with the student. The evaluation includes rating 15 areas and selecting an overall rating. Employers are advised to consider job duties, corporate co-op/intern benchmarks, assignments and expectations, and comparison with other student co-ops/interns. The following scale is used:

0 – NA 1-Unsatisfactory 2-Improvement Needed 3-Satisfactory 4-Above Average 5-Excellent

<u>Mean Survey Ratings</u>	<u>06-07</u>	<u>05-06</u>	<u>04-05</u>	<u>03-04</u>	<u>02-03</u>
Quality of Work	4.4	4.5	4.3	4.6	4.7
Quantity of Work	3.9	4.3	4.1	4.4	4.2
Oral Expression	4.0	4.0	3.8	4.4	4.1
Written Expression	3.7	4.2	3.9	4.3	4.3

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Problem Solving Skills	4.3	4.5	4.1	4.4	4.4
Academic Preparation	4.0	4.2	4.1	4.2	4.3
Ability to Use Resources	4.3	4.4	4.2	4.2	4.5
Completion of Assignments	4.4	4.3	4.2	4.6	4.8
Acceptance of Responsibility	4.4	4.4	4.1	4.7	4.6
Acceptance of Criticism	4.3	4.3	4.1	4.5	4.4
Ability to Take Direction	4.6	4.5	4.4	4.6	4.8
Relationships With Others	4.7	4.3	4.5	4.8	4.6
Work Attitudes (e.g., initiative, Enthusiasm)	4.7	4.4	3.9	4.6	4.8
Appropriate Appearance	4.3	4.3	4.2	4.6	4.4
Potential for Permanent Hire	4.4	4.4	4.0	4.6	4.8
Overall Rating	4.4	4.5	4.5	4.6	4.5

Employers have the opportunity to comment on the ratings, special abilities of the student, work description, and if the student will be returning.

Employer Comments, 2006-07

“...excellent written communication skills...takes ownership of his projects...able to run with projects with minimal supervision...”

“...excellent problem solving and critical thinking skill..able to use resources and complete work independently...Pro/e skills have greatly improved over the course of the internship...”

“...good organizational skills...initiative...works well in team environment...”

“...consistently delivered high quality work...organizes her thoughts and speaks them in a concise manner...has not missed a key milestone to date...”

“...self-starter...great ability to work without direct supervision...”

“...quickly performs tasks...likes to keep busy...always looking for new ways to help...”

“...excellent data analysis skills...required little guidance to analyze data...good listener...”

**The University of Iowa College of Engineering
Student Development Center/Engineering Professional Development
Cooperative Education and Internship Program**

Mechanical Engineering

Summary

Experiences

<u>Year</u>	<u>Co-ops/Internships</u>	<u>Employers</u>	<u>Students</u>
2006-07	61 F.T./3 P.T. (77% Iowa)	26 (52% Iowa)	54
2005-06	62 F.T./2 P.T. (66% Iowa)	43 (61% Iowa)	58
2004-05	45 F.T./3 P.T. (63% Iowa)	33 (54% Iowa)	45
2003-04	29 F.T./2 P.T. (74% Iowa)	21 (62% Iowa)	25
2002-03	23 F.T./2 P.T.(64% Iowa)	20(53% Iowa)	21

Salary Data

<u>Year</u>	<u>Salary Range</u>	<u>Mean*</u>	<u>Median*</u>	<u>Mode*</u>
2006-07	\$8.50 - \$29.54/hr	\$15.96/hr	\$16.50/hr	\$17.00/hr
2005-06	\$8.00 - \$34.56/hr	\$16.05/hr	\$17.00/hr	\$17.00/hr
2004-05	\$8.00 - \$36.36/hr	\$14.84/hr	\$14.00/hr	\$17.00/hr
2003-04	\$9.00 - \$18.18/hr	\$12.89/hr	\$13.00/hr	\$13.00/hr
2002-03	\$9.00 - \$19.25/hr	\$14.71/hr	\$14.25/hr	\$14.25/hr

*Mean, Median and Mode computations do not include volunteer positions

Distribution of Experiences (not students) by Class

<u>Year</u>	<u>2nd yr</u>	<u>3rd yr</u>	<u>4th yr</u>	<u>Graduate Student</u>
2006-07	13%	37%	45%	5%
2005-06	13%	42%	36%	9%
2004-05	13%	56%	27%	4%
2003-04	35%	35%	26%	4%
2002-03	8%	24%	64%	4%

Employers, Locations, and Position Descriptions, 2003-07

AbelConn, LLC New Hope, Minnesota
Working with Shipping/Receiving and Engineering, develop and write new instructions for packaging product.
Drafting reviews, Lean Manufacturing/Six Sigma studies, component database development

Accenture Chicago, Illinois
Business consulting intern...project analysis and review

Acergy Seabed-to-surface engineering and construction contracting for the offshore oil and gas industry	Houston, Texas
Alcoa Engineering intern; process/production support with engineering staff	Davenport, Iowa
Allsteel Production support; quality assurance and documentation; design	Muscatine, Iowa
American Profol Lead cost reduction team, act as project manager, maintain De-bottlenecking Phase II Plan	Cedar Rapids, Iowa
A.Y. McDonald Engineering intern; process and design; fixtures	Dubuque, Iowa
Bobcat Company Production engineering and support; various projects design and quality	Gwinnet, North Dakota
Boeing IDS Systems Engineer with Ch 47 Chinook rotor blade overhaul/design group	Philadelphia, Pennsylvania
Brook, Borg, Skiles Architecture Engineering Consulting engineering, project and site work, records and documentation	Des Moines, Iowa
Burlington, Northern, and Santa Fe Railroad Computer network maintenance/Audit team/Workspace redesign	West Burlington, Iowa
CAE Technology Support vehicle program development, build, validate, and exercise models, validate designs	Livonia, Michigan
Cargill, Inc. Updating piping and instrumentation diagrams/Work on team charged with reducing energy use/Coordinate installation of steam and gas meters	Cedar Rapids, Iowa
Cargill Engineering Intern	Vernon, California
Case-New Holland Engineering Intern in the product management department, linking engineering and marketing, competitive research, product definitions, and analysis	Burlington, Iowa
Caterpillar Inc. Develop and implement project for technology transfer for welding best practice, process and quality control based on six-sigma principles	Peoria/Mossville, Illinois
Centro, Inc. Database development, time and cost studies, design and fabrication of safety guides	North Liberty, Iowa

Civco Medical Instruments AutoCAD updates and revisions, verification and efficiency activities, quality assurance	Kalona, Iowa
Eagle Alloy Plant engineering intern; foundry quality assurance; various projects	Muskegon, Michigan
Eaton Corporation Quality Engineering Intern in heavy duty transmission manufacturing facility, main projects include reduction of air leaks and nital etch in transmissions as a whole and component assemblies and design	Shenandoah, Iowa
Elgin Sweeper Will assist with lab tests and documentation, quality control, research and development	Elgin, Illinois
Elkay Mfg. Manufacturing Intern	Broadview, Illinois
Emerson-Fisher Data Analysis and product marketing, technical support	Marshalltown, Iowa
Exelon Engineering Intern in nuclear power generating station	Cordova, Illinois
Engineering Mechanics Corporation Research Engineer, various projects including structural reliability of electronic packaging, assisting in corporate operations as needed	Columbus, Ohio
Engineering Ministries International Assist in the design and development of various projects, AutoCad and other assignments as required, projects are varied and worldwide, requiring experience in the home office in Colorado Springs, and assignment to foreign locales	India
Engineering Plastic Components Research and design of injection molded parts, costing of parts, understanding of plant processes/efficiencies	Grinnell, Iowa
Feed and Grain Systems Design and build of grain storage and processing facilities, associated programming of electronic components, on-site design and fabrication	Tipton, Iowa
Florida Power, Light, & Energy – Duane Arnold Nuclear Plant Configuration Control Design Engineering department working on the Calculation Accessibility Project... ongoing effort to reference all calculations, which number over 4,000, in an organized manner into a database	Palo, Iowa
GE Consumer & Industrial Design and build of GE's Busway product for heavy duty electrical transmission, working with mechanical and electrical engineers on parameters for new elbow design	Selmer, Tennessee
GM Chassis Center Analysis and optimization of suspensions using software, Motionview	Troy, Michigan

HDR Ports and harbors, and ocean, engineering, collecting data and research on new and existing projects from clients, regulatory agencies, and municipalities, creating spreadsheets of the data for use by company engineers	Corpus Christi, Texas
Hearth and Home Technology Three projects...reducing energy used in powder coat system...work on reducing the downtime of presses in the fabrication department...creating a new way to get the whole plants scrap to the recycling dumpsters without the use of fork lifts	Mt. Pleasant, Iowa
Hendrikson Mfg. Manufacturing and Production Engineering, research and design	Woodridge, Illinois
HNI Development Technologies Engineering Intern, work with various departments in the rapid prototyping area, including the model shop, SLS (Selective Laser Sintering) lab, QA (Quality Assurance) lab, machining area, and sheet metal fabrication sections	Muscatine, Iowa
HON Technology Center Product development for office environment	Muscatine, Iowa
IAESTE: NorskHydro Petroleum Engineering Intern, working on the analysis of the completion downtime of all of the offshore rigs operated by Norsk Hydro ASA, working with drilling technology department, visiting offshore platforms	Bergen, Norway
Ideal Industries Design Engineering Intern, electrical connectors and associated products, various projects for national and overseas clients to specific specs and requirements	Sycamore, Illinois
IPSCO Steel Inc. Implement modifications to rolling mill machine design, assist vendors with specifications and details of current mill machine design, plant improvement and safety projects	Muscatine, Iowa
Integrated DNA Technology Process engineering intern	Coralville, Iowa
International Truck and Engine Manufacturing engineering, component quality analysis and design	Melrose Park, Illinois
Iowa Department of Natural Resources P2 Program - Dial Corporation Project to reduce kilowatt peak demand/reduction in operational costs and coal consumption of power company	Ft. Madison, Iowa
Iowa Department of Natural Resources P2 Program: Electrolux Review waste streams, improve recycling programs, and reduce hazardous waste disposal...areas that were focused on were the waste water area and the paint lines...large opportunities for improvement environmentally and economically	Webster City, Iowa
Iowa Department of Natural Resources P2 Program: Woodharbor Doors Pollution Prevention Intern, main project was reduce the source of the wood waste produced from company's door and cabinet-making processes, as well as analyze alternative methods for disposal of wood waste	Mason City, Iowa

John Deere Agricultural Management Solutions Part of the AutoTrac Universal Steering Kit product verification team, responsible for correlating stepper motor torque, voltage and temperature	Urbandale, Iowa
John Deere Construction and Forestry Backhoe fabrication, materials inventory, weld fixture layout and adjustment, robot system programming, hydraulics system design	Dubuque, Iowa
John Deere Des Moines Works Quality Engineering Intern, on cotton harvesters, main project was a quality sprint, to gather and analyze warranty data for the model year 2006, and hold a meeting with design engineers, manufacturing engineers, assemblers, quality personnel, supply management personnel, and examine all the warranty claims from last year and see what can be done to prevent the same claims being made for the model year 2007	Ankeny, Iowa
John Deere Harvester Works Research Intern, study is related to the dynamic mechanical behavior of the combine harvester cleaning system	East Moline, Illinois
John Deere Product Development Center Validation of experimental testing machine, formulation of future directions in machine traction research	Moline, Illinois
John Deere Waterloo Engine production, quality control and testing, records and documentation	Waterloo, Iowa
Johnson Controls Instrumentation and building environmental controls; monitoring and installation	Cedar Rapids, Iowa
Johns Hopkins University Work on team defining metrics for assessing surgeons' skills in order to establish means of evaluating learning processes/Develop robotic & human-machine haptic (touch) interfaces	Baltimore, Maryland
Lear Corporation Production support; quality assurance and documentation; various plant engineering projects	Iowa City, Iowa
Loparex Plant engineering; manufacturing support and various maintenance projects; AutoCad	Iowa City, Iowa
Loram Engineering Design Intern...redesign rail loader train, to help improve functionality and ergonomically improve the existing machine	Medina, MN
MPC Products Corp. Team member on development and design of rotary DC and AC motors	Niles, Illinois
MacLean Power Systems Part of manufacturing engineering team, tooling and fixture design, other projects	Franklin Park, Illinois
Maytag-Amana Appliances, Inc. Design engineering of parts, analysis of current designs, and taking data/Manufacturing processes and quality assurance on production lines	Amana, Iowa

Maytag-Newton Design R&D Team/Various projects relating to new and existing products	Newton, Iowa
MidAmerican Energy Engineering intern...project analysis and review	Council Bluffs, Iowa
Minarik Corporation Time studies; design and vendor research; resourcing projects	South Beloit, Illinois
Mitsubishi Motors Plant engineering; production support and design; quality assurance and documentation	Normal, Illinois
Motorola Mechanical Engineering Intern in Broadband Communications sector, specific project is WiMAX, involving the design of base controller units that enable various forms of communication, i.e. wireless and broadband	Arlington Heights, Illinois
Motorola Work with the Mobile Devices Supply Chain Mechanical Engineers on current GSM phone projects..main areas of concentration include prototype build support and in-depth analysis of product design and supplier issues.	Libertyville, Illinois
Motorola Mechanical Engineering Intern in IDEN, developing all Motorola radio cell phones for Nextel and Sprint, project is to take a prototype with several problems and turn it in to a completed cell phone that is ready for the consumer through building a series of prototypes while adjusting design and manufacturing parameters	Plantation, Florida
MPC Products Aerospace engineering, Flight Deck Department intern, projects included determining what diameter indentations should be made in a cam for throttle that had a spring with a ball bearing attached that needed to fit into the indentation and throttle re-design to avoid interference with switches	Skokie, Illinois
NASA – Langley Langley Aerospace Summer Scholars (LARSS) Program...evaluate images of reaction control thruster system tested in Langley's 31-inch Mach 10 wind tunnel...took high-speed camera images and enhanced them using image processing software...calculated the appropriate averaged test parameters...put them all into a technical report...NASA Johnson Space Center will use to determine which thruster configuration works best...the system will eventually be implemented on the new Crew Exploration Vehicle which will replace the current space shuttle fleet	Hampton, Virginia
NASA – Marshall Space Flight Center Advanced engine systems team, research and design, testing and analysis	Huntsville, Alabama
Natural Source Energy Systems Working with...lead engineer to assist in converting a Class-A recreational vehicle to run completely on bio-diesel and solar power	Wheeling, Illinois
Northwest Airlines Work in A319/A320 Fleet Engineering, which is a subset of NWA's Airbus Engineering under the direction of Technical Operations...provide high-level component and aircraft configuration support for Maintenance	Minneapolis, Minnesota

Control and Operations, technical analysis for reliability and maintenance, and advanced troubleshooting for various problems or situations that are beyond the scope of in-house maintenance

Oral B Laboratories
Redesign/restructure of production facilities and equipment
Iowa City, Iowa

Pacific Earthquake Engineering Research
Research on highway bridge behavior during and after earthquakes
Berkeley, California

Parr Instrument Company
Work with 3D CAD software to create new models and drawings, as well as revise old ones, design various component and custom orders
Moline, Illinois

Pella Corporation
Engineering Intern, manufacturing and design projects as assigned.
Pella, Iowa

Penford Products
Support controls-automation effort, graphic and system checkout process control, piping project design and implementation
Cedar Rapids, Iowa

Pure Fishing, Inc.
Manufacturing process engineering, maintenance and safety, quality control
Spirit Lake, Iowa

Ricardo Inc.
Consulting engineering, thermodynamic analysis and CAD design analysis
Burr Ridge, Illinois

Rock Island Arsenal
Engineering Aid, manufacturing engineering department
Rock Island, Illinois

Rockwell Collins, Inc.
Design and implementation of process equipment tooling, process development, and documentation, producing Labview code, support and training
C'ville/Cedar Rapids, Iowa

Seaquist General Plastics
Analysis of parameter influence on plastic part deformation, creation of ANOVA system
Poincy, France

SEC Design
Design and build assembly line machinery...range from semi-automated to fully automated...design new tooling sets for 12 ton deflection machine
Lake Forest, Illinois

Shive-Hattery
Consulting engineering intern
Iowa City, Iowa

Silgan Plastics Corporation
Production plant layout and design update, research and implement recommendations for design change in customer packaging
Norcross, Georgia

Skill-Bosch Power Tool
Team member working on design of new line of tools relating to reciprocating saw power tool
Chicago, Illinois

St. Croix of Park Falls Engineering intern in fishing gear manufacturing; design and technical support	Park Falls, Wisconsin
Terex AutoCAD/Inventor revisions and updates	Cedar Rapids, Iowa
Trane Plant engineering intern with air conditioning manufacturer	Sioux Falls, South Dakota
The Weidt Group Sustainability firm of engineers and architects, consulting intern on various projects to optimize energy use in clients' buildings to conform to regulations and restrictions, including lighting take-offs and database development, comparison and application	Minneapolis, Minnesota
TURCK Research and Development Intern, product qualification testing, building of prototypes and test fixtures, generation of drawings and Bills of Materials using AutoCAD and the generation of 3-D models using Autodesk Inventor	Plymouth, Minnesota
University of Iowa College of Engineering ME Lab Laboratory assistant	Iowa City, Iowa
University of Iowa College of Engineering Metal Fatigue/Fracture Lab Research study to measure the effectiveness of two metal surface treatments, shot peening and laser peening, on welded pieces of cold-rolled 1010 steel, main assignment was measure how well the pieces of steel could withstand an array of high and low loads, known as variable amplitude loads	Iowa City, Iowa
UI College of Engineering OPL Research and analysis of engineering systems	Iowa City, Iowa
UI College of Engineering Orientation Services Orientation advisor to 1 st year students; advising, mentoring, and training	Iowa City, Iowa
University of Iowa Facilities Management Construction engineering intern	Iowa City, Iowa
University of Iowa IIHR—Hydrosience and Engineering Construction and design of models for various research projects	Iowa City, Iowa
UI Power Plant Remap the plant's entire infrastructure working to create accurate and detailed drawings of the piping system using AutoCAD, historical documents of improvements and renovations, and painstaking inspection of existing systems, equipment, and processes	Iowa City, Iowa
UI Water Treatment Plant Environmental Systems Technician	Iowa City, Iowa
UTC Power Engineering Intern...project consulting and analysis	South Windsor, Connecticut

University of Maine	Orono, Maine
Research properties of wood-plastic composites for structural applications/develop testing methods and fixtures for column & posts made of WPC/Conduct tests, analyze results, determine design values	
Vital Images, Inc	Plymouth, Minnesota
Research and implement wavelet based 3D large volume data compression	
Whirlpool-Amana	Amana, Iowa
Manufacturing Engineer Co-op, time studies, quality assurance, manufacturing processes	

Student End-of-Term Survey Data, 2003-7

Students are required to complete an evaluation of their experience at the end of each semester. Part of the evaluation includes rating 10 areas and selecting an overall rating using the following scale:

0 – NA 1-Unsatisfactory 2-Improvement Needed 3-Satisfactory 4-Above Average 5-Excellent

<u>Mean Survey Ratings</u>	<u>06-07</u>	<u>05-06</u>	<u>04-05</u>	<u>03-04</u>	<u>02-03</u>
Formal Training Received	4.1	3.6	3.9	3.5	3.7
Informal Training Received	4.4	4.3	4.3	4.5	4.5
Feedback on Work Performed	4.4	3.7	4.1	4.0	4.0
Supervision Received	4.4	4.0	4.1	3.9	4.0
Interaction with Co-Workers	4.7	4.7	4.7	4.5	4.7
Quantity of Work Assigned	4.2	3.7	3.9	3.4	4.7
Level of Responsibility Assigned	4.4	4.3	4.1	3.9	4.2
Abilities Utilized	4.0	3.6	4.0	3.7	3.9
Relevance of Academic Preparation To Work Position	3.9	3.5	3.4	2.9	3.9
Career/Professional Knowledge Gained	4.4	4.4	4.5	4.4	4.5
Overall Rating	4.5	4.3	4.3	4.2	4.5

Students have the opportunity to comment on the ratings, their work duties, influence of the experience on their future, and suggestion for the program.

Student Comments, 2006-2007

- “...although good grades are clearly top priority, good experience can be equally as important in determining who gets hired and who gets left out.”
- “...worked in a...team to create a database of PWB attributes that can be searched to aid in evaluation and estimation of cost, risk, reliability, and supplier yield...large amount of trust in me...”
- “...hope I get hired here...”
- “...data collection for calculation accessibility project...help engineers work on calculations and modification packages...extensive problem solving and research...”
- “...saw a wide range of calculations and industrial systems...excellent experience...treated great...had fun and saw some cool things...”
- “This internship confirmed my decision to pursue a career in mechanical engineering.”

“...would not want to work in the commercial nuclear power industry because of the heavy regulations and bureaucracy that comes with it...did not deal with it much, but I saw what my bosses went through on a daily basis...”

“...fixture design using ProEngineer...fixture validation using Minitab...audio testing...Excel macro using Visual Basic...design for manufacture and assembly using BDI...”

“...earned Six Sigma quality badge by taking classes...great internship!”

“...support the engineering team...product development...manage and execute change orders...design test fixtures..perform test...”

“...great experience...learned many things...”

“...test experiments involving air flow, thermal cycling, thermal couples, data sorting, soldering and hands-on fastening and drilling...work was interesting...”

“...great down-to-earth mentor...related to many classes...excellent internship...”

“...worked on various RCI (Rapid Continuous Improvement) events...time studies...projects...kept me very busy...great feedback...”

“...worked on projects dealing to improve the quality of refrigerators. Most projects dealt with the sealed system of the unit running trials and arranging testing...”

“...reviewed and updated hydraulic schematics and spreadsheets...tracked fluid volumes for various hydraulic systems to include flight control and landing gear systems...”

“...performed PLIF imaging experiments on X-43A scramjet forebody model in ...31-inch Mach10 wind tunnel...running tests that cost \$10K per day and we could only run 4 times per day...”

“...combined Planar Laser-Induced Fluorescence (PLIF) images of Orion Crew Module RCS jets with virtual model to better characterize jet/vehicle interaction...great people, great place, I hope to come back...”

“...developed tools and processes to fill gaps in the creation of service pricing guides, the times dealers use to do warranty repairs...”

“...operating computers during a driving study, applying EEG nets for the study and doing preliminary processing and analysis of EEG and Eyetracking data...”

“...function within the design team is failure analysis working in a lab for component and materials evaluation...conduct product qualification and reliability experiments running testing channels in different environments...”

Employer End-of-Term Survey Data, 2003-7

Employers are required to complete an evaluation of the student and the experience at the end of each semester. This evaluation is shared with the student. The evaluation includes rating 15 areas and selecting an overall rating. Employers are advised to consider job duties, corporate co-op/intern benchmarks, assignments and expectations, and comparison with other student co-ops/interns. The following scale is used:

0 – NA 1-Unsatisfactory 2-Improvement Needed 3-Satisfactory 4-Above Average 5-Excellent

<u>Mean Survey Ratings</u>	<u>06-07</u>	<u>05-06</u>	<u>04-05</u>	<u>03-04</u>	<u>02-03</u>
Quality of Work	4.1	4.3	4.0	4.2	4.3
Quantity of Work	4.0	4.2	4.0	4.3	4.2
Oral Expression	3.7	4.0	4.0	4.1	4.2
Written Expression	3.8	4.0	3.9	4.0	4.0
Problem Solving Skills	4.0	4.1	4.0	4.2	4.4
Academic Preparation	3.8	4.1	4.0	4.2	4.1
Ability to Use Resources	4.2	4.1	3.9	4.3	4.3

Completion of Assignments	4.1	4.5	4.4	4.5	4.3
Acceptance of Responsibility	4.1	4.4	4.4	4.5	4.4
Acceptance of Criticism	4.0	4.3	4.0	4.2	4.3
Ability to Take Direction	4.2	4.3	4.4	4.5	4.5
Relationships With Others	4.3	4.3	4.3	4.4	4.4
Work Attitudes (e.g., initiative, Enthusiasm)	4.3	4.3	4.3	4.7	4.5
Appropriate Appearance	4.0	4.1	4.0	4.5	4.2
Potential for Permanent Hire	4.3	4.4	4.5	4.6	4.4
Overall Rating	4.3	4.3	4.2	4.4	4.4

Employers have the opportunity to comment on the ratings, special abilities of the student, work description, and if the student will be returning.

Employer Comments, 2006-2007

“...thorough and completed tasks faster than expected...excellent in locating personal and written resources to assist...Bravo-worked well in team environment and was open and fun...”

“...assisted a team of coders...problem solving, constraint identification, logical thinking, basic material properties cause/effect...”

“...ability to quickly understand and execute a task...excellent candidate for another intern assignment...definite potential for hire...”

“...written products are of good quality...listens well...very professional...”

“...mature, responsible, and well organized intern...strong candidate for permanent hire...completed accurate and complete data tables for hydraulic system schematic...”

“...demonstrated effective root cause thought process...great team player...demonstrated excellent communication skill when presenting a design concept or issue...”

“...(special abilities demonstrated included) Pro/E and design concepts...submitted patent for universal fixtures...”

“...excellent at seeking out resources and asking the right questions...excellent work ethic and motivation...”

“...excellent problem solving and critical thinking skills...”

“...took on multiple tasks, shows she can handle pressure...great work ethic...thinks ahead...great drive and initiative...great worker, company wants her back...”

“...analytical approach surpasses previous interns...works extremely well with peers, all levels up to vice president as well as contractors...”

“...demonstrated the ability to perform successfully with little direction from his supervision...caught on to the processes and tools quickly and was able to adapt as needed...product support role...demonstrated understanding of and commitment to the dealers and customers...”

“...self-motivation and determination...gave him the end goal and he would plan/design the means necessary to accomplish this goal...”

“...good engineering judgment and learns the processes needed to complete a task quickly...”

“...would be my first choice for permanent hire at any time...”

Undeclared Engineering

Most students declare a major by the time they are eligible for a co-op or internship, although undeclared engineering students are welcome in the program. Due to small numbers, statistics are included in the College of Engineering statistics as a whole.