







**University at Buffalo**  
The State University of New York

**School of Engineering and Applied Sciences**

**UB Engineering and Applied Sciences Dean's Quarterly Report  
October 1, 2011 to December 31, 2011**

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This report covers the second quarter of Academic Year 2011–12 and reflects the dedicated work of our faculty and staff and the generosity of our benefactors. Thank you for your continued effort.

**1. Education:**

**UB Engineering Fall 2011 Enrollment by Program**

Degree Program	Undergraduate	Graduate	PhD	Masters
AEROSPACE ENGINEERING	258	41	12	29
BIOINFORMATICS-COMPUTER SCIENCE & ENGINEERING				
BIOMEDICAL ENGINEERING	135			
CHEMICAL & BIOLOGICAL ENGINEERING	241	116	60	56
CIVIL, STRUCTURAL & ENVIRONMENTAL ENGINEERING	360	158	75	83
COMPUTER ENGINEERING	138			
COMPUTER SCIENCE	282	380	114	266
ELECTRICAL ENGINEERING	282	212	79	133
ENGINEERING PHYSICS	13			
ENGINEERING SCIENCE	0	2		2
ENVIRONMENTAL ENGINEERING	92			
INDUSTRIAL & SYSTEMS ENGINEERING	86	153	63	90
INFORMATION ASSURANCE - ENGINEERING		0		0
ITU CIVIL ENGINEERING	71			
ITU ENVIRONMENTAL ENGINEERING	22			
MECHANICAL ENGINEERING	519	176	57	119
SCHOOL OF ENGINEERING AND APPLIED SCIENCES	109			
<b>TOTAL</b>	<b>2608</b>	<b>1238</b>	<b>460</b>	<b>778</b>

## UB Engineering Fall 2011 Enrollment by Department

Department	Undergraduate	Graduate
BIOMEDICAL ENGINEERING	135	0
CHEMICAL & BIOLOGICAL ENGINEERING	241	116
CIVIL, STRUCTURAL & ENVIRONMENTAL ENGINEERING	545	158
COMPUTER SCIENCE	420	380
ELECTRICAL ENGINEERING	295	212
INDUSTRIAL & SYSTEMS ENGINEERING	86	153
MECHANICAL ENGINEERING	777	217
SCHOOL OF ENGINEERING AND APPLIED SCIENCES	109	2
<b>TOTAL</b>	<b>2608</b>	<b>1238</b>

## 2. Awards

Congratulations to our students/clubs, faculty, and alumni who have been recognized this quarter.

### Students/Clubs

- CBE student **Jonathan Cole** pursued a summer National Science Foundation Research Experience for Undergraduates program in Botswana, Africa, through Case Western University (CW), in collaboration with the University of Botswana (UBot), to study sustainable energies, particularly solar energy.
- CSE PhD students **Wei Chen** and **Ming Shao** (a UB Presidential Fellow), with CSE Assistant Professor **Yun (Raymond) Fu**, won the best paper award at the IEEE International Conference on Data Mining 2011 Workshop on Large Scale Visual Analytics, for their paper entitled, "Clustering Based Fast Low-Rank Approximation for Large-Scale Graph."
- ISE PhD student **John Coles** won the 2011 Student Paper Award of the Society of Risk Analysis's Decision Analysis and Risk Specialty Group, for the paper, "Partnership Optimization Decision Support System (PODSS): Improving Partnership Development and Resource Allocation in Disaster Recovery Operations using Game Theory," which ISE Assistant Professor **Jun Zhuang** co-authored. The paper was presented at the SRA annual meeting in Charleston, South Carolina. The research was partially funded as a NSF's RAPID project and by the Department of Homeland Security through the Center for Risk and Economic Analysis of Terrorism Events – CREATE.
- Student-mentor teams winning Fall 2011 CURCA Awards are:
  - CSE: **Sean Zawicki** with CSE Assistant Professor **Geoffrey Challen**: "Smart-Phone Benchmarking."
  - CSEE: **Dyugu Altintas** with CSEE Professor **James Jensen**: "Evaluation of *J. curcas* as a Water Coagulant"; **Peter Byrley** with CSEE Research Assistant Professor **David Blersch**: "Assessment of Floating Algae Cultivator"; **Yachen Liao** with CSEE Associate Professor **Stuart Chen**: "Computer Modeling to Accelerate Construction of Bridges."
  - EE: **Lisa Rae Zoldos** with EE Assistant Professor **Jennifer Zirnheld**: "Dielectric Elastomer Actuators."
  - ISE: **Elizabeth Newell** with ISE Assistant Professor **Jun Zhuang**: "Game Theoretic Application to Disaster Preparation and Mitigation – Hurricane Case Study."

- MAE: with MAE Professor **Deborah Chung: Kucheng Wang**, “Vibration Damping Cement-Based Material Testing,” and **Chi Xu**, “Sound Absorbing Cement-Based Material Testing.”

## Faculty

- CBE Professor **Edward P. Furlani** (BS EE '77, MA '80 PhD '82 Physics) patented “Device for merging fluid drops or jets” with inventors: Gilbert A. Hawkins (Mendon); Zhanjun Gao (Rochester); Yonglin Xie (Pittsford); Kam C. Ng (Rochester) and assignee Eastman Kodak Co.
- CSEE Professor **Cemal Basaran** received the American Society of Mechanical Engineers 2011 Electronic and Photonic Packaging Division Excellence in Mechanics Award, for outstanding contributions to the application of engineering mechanics in the field of electronic and/or photonic packaging, including stress analysis, reliability study, experimental methods and computational modeling.
- CSEE Professor **Michel Bruneau** received the American Institute of Steel Construction (AISC) 2012 T.R. Higgins Lectureship Award, for his papers on steel plate shear wall design published in *AISC's Engineering Journal* and the proceedings of the Canadian Conference on Earthquake Engineering.
- CSEE Professor **Salvatore Salamone** earned a 2011 faculty award from the American Society for Nondestructive Testing (ASNT) award, for his proposal, “Revision of Graduate Courses CIE500S ‘Introduction to Nondestructive Evaluation.’”
- SUNY Distinguished Professor of CSE and Center of Excellence in Document Analysis and Recognition Director **Sargur N. Srihari** won the 2011 International Conference on Document Analysis and Recognition (ICDAR) Outstanding Achievements Award for contributions to research and education in handwriting recognition and document analysis, and for community service.
- SUNY Distinguished EE Professor **Vladimir Mitin** was named a fellow of the American Physical Society, for contributions to phonon enhancement of sensors and detectors, and to controlled carrier kinetics in sensors with high responsivity.
- ISE Assistant Professor **Murat Kurt** earned an Institute for Operations Research and the Management Sciences – INFORMS Service Science Section Best Paper Award, for the article entitled, "Valuing Prearranged Paired Kidney Exchanges: A Stochastic Game Approach," with co-authors University of Pittsburgh's Mark Roberts and Andrew Schaefer, and Utku Unver (Boston College).
- MAE Research Professor **Zach Liang**, CSEE's SUNY Distinguished Professor **George C. Lee**, MAE Professor and Chair **Gary F. Dargush**, and MCEER Senior Research Scientist **Jianwei Song** have authored *Structural Damping: Applications in Seismic Response Modification* (Taylor & Francis).

## Alumna

**Tamara E. Brown** (MEng CE '03) was recognized as a Champion of Change by the White House, for creating Tech Savvy, a technology outreach program specifically for young women. Begun in 2006 by the American Association of University Women and assisted by the School of Engineering, the program has engaged thousands of young female middle school students, their parents and teachers with the possibilities available in science, technology, engineering, and mathematics (STEM) fields.

### 3. Research Achievements

Proposals: 117 total proposals were submitted during the second quarter with a total value of \$79,673,300.00. The number of submissions was the highest ever total for a 2nd quarter, and the second highest total dollars of submissions. When added to the 1st quarter number of submissions, the total is 240 proposals, which is the highest ever combined total for 1st and 2nd quarter submissions.

Research Awards: 22 research awards were made involving engineering faculty totaling \$6,885,663 in the second quarter.

### 4. Personnel Status

#### Promotion

Our heartfelt congratulations to **Harvey G. Stenger Jr.** (CBE professor, Engineering Dean, and UB Interim Provost) for the recommendation by SUNY Chancellor Nancy Zimpher and the appointment by SUNY Board of Trustees to Binghamton University as their president, effective January 1, 2012.

Harvey's post as UB Interim Provost and Executive Vice President for Academic Affairs began in April 2011. Throughout his outstanding tenure as Dean (2006–2011), our School's progress was impressive, thanks to his leadership abilities, his commitments to innovation and academic excellence, and his great successes in forging partnerships inside and outside the university. His major accomplishments as dean were many, and included collaboration to launch the new BME department with School of Medicine and Biomedical Sciences Dean Michael Cain, and overseeing the building of Barbara and Jack Davis Hall – from planning and conception to funding, construction, and naming of the building and its spaces. As dean, he helped make many strong faculty hires, improved engineering student diversity and quality, improved research lab quality, and applied a spirit of dynamism and innovation across the School's many enterprises. Under his leadership, a redesigned freshman-year engineering curriculum was created, and in 2008 the ABET accreditation process for the School's eight programs was completed. Stenger oversaw many generous philanthropic gifts to the School, including the largest in the School's history at that time, from Barbara and **Jack Davis** (BS IE '55).

**Comings** – We welcome our new faculty and staff:

**BME:** Assistant Professor **Jonathan Lovell** and Associate Professor **Leslie Ying**

**CBE:** Research Instructor **Rubik Astrayan**

**CSE:** Assistant Professor **Robert Platt** and Assistant Professor **Jing Gao**

**CSEE:** MCEER Business and Financial Staff Assistant **Bonnie McKay**

**EE:** Assistant Professor **HyungSeon Oh** and Assistant Professor **Uttam Singiseti**

**MAE:** Assistant Professor **Manoranjan Majji**

**Goings** – We thank the following person for her service to the School and wish her success:

**TCIE:** **Juanita Earl**

**Faculty Obituary** – UB Engineering warmly remembers retired MAE Professor **Robert “Bob” E. Mates**. His 35 years of service included working as UB’s Center for Biomedical Engineering director and a research professorship in Medicine. His gift for teaching earned him the SUNY Chancellor’s Award for Teaching Excellence in 1991. An active member and Fellow of the American Society of Mechanical Engineers (ASME), he received its Dedicated Service Award. He also received awards from the Buffalo Public Schools, where he volunteered doing technical and vocational education. His wife, Gail, with whom he journeyed to every continent except Antarctica, survives him.

**5. Our Physical Platform**

Davis Hall – Work continues on finalizing Davis Hall by the start of the spring 2012 semester. The move-in for CSE, EE, CEDAR/CUBS and the Dean with selected staff members was completed by mid-December. Work continues on the Agrusa Auditorium, the CSE server moves, and EE lab moves, with a target date at the end of January 2012.

**6. Philanthropy**

The following dollars reflect Commitments of \$2,266,518 made and Collections of \$2,043,569 received during the first two quarters of AY 11–12. .

Among those persons and corporations/groups contributing to these totals during the current quarter were:

- Paula and **Russ Agrusa**, Pratibha and Ravi Bansal, **Joe Chuang**, Barbara and **Jack Davis**, **William Frank**, Patricia and Richard Garman, Peter Tze Man Kan, **Roderick MacKinnon**, Coleen and **Scott Stevens**, and **Sharad Tak**.
- American Chemical Society; American Heart Association; Bird Technologies; Clark, Patterson, Lee; Earthquake Protection Systems; Turner Construction; and University of Science and Technology, China.

We are grateful for all gifts given to us by our alumni, friends, and companies.

**7. Events & Visits**

The following is a list of events and visits I was involved in during the past quarter. For easier readability, I have scaled back the number of events and visits listed in my quarterly report to highlight those with school-wide significance.

Date	Visit or Event	Location	Discussion Topics
10/3	Joseph Downey	Northrop Grumman Amherst Systems	Discuss collaborations between UB Engineering and Amherst Systems

10/4	<b>Ken Kota</b> & Tim Sopko from Cobham	UB Campus	Discuss how UB and SEAS can work together
10/4	Tau Beta Pi Recruitment Dinner	Amherst, NY	Met with company sponsors at this recruitment event
10/13	Advanced Energy Conference	Buffalo Hyatt Regency	Met with key industry partners at the Advanced Energy event
10/14	Emeritus Luncheon	UB Campus	Updated our Emeritus faculty on what's going on in SEAS plus Davis Hall Tour
10/17	Institute for Biomedical Entrepreneurship and Design (iBED)	Center for Excellence, Downtown Buffalo	Saw space in the CoE for the proposed iBED center
10/27	Genesee County Economic Development Center Meeting	UB Campus	Was part of an economic development discussion involving Genesee County and UB.
10/28	Lunch Meeting with School of Nursing	UB Campus	Meet with School of Nursing Dean candidate
10/28	Reception for New Vice Provost for University Libraries	UB Campus	Welcome Austin Booth to her new role at UB
11/2	Joe Abramo from Buffalo Wire	Buffalo NY	Met with an industry partner to learn about their interest in hiring UB engineering students
11/3	SEFA Luncheon	UB Campus	Meet with SEFA Liaisons to help promote SEFA contributions
11/4	Jim Gerace	Verizon	Discussed key collaboration possibilities with Verizon
11/4	<b>Steven Stills</b>	UB Campus	Met a key alumnus to discuss collaborations with UB engineering.
11/5	12th Annual Human Factors Engineering Inter-University Workshop	UB Campus	Delivered an opening/welcome speech for a student event
11/6-11/7	Paula and <b>Russ Agrusa</b>	Boston, Massachusetts	Discussed Agrusa Auditorium and future collaborations with UB engineering
11/8	SPIR Meeting	Albany, NY	Discussed SPIR with the SUNY Deans and SUNY Central representatives, including the SUNY Provost
11/10	AirSep Corporation	Amherst, NY	Field trip for freshmen Erich Bloch & Presidential Scholars

11/21	<b>John Pustulka</b> from National Fuel	Williamsville, NY	Met with a key UB engineering alum to invite him to join the DAC
11/22	Cobham Mission Systems Meeting	UB Campus	Discuss technical areas where UB could potentially have a beneficial partnership with Cobham
11/28-12/1	California Trip	California	Meetings with several key alums: <b>Hatim Tyabji, Roger Choplin, Ranjit Chakravorti, Kittu Kolluri, Henry Stone, Norman Hayes, Ravi Subramaniam, Robert Dell</b>

**TCIE Current Engagements through 12/14/11** – The following is shared to improve our collective understanding of many of the companies that our School is involved with.

AMPAC ISP  
Audubon Machinery Corporation  
Aurubis Buffalo Inc.  
AVOX Systems  
B & W Heat Treating Co., Inc.  
Baillie Lumber Co.  
BlueCross BlueShield of Western New York  
Bryant & Stratton College  
Cameron Compression Systems  
Catholic Charities  
Classifieds Plus, Inc.  
Cobham Mission Systems  
Community Connections of NY  
Community Health Center of Buffalo, Inc  
Community Health Foundation  
Community Services for the  
Developmentally Disabled  
Cummins, Inc.  
Flexovit USA, Inc.  
General Motors Components Holding LLC  
Goodwill Industries of WNY, Inc.  
Greatbatch, Ltd.  
Greenwood Group  
Gunlocke Co.  
Habasit America  
Harmac Medical Products, Inc.  
Harper International Corp.  
Hydraulic Development and Manufacturing Co.  
Hebeler Corporation

Independent Health  
John W. Danforth Co.  
LIFE Technologies  
Manitoba Corporation  
McGard, Inc.  
Midland Machinery Co. Inc.  
Modern-Tec Manufacturing  
Moog, Inc.  
Niagara Falls Memorial Medical Center (NFMCMC)  
Niagara Falls Water Board  
Niagara Frontier Transportation Authority (NFTA)  
Niagara Sheets LLC  
Niagara Transformer Corp.  
North American Carbide  
Nuttall Gear  
Packstar  
People Inc.  
Saint-Gobain ADFORS - Albion  
Saint-Gobain Grains & Powders  
Seneca Platers, Inc.  
Solar Liberty  
Steuben Foods  
Taylor Devices, Inc.  
The Mentholatum Company, Inc.  
Town of Amherst  
Town of Orchard Park  
VA Medical Center (VAMC) - Buffalo  
Viatran Corporation  
William S. Hein and Co., Inc.

## 8. Where do we go from here?

Important documents crafted during this quarter included:

- Our school's new financial plan, created as a Three-Year Unit Plan and submitted on November 16, 2011 to the Office of the Provost. We consider the plan as a financial blueprint for our growth and success.
- Our school's proposals in the recent competition for UB Innovation Funds to support President Tripathi's Strategic Objectives:
  - Rise in the ranks of the American Association of Universities and improve *US News* metrics.
  - Address the 3Es –
    - Excellence – Increase the quality of our education and research programs.
    - Engagement – Improve partner interactions and community impact.
    - Efficiency – Optimize the use of our resources.

Together, these documents represent our direction for the next planning period and levels of funding required. They were presented at the SEAS Faculty Meeting, December 7, 2011 and are summarized below.

### Goals

- Overarching goal: Rank more favorably among the AAU engineering public. (AAU does not publish ranking of its members.)
- Surrogate: *US News* rankings: Rank in the top 40 in the next five years; and over the next three years, rank in the top 45.

### Five Mechanisms to Achieve Overarching Goal

- Improve our undergraduate student educational experience; reduce student to faculty ratio (student numbers reasonably steady; faculty growth)
- Become more competitive at center-type proposals; aggressive faculty hiring in key areas
- Redirect and strengthen development effort; endowed chairs/professorships, student scholarships, and innovative student initiatives
- Focus on doctoral education and research; faculty growth yields increased research funding
- Improve our prominence among engineering administrators in the US and among students worldwide; improve marketing efforts

### Collaborative Initiatives

#### Clean Thrust Technology Initiatives:

- Materials Science and Engineering (collaboration with College of Arts and Sciences)
- Energy Diversification Initiative (collaboration with VPR, School of Management, Law School)
- Center for Sustainable Freshwater Resources (collaboration with the College of Arts and Sciences)

#### Entrepreneurship and Leadership Thrust:

- Center for Enterprise Engineering (collaboration with School of Management)
- Institute for Biomedical Entrepreneurship and Design (collaboration with School of Medicine and Biomedical Sciences, STOR, School of Management, Libraries)

**Computing and Data Management Thrust:**

- Complex Systems Institute (collaboration with College of Arts and Sciences)
- Data Intensive Computing (collaboration with the School of Pharmacy)
- Providing a Competitive Advantage to WNY Industry through Modeling and Simulation (collaboration with CIO and TCIE)

**Multi-media Science Thrust:**

- Institute for Language and Cognitive Sciences (collaboration with the College of Arts and Sciences)
- Virtual Education Framework (collaboration with numerous units)

**Continuing Initiatives**

- Undergraduate Student Excellence Initiatives
- Research Initiatives
- Graduate Student Quality of Life Initiatives
- Lab upgrades related to ABET
- MCEER

**New Initiatives**

- Faculty Growth
- Enhancement of Marketing Efforts
- International Program Growth
- Increase Domestic Out of State Students

**Revenues**

Starting Recurring Base Budget 2011-2012	\$ 24,529,031
Total Tuition Revenue addition to Base (12-13 through 14-15)	\$ 5,600,232
ICR growth addition to Base (12-13 through 14-15)	\$ 300,000
ICR 12% base growth	\$ 27,819
Average per year other Unit Revenue	\$ 2,425,383
Ending Total Revenue 2014-2015	\$ 32,882,466

**Expenses**

Personnel Expenditures	\$ 27,795,930
3-year plan Total Faculty Growth	\$ 1,365,000
3E proposal Total Match of Faculty Hiring	\$ 1,050,000
Non-Personnel Expenditures	\$ 2,050,626
3-year plan New Initiatives	\$ 352,000
Total Expenditures 2014-2015	\$ 32,613,556
2014-2015 Balance	\$ 268,910

## Assumptions

1. Engineering receives an increase of \$5,600,232 in permanent State operating allocation through 2014–2015 in tuition revenue growth.
2. 3 E proposal funds are spent as proposed in their original budgets and not shown in above numbers.
3. Engineering hires 23 new faculty from engineering allocation and 10 new faculty from 3E proposal funding.
4. Any yearly State Operating Deficit, new hire startup and some student expenses are covered by increased UBF funds due to philanthropy shown in the net reduction in Non-Personnel expenditures through 2014–15.
5. Summer Bonus remains in place throughout the 3-year plan.
6. 1/3rd Turnover Tax is eliminated.

## Summary—Five Main Themes

1. **Improve our undergraduate student educational experience** by significantly reducing our student to faculty ratio.
2. **Grow our faculty in key areas** and to the point where we can more easily assemble research teams that allow us to win large center-type proposals.
3. **Foster and sustain a strong development effort** that matches our ambitions and continues to generate monies for professorships, student scholarships, and innovative student initiatives.
4. **Renew focus on doctoral education and research.** This will be achieved by increased research funding those results from large, center-type efforts.
5. **Improve our prominence among engineering administrators in the US and students worldwide** through improved marketing efforts.

If you would like more information on any of the topics in this quarterly report, please contact me.

Sincerely,

**Rajan**