

## BAHMAN GHORASHI, Ph.D.

Provost and Vice President for Academic Affairs  
Tennessee Tech University



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<https://www.tntech.edu/provost/>



YouTube

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### Provost's Letters to Campus Community

<https://www.tntech.edu/provost/provost-letters-to-faculty-and-staff>

### Provost's End of the Year Statements

[https://www.tntech.edu/files/provost/Docs/End\\_Of\\_Year\\_Statements/End\\_of\\_the\\_Year\\_Statement.pdf](https://www.tntech.edu/files/provost/Docs/End_Of_Year_Statements/End_of_the_Year_Statement.pdf)

### Provost's Blogs

<http://blogs.tntech.edu/provost/>

### Provost's Recent Articles – White Paper on the Changing Role of Higher Education

<https://www.tntech.edu/provost/provosts-recent-articles>

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## Major Speeches

2011 State of the College Address PDF File and Video:

Video: <http://www.youtube.com/watch?v=KBqkD9K1kno>

2010 State of the College Address PDF File and Video:

Video: <http://www.youtube.com/watch?v=mr8M9vKgUIw>

2009 State of the College Address PDF File and Video:

Video: <http://www.youtube.com/watch?v=NekFgMoBZxs>

2008 State of the College Address PDF File and Video:

Video: <http://www.youtube.com/watch?v=vyv3hFkmG5I>

2007 State of the College Address PDF File:

PDF File: <http://www.csuohio.edu/engineering/downloads/2007stateofcollegeaddress.pdf>

## PROFILE

- Experienced senior administrator with over twenty-five years of higher education administrative experience and a record of successful progression in rank from faculty to assistant dean, chairman, associate dean, college dean, executive director and provost of a US News and World Report Top Universities' comprehensive doctoral/research institution.
- Successful fundraiser with a solid record of accomplishments
- Successful record of substantially increasing student enrollment, retention and graduation rates
- Successful record of building infrastructure, hiring the best individuals, assembling the right teams, aligning resources, establishing leading-edge programs and turning failing endeavors into most effective and thriving programs
- Experience with budgetary and finance matters, having successfully and efficiently managed budgets of over ninety million dollars
- Successful record of research accomplishments at the national and international levels with millions of dollars in grant funding and over eighty publications
- Successful record as an educator together with notable accomplishments in the areas of diversity and inclusion, community engagement and service to the community



## EDUCATION

MLE Certificate Management and Leadership in Education, \_\_\_\_\_ Harvard University  
[Harvard Graduate School of Education]

Ph.D. Chemical Engineering, \_\_\_\_\_ The Ohio State University

M.S. Chemical Engineering, \_\_\_\_\_ The Ohio State University

B.S. Chemical Engineering, \_\_\_\_\_ Wayne State University

Language Certificate \_\_\_\_\_ Michigan State University

## ADMINISTRATIVE EXPERIENCE

- Provost and Vice President for Academic Affairs, Tennessee Tech University, 2013 – Present.
- Executive Director, Fenn Research & Development Institute and Fenn Academy, CSU, 2009 – 2013.  
*(Fenn Academy consortium included Cleveland State University, 8 corporations, 42 school districts, and several non-profits).*
- Dean, College of Engineering, CSU, Dec. 2006 – Sept. 2011.
- Associate Dean for Academic Affairs, College of Engineering, CSU, Mar. 1, 2005 – Dec. 2006.
- Director, Fenn Academy, Nov. 2005 – Nov. 2009.
- Interim Chairman, Department of Chemical and Biomedical Engineering, CSU, 2005.
- Director, Doctor of Engineering Program, CSU, 2004 – 2007.
- Chairman, Center for Diagnostics, Imaging and Visualization, Ohio Aerospace Institute, 1993- 1998.
- Assistant Dean of Research, College of Engineering, CSU, 1991 - 1993.
- University Representative, Ohio Aerospace Institute-CSU, coordinating the interactions with a consortium of nine universities, industry, and research laboratories, 1989-1993.

## Other Assignments

- Acting Dean, Fenn College of Engineering, CSU, 2005(in the absence of the Dean).
- Acting Chairman, Mechanical Engineering Department, CSU (during a period of absence of the department chairman), 2005. Also, during the absence of the interim chair in the summer of 2006.
- Acting Chairman, Chemical Engineering Department, CSU (during the periods of Absence of the Department Chairman), late 1980s.
- Graduate Program Director, Chemical Engineering Department, CSU, 1993/1994 - 1996.
- Chairman, Fourth International Conference on Laser Anemometry, Sponsored by the American Society of Mechanical Engineers, NASA Lewis Research Center, Ohio Aerospace Institute, CSU, Case Western Reserve University and the European Association for Laser Anemometry.
- U.S. Organizing Committee, International Conference on Laser Anemometry, 1990-1991.

## **CURRENT ADMINISTRATIVE SUPERVISION**

The Tennessee Tech University Provost and Vice President for Academic Affairs is the Chief Academic Officer of the University. The Provost oversees the following units:

### Deans

- College of Agriculture and Human Ecology
- College of Arts and Sciences
- College of Business
- College of Education
- College of Engineering
- College of Interdisciplinary Studies
- College of Graduate Studies
- Whitson-Hester School of Nursing
- Volpe Library
- Army ROTC

### Directors

- Institutional Research
- Women's Center

### Senior Associate Provost

- Appalachian Center for Craft
- Career Services
- Honors Program
- International Education
- Extended programs
- Rural Development Institute

### Associate Provost

- Accreditation
- Assessment and Performance Funding
- University 1020
- Center for Teaching and Learning Excellence
- Quality Enhancement Plan Program
- Undergraduate Research
- Faculty Development Programs

### Associate Vice President for Enrollment Management and Student Success

- Advisement Office and Student Success Centers
- Financial Aid
- Office of the Registrar
- Scholarships
- Transfer Coordination
- Veteran's Affairs

### Assistant Vice President for Recruitment

- Admissions & Recruitment

### Assistant Vice President for Student Success

- Retention Services

### Associate Vice President for the Division of Digital and Distance Education

- Tennessee Tech Online Programs
- Regent's Online Degree Programs (e-campus, TTU online programs)
- Tennessee Tech Extended Sites
- Tennessee Tech Continuing Education programs

## **CURRENT BUDGET SUPERVISION**

- Approximately \$92,000,000 (adjusted FY 15 Academic Affairs budget)

## **PAST ADMINISTRATIVE SUPERVISION**

### Dean of Engineering, Cleveland State University

In addition to the direct reports shown below, the total faculty/staff supervisory of the College included 306 persons. The following administrators and staff directly reported to the Dean and Executive Director:

- Associate Dean for Academic Affairs
- Associate Dean for Operations
- Chairman, Chemical and Biomedical Engineering Department
- Chairman, Civil and Environmental Engineering Department
- Chairman, Electrical and Computer Engineering Department
- Chairman, Engineering Technology Department
- Director, Industrial and Manufacturing Engineering Graduate Program
- Chairman, Mechanical Engineering Department
- Director, Fenn Cooperative Education Program
- Director, Doctor of Engineering Program
- Director, Applied Biomedical Engineering Program
- Co-Director, University STEMM Center
- Budget/Fiscal Manager
- Manager, Engineering Student Affairs
- Manager, Engineering Student Programs
- Computer Network Manager
- Senior Technicians (3)
- Administrative assistant to the Dean

### Executive Director, Fenn Academy

Direct reports:

- Assistant Director for Academic Affairs and Scholarships
- Assistant Director for Industry Relations
- Assistant Director for Student Programs
- Coordinator, Career Planning and Intern Services

### Executive Director, Fenn Research & Development Institute

Direct reports:

- Associate Director for Service Learning
- Associate Director for Interdisciplinary Joint Research Projects with Industry
- Associate Director for Industry Services and Contracts
- Associate Director for Industry Outreach

## **ADMINISTRATIVE/PROFESSIONAL MEMBERSHIP**

- Tennessee Valley Corridor Leadership Council, 2014 - present.
- Tennessee Board of Regents Academic Affairs Sub-council, 2013-Present.
- Association of Chief Academic Officers of the Southern States (ACAOSS), 2013-Present.
- U.S. Engineering Deans Council, American Society for Engineering Education, 2007-2011.
- Engineering Research Council, ASEE, 2007-2011.

- Ohio Engineering Deans Council (OEDC), 2006-2011.
- Canadian Association for Co-operative Education (CAFCE), 2010-2011.
- World Association for Co-operative Education (WACE), 2010-2011.

## PROFILES CITED

- Leadership Directories – Who’s Who in the Leadership of the United States
- Academic Keys for Engineering – Who’s Who in Engineering Academia, [www.academickeys.com](http://www.academickeys.com)
- Leadership Profiles on Demand, [www.leadershipprofiles.com](http://www.leadershipprofiles.com)
- American Society for Engineering Education–Engineering Research Council
- Who's Who in Senior Administration Higher Education (WWSAHE), <http://administration.academickeys.com>

## ACADEMIC RANK, PROFESSIONAL AND SCHOLARLY APPOINTMENTS

### Tennessee Tech University

2013-Present Professor with tenure, Department of Chemical Engineering.

### Cleveland State University

2005-2013 Applied Biomedical Engineering Faculty, Joint Prog. with Cleveland Clinic Foundation.  
 1991-2013 Professor with tenure, Department of Chemical and Biomedical Engineering.  
 1983-1991 Associate Professor with tenure, Department of Chemical Engineering.  
 1983 Tenure, Cleveland State University  
 1978-1983 Assistant Professor, Department of Chemical Engineering.  
 1980-2013 Graduate College Faculty.

### NASA, Lewis Research Center

1988 Summer Faculty Fellow, Propulsion Systems Division, Combustion Branch  
 1987 Summer Faculty Fellow, Internal Fluid Mechanics Division, Aerothermochemistry Branch.

### Ohio Aerospace Institute (A Consortium of Nine Universities, NASA and Industry)

1993-1996 Member of the Research Advisory Committee  
 1991-1992 Member of the Strategic Planning Team of OAI, University Subcommittee.  
 1990-1991 On-Site Faculty  
 1990-1996 OAI Collateral Faculty  
 1989-1993 Appointed CSU Representative to the OAI  
 1989-1993 OAI University (Campus) Coordinator  
 1989 Appointed Member of the Proposal Writing Committee  
 1987-1988 Appointed Member of the Ad Hoc Research Committee

### The Ohio State University

1977-1978 Rep. of the College of Eng. and the School of Architecture in the OSU Senate  
 1977-1978 Member of the Committee on Legislative Affairs  
 1978 Member of the Advisory Committee on Funding Graduate Student Research  
 1978 Research Associate, Chemical Engineering, Department, Ohio State University  
 1976-1978 Twice Elected Rep. of the Dept. to the OSU Council of Graduate Students  
 1976-1977 Member of the Graduate Professional Committee  
 1974-1978 Graduate Teaching Associate, Chemical Engineering Department, OSU

















## **BOARD MEMBERSHIPS**

- Tennessee Tech Research Foundation Board, 2016-Present.
- Oversight Board of Fenn Academy, 2006-2010.
- Ohio Engineering Deans Council, 2007-2011.
- Ex Officio Member of the Board of Trustees, Cleveland Engineering Society, 2008 - 2011.
- Founding Board Member, Member of the Board of Governors, University Clean Energy Alliance of Ohio (UCEAO), 2007-2009.
- Cleveland Municipal Schools – Design Lab Early College Advisory Board, 2008 - 2009.
- Board of Trustees, Cleveland State University –Elected Faculty Rep. to the CSU Board of Trustees, 1986-1987.

## **MAJOR COUNCILS AND COMMITTEES**

- Chairman, TTU Focus Act Transition Taskforce (transition from Tennessee Board of Regents governance structure to individual university boards), 2016 – Present.
- Tennessee Board of Regents Academic Affairs Sub-council, 2013 – present.
- Tennessee Research Automotive Center Steering Committee, 2015 – Present.
- Cookeville Higher Education Campus, Operations Committee, 2015 – Present.
- Tennessee Board of Regents Search Committee for the Associate Vice Chancellor, 2014.
- TTU President’s Cabinet, 2013 – present.
- TTU Academic Council, Executive Officer, 2013 – present.
- TTU Curriculum Committee, 2013 – present.
- TTU Academic Affairs Executive Council – presiding, 2013 – present.
- TTU Provost’s Cabinet – presiding, 2013 – present.
- TTU Deans’ Council - presiding, 2013 – present.
- TTU Adult Learner Institutional Planning Team, 2015 – Present.
- CSU Provost’s Cabinet member, 2007-2011.
- CSU Deans Council member, 2007-2011.
- Ohio Space Grant Consortium Executive Committee member, (a NASA supported consortium), 2005-2008.
- NASA–SBRI (Small Business Research Initiatives) Review Committee member, NASA Lewis Center.
- Chairman, Graduate Affairs Committee, College of Engineering, CSU, 1994-1995.
- Chairman, College of Engineering Faculty Affairs Committee, CSU, 1981-1982.
- Chairman, University Financial Aid Committee, Cleveland State University, 1981-1982.
- Chairman, Personnel Action Committee, Chem. Eng. Dept., CSU, 1980-1983, and 1984-85.
- University Planning and Budget Advisory Committee (PBAC), CSU, 2004-2005.
- University Budget Committee, Cleveland State University, 2004-2005.
- Senate Steering Committee, Cleveland State University, 2003-2005.
- Served on the Manufacturing Operations Group, American Institute of Chemical Engineers, Washington D.C.
- Served on the Cleveland panel of the National Center for Post-secondary Improvement, a collaborative research venture among Stanford Univ., Univ. of Pennsylvania and Univ. of Michigan.
- University Planning and Budget Committee, Cleveland State University, 1994-1998.
- U.S. Organizing Committee, International Conference on Laser Anemometry, 1991.
- University Steering Committee, CSU – Elected Member, 1982-1983 and 1988-1989.
- Representative to the University Faculty Senate Steering Committee, 2003-2005.
- Faculty Rep. to the Following CSU Board of Trustees Committees, 1986-1987: Finance, Buildings and Grounds, Development Foundation, Student Affairs and Academic Affairs.

## Outcome of Major Initiatives\* at Tennessee Tech - The First Two years\*\*

Overall Enrollment		<b>2%</b> increase in Fall 2014 overall enrollment. All, but one other, TBR institutions showed declines.
Freshman Retention		<b>6%</b> increase in freshman retention over a two-year period.
New Tenure-Track Faculty		<b>53</b> tenure-track faculty and department chairs were hired since AY 13-14. Additional searches are on going. More faculty members were hired or authorized to be hired in AY 13/14 & 14/15 than in many years in recent past
FTE Faculty		<b>12%</b> increase in Full-Time-Equivalent Faculty, excluding part-time Regular Faculty
Student-Faculty Ratio		<b>10% decrease</b> (from 22.2 students per faculty to 20.5)
Average Faculty Salaries		<b>10%</b> increase
Additional Temporary Faculty		<b>\$1Million</b> in additional funds for hiring of temp faculty
New Graduate Students		<b>14%</b> increase - More than 270 new grad students
Instruction part of E&G Expenditure		<b>Increase</b> by approx. 12 million dollars
New Student Success Initiatives		<b>Over 25 New Initiatives</b> to improve student success
Highest "Performance-Funding" Score		<b>97.5 – 2013-14 for FY 2015</b> - Highest among all Tennessee Board of Regents and University of Tennessee System institutions (corresponding to incentive funding-5.4% additional appropriations). The score reflects the results of such activities as: academic audits, accreditation activities, major field tests, senior exit exams, NSSE surveys and QEP projects.
More Highly Qualified Students***		<b>23.9 Ave. ACT</b> - For first-time freshmen of Fall 2014, the average ACT Composite score, at 23.9, is the highest of any entering freshman cohort of at least the past dozen years. The corresponding cohorts of the past five years, the Fall 2014 cohort has a larger number and percentage of students with an ACT Composite score of 28 or greater.
No. of Women in STEM Disciplines		<b>952</b> - Reached a record high in Fall 2014
New Academic & Degree Programs concentrations – submitted and/or approved]		<b>Over 40 New Programs</b> [Ph.D., Master's, PSM, new
Suspended/Closed Programs		<b>3</b> Concentrations
New Off-Campus Programs		<b>2</b> [Vital School]



## Provost's Major New Entities

- Establishment of the Division of Digital and distance education
- Establishment of an Honors College
- Establishment of the College of Graduate Studies [Formerly a Graduate Studies Program]
- Establishment of the Center for Teaching and Learning Excellence
- Establishment of the Rural Development Institute
- Establishment of Campus Compass (One-Stop-Shop for Students)
- Establishment of Learning Assistance & Central Tutoring Center
- Establishment of the Center for Creative Inquiry
- Establishment of a Math Emporium
- Establishment of a Writing Studio
- Establishment of Innovation and Discovery Institute [Joint Business/Engineering Collaboration] and a "Maker Space"

## SACSCOC Reaffirmation of the University's Accreditation

- A perfect SACSCOC reaffirmation of accreditation preliminary report (2016) with no recommendations.

## Major Change in Carnegie Classification of the University

- In 2016, Carnegie reclassified Tennessee Tech University from the Basic Classification category "Master's Colleges and Universities" to the category of "Doctoral/Research Universities".

## Provost's Major Current University-Wide Projects

- Chairing the Focus Act Transition Taskforce to separate the University's governance structure from Tennessee Board of Regents to an independent University governing board.
- Creating a Diversity Agenda for the University.

## Major New Academic & Non- Academic Programs/Events/Projects

- Over 40 new (doctoral, masters and undergraduate) academic programs
- T.E.A.M. (Faculty Development) Program - in partnership with other major universities
- Faculty Leadership Program
- Tech Togetherness Program [Campus activities to bring faculty/staff/students together]
- Formation of Diversity and Inclusion Committees within each College
- Community Day [*changed to Preview Day*]- [A campus-wide recruiting event (App. 1,600 visitors)]
- Appreciation Campaign [To recognize and reward faculty and staff for their achievements]
- Hiring of seven new deans, several directors and senior administrators
- A new Quality Enhancement Plan program to enhance undergraduate student experience
- Successful accreditation and academic audit of many graduate and undergraduate programs
- New academic affairs policies approved by faculty [Over 100 academic policies were formulated or updated and were presented to faculty for their review and approval]
- TTU Journal of Undergraduate Research
- Stimulating the Construction of A New Academic Budget Model (under preparation)
- Continuity of Operations Plans for each academic unit [Business Continuity Plans in case of a disaster]
- Formation of an On-Line Education Strategy & Plans
- Individual College Strategic Plans

### Proposed and Approved Major New Physical Facilities

- International House [Presently being designed to be constructed for use by international students]
- Tech Wall [An interactive wall designed for career awareness and recruitment purposes]
- Jere Whitson Building for Enrollment Management Division [Complete renovation scheduled]

\* [https://www.tntech.edu/files/provost/Docs/End\\_Of\\_Year\\_Statements/End\\_of\\_the\\_Year\\_Statement.pdf](https://www.tntech.edu/files/provost/Docs/End_Of_Year_Statements/End_of_the_Year_Statement.pdf).

\*\* Percent changes are compared to the year 2012.

\*\*\* According to TTU's IR division, (9-15-2015) "For first-time freshmen of Fall 2015, the average ACT Composite score, at 24.2, is the largest of any entering freshman cohort in Tennessee Tech University history." "..., nearly all of the major academic units recorded an increase in the average ACT Composite score: Agriculture and Human Ecology, Arts and Sciences, Business, Education, Engineering, and Nursing."

# Summary of Initiatives and Accomplishments as Provost and Vice President for Academic Affairs

## Student Success

- Establishment of the Campus Compass program with a HELP line to immediately respond to students' needs.
- Establishment of the Honors College [An ad hoc committee is making progress].
- New admission standards - more selective freshman admission standards.
- Living and Learning Villages restructuring [In Progress].
- Innovation and Discovery Center [A collaborative task that involves several units].
- "Tech Wall" (interactive electronic wall to guide and excite our prospective and current students in regard to their various academic options).
- Undergraduate Research Program - funding was increased by 45%.
- Student Success collaborative membership which includes a web-based student tracking system for advisors, a dashboard for academic administrators, and best practice sharing.
- Learning Assistance Center – Centralized tutoring including training, pay and performance monitoring.
- Strategies to address the enrollment in high-demand courses & course scheduling.
- Summer program with new incentives for colleges to expand their offerings.
- Proposed a mechanism to allow students to enroll for the entire academic year. [In Progress]
- A new institution-wide hybrid advisement system to provide centralized oversight, planning, training and assessment to independent advising units within each academic college in order to deliver enhanced support to freshmen and sophomores with course registration, degree mapping and other student success strategies.
- A new degree audit technology to assist advisors and students in effective and efficient course advisement as well as to lessen the number of excessive credits earned and reduce time-to-degree
- College Scheduler software implementation.
- A new position of Director of Retention Services to develop and oversee strategic efforts across the institution to improve student success.
- Freshman Flight Path Program: an interdepartmental early intervention initiative to monitor freshman class attendance and deliver targeted student success strategies to at-risk freshmen with chronic and/or excessive absences.
- A new position of Director of Military and Veterans Affairs to assist veterans and their dependents with the academic and social transition into higher education.
- Design of an Appreciation Campaign to thank and reward faculty and staff for their achievements.
- Approximately \$5,000,000 in new scholarship funds over five years
- Provost's Micro-Grant Program for student success initiatives - focused on inspiring and soliciting innovative strategies from the campus community to improve student retention, academic performance, and time-to-degree.
- Standard syllabi format and a web-based inventory of all syllabi for faculty, students and prospective students.
- "Course Waitlist": to make it possible for students to add their names to an online waiting list for a course that is full.

- Inclusion of Minors on Transcripts – Inclusion of students’ minors on their transcripts and development of a mechanism to check the required courses for a minor and ensure proper completion of the requirements
- NSSE Survey - Implementation of the National Survey of Student Engagement (NSSE)
- Math Emporium – establishment of a Mathematics Emporium. In certain math courses, students attend one weekly meeting to focus their attention on the week's assignments and are required to work on those assignments in the Hawke's Learning Systems Courseware in the emporium for at least 3 hours each week
- Approximately \$5,000,000 has been committed in new scholarship funds over four years. An additional \$800,000 will be committed this year.
- Hired 15 new professional advisors for Student Success Centers
- Created and implemented a plan to streamline tuition and fee deferment for students receiving VA educational benefits
- Faculty participation in Flight Path Attendance initiative increased from 52 faculty members in Fall 2013 to 118 (43% of the contacted pool) in Fall 2014
- Flight Path made contact with almost 500 students regarding class absenteeism and academic success
- Quick ID was implemented—an online photo verification program that has eliminated the need for students to show photo ID when they request services. This has increased the efficiency of services and decreased frustration for our students and team members
- The Registrar’s Office implemented an automated phone service, which uses an auto attendant to transfer calls to the appropriate team member for assistance
- Designed and implemented the first Community Day. An estimated 1,800 visitors (about 700 prospective students) visited the campus. This inaugural event introduced prospective students and their families to TTU by providing tours, promotional items, a majors’ fair, and lunch. The event was successful enough to establish itself as a recurring recruitment event
- Launching of a social media campaign, #TechYeah, to tie prospective students
- Hosted 4,643 visitors (1,684 prospective students) through the VIP Campus Visit Program. This program provides general TTU information, application process information, campus tours, departmental meetings, lunch on campus, and residential life tours
- Developed more intuitive Dual Admissions Agreements with Nashville State Community College (September 2014) and Cleveland State Community College (January 2015).
- A newly developed Hybrid Advisement Model was fully implemented with a full staff of professional advisors working within the colleges to ensure that freshman and sophomore students have access to full-time, professional advisors
- Created the Academic Advising Council where Student Success Center directors and Athletics Advising can discuss campus-level advising-related initiatives
- Created the Advising Exchange—a monthly professional development opportunity for all those interested in Academic Advising on campus, including both professional and faculty advisors
- Implemented a professional development program for the advising community. Seventeen unique sessions have been offered with an average attendance of 14 advisors
- Academic minors were programmatically built into every DegreeWorks program of study. Students and Advisors can now track their requirements for both their major and minor in the degree audit system
- Established a campus-wide student Entrepreneurship Society

- Completing a campus-wide Innovation and Discovery Learning Institute in Volpe Library in partnership with the College of Business to open in summer of 2015
- Career Day 2014 – largest event on record with 134 registered employers and over 2,000 participants
- Healthcare Fair 2015 – 20 registered employers with 150 participants
- Engineering Fair 2016 – 133 employers registered with 1,000 participants.
- Establishment of a taskforce for recruitment of non-traditional students.
- Establishment of a taskforce for improving TTU's national and international rankings.
- Establishment of a taskforce for integrating career awareness into student's activities

## Faculty & Staff Development

- More than doubled the funds for AY 15/16 faculty development.
- For the first time, allocated funds specifically for staff development.
- Establishment of a continuous improvement program (Kaizen) to recognize and reward the staff.
- Establishment of an undergraduate research Journal.
- Established the Faculty Leadership Program:  
<https://www.tntech.edu/provost/faculty-development-programs/faculty-leadership>
- Established the T.E.A.M. Leadership Program  
<https://www.tntech.edu/provost/faculty-development-programs/team-leadership>
- Tech Togetherness Program was successfully established  
<https://www.tntech.edu/provost/faculty-development-programs/tech-togetherness>
- QEP awards were presented to 30 faculty members
- Implemented the collection of a growing digital library, available on the Library website, consisting of collections unique to Tennessee Tech.
- Review of the Faculty Salary Equity Model via the formation of an ad hoc committee [In Progress].
- Establishment of the Center for Teaching and Learning Excellence to assist our faculty become better teachers.
- Increased the number of Non-Instructional Faculty Leaves from 2 per year to 4 per year.
- Numerous Faculty Development requests were funded.
- One million dollar, one-time funds, to hire adjunct faculty in order to give our permanent faculty additional time and also to increase the number of high-demand sessions.

For the period of July 2013-May 2015 [Not including 2015/2016 year's commitments]

- Number of tenured or tenure-track faculty promoted in rank: 26
- Number of faculty who received tenure: 16

## Online Education Strategy

- Establishment of the Division of Digital and Distance Education
- Evaluated TTU's online infrastructure and the existing capabilities with the ultimate goal of supporting further development and expansion of online and hybrid programs
- Worked with the Council of Deans to form a vision about the future of TTU's online education
- Acquired the assistance of Huron Education consulting group as well as Dr. Karen Adsit of UTC to develop a roadmap for the future of TTU's online education.

- Informed the faculty, staff and administrators about the findings of an online education environmental scan as performed by Huron
- Started the process of consensus building and the development of a shared-vision for online education at TTU.
- Established the Division of Online and Distance Education with the hiring of an Associate Vice President for Online and Distance Education.

## Fiscal Operations

- Preparation of a new budget model for academic colleges, largely based on THEC performance funding, and in accordance to our strategic goals to focus on student success. The budget model, which is being revised by a committee of deans and faculty to the specific needs of TTU, will be customized to better fit our goals. The model provides incentives for improved performance in various areas of student success and scholarly and creative activities and compares each college's progress to their own past performance in order to detect and reward improvements.
- Dissemination of existing department budget information to all academic units
- 2013 October Revised Budget – allocation of funds for new programs and positions for the colleges.
- Faculty salary adjustments were made in October 2013 and then again in January 2015 based on the additional funding that became available for compensation.
- *Additional funding for the band*
- Additional funding for Women's Center
- Additional funding to Colleges for new programs and initiatives
- Additional funding for remodeling of academic buildings
- Additional funding for individual college strategic planning
- Additional funds were allocated to support the following units/programs:
- Diversity Programs
- Legislative Interns
- Teaching Quality Initiatives (TQI)
- Individual Development and Evaluations Assessment (IDEA)
- New faculty moving expenses
- SACSCOC preparation
- Faculty job postings
- Math Lab renovation
- Undergraduate Research (URECA)
- High school student scholarships
- Craft Center and Art Department
- Faculty recruitment
- Faculty development
- Military Science
- Strategic initiatives for new deans
- Additional funding to support international recruitment
- Marching band
- Lab equipment (Arts and Science)
- \$1,000,000 one-time fund distributed for Graduate Assistantships
- \$1,000,000 one-time fund allocated for hiring of adjunct faculty to offer additional new sessions of high-demand courses

- Budget Model - In order to ensure faculty participation, this year we invited the faculty leadership to work together with the staff representatives and our deans to consider a number of models and identify what they deemed appropriate for TTU. The committee reviewed various models and chose to construct a unique model with some elements from the well-known RCM model. The work is in progress and is targeted for implementation in the AY 16/17.

## New Academic Programs (Ph.D., M.S., B.S., PSM, Concentrations)

1. PSM in Systems Engineering (a new concentration in Professional Science Masters)
2. PSM in Manufacturing Sustainability (a new concentration in Professional Science Masters)
3. MPS in Health Care Administration with an embedded Health IT Certification (a new concentration in Master of Professional Science)
4. Engineering partnership with ETSU (2+2 Program) –LOI Submitted on: 2-27-14, re-submitted in Fall 2015
5. Nursing Doctorate in partnership with ETSU–LOI Submitted on: 2-27-14, re-submitted in Fall 2015
6. Ph.D. in Counselor Education and Supervision in Counseling Psychology – LOI to be submitted to TBR
7. Education Technology concentration at the Ed.S. level (Specialist in Education)
8. A new concentration in Child Life within the B.S. in Human Ecology
9. A new concentration in Business Intelligence and Analytics within the B.S.B.A in Business Management
10. M.S. in Human Ecology – proposed to TBR for approval
11. Information Assurance and Cyber Security – A New concentration for BS in Computer Science
12. Five new concentrations to replace the SPED – Modified program to meet the new state licensure changes:
13. Special Education Interventionist K-5
14. Special Education Interventionist 6-12 English
15. Special Education Interventionist 6-12 History
16. Special Education Interventionist 6-12 Math
17. Special Education Interventionist 6-12 Biology
18. Specialist in Education Concentration in Library Science
19. STEM Education Concentration, Master’s Specialist in Education
20. STEM Education Concentration, Ed.S. in Curriculum and Instruction
21. Master of Accountancy – to be sent to TBR
22. Professional Science Master’s Program in Environmental Informatics, approved by the PSM National Office on May 21, 2014.
23. PSM in Systems Engineering (a new concentration in Professional Science Masters)
24. MS in Human Ecology (LOI approved by THEC, final proposal submitted)
25. MS in Sustainable Agriculture approaching submission of LOI.
26. PSM in Manufacturing Sustainability (a new concentration in Professional Science Masters)- TBR approved, Sept. 2014.
27. MPS in Health Care Administration with an embedded Health IT Certification (a new concentration in Master of Professional Studies) –TBR approved, Oct. 2014.
28. Engineering partnership with ETSU (Dual BS in General Engineering) –LOI Submitted on: 2-27-14, TBR approved, Dec. 17, 2014.
29. Nursing Doctorate in partnership with ETSU–LOI Submitted on: 2-27-14, TBR approved Jan. 26, 2015.

30. Ph.D. in Counselor Education and Supervision in Counseling Psychology – LOI to be submitted to TBR in July 2015.
31. Special Education non-licensure concentration, approved at the April 15, 2015 meeting of the Academic Council.
32. MA C&I Applied Behavior Analysis concentration, approved at the April 15, 2015 meeting of the Academic Council.
33. Secondary Education non-licensure concentration, , approved at the February 25, 2015 meeting of the Academic Council.
34. Early Childhood non-licensure concentration, , approved at the February 25, 2015 meeting of the Academic Council.
35. Four new Middle School concentrations in compliance with TN state licensure changes, approved at the April 15, 2015 meeting of the Academic Council.
36. Elementary Education license update and curriculum change, approved at the February 25, 2015 meeting of the Academic Council.
37. New MA with initial licensure to attract students that would otherwise take the Post Bac Option for teacher licensure, approved at the April 15, 2015 meeting of the Academic Council.
38. Education Technology concentration at the Ed.S. level (Specialist in Education) [Submitted earlier – TBR approved, presently being offered].
39. A new concentration in Child Life within the B.S. in Human Ecology [Approved by TBR].
40. Cohort of Volkswagen Employees in 2+2 BS in Engineering Technology with Chattanooga State Community College. Located on-site at Volkswagen Academy in Chattanooga.
41. PhD in Engineering (Cohort with a Focus in Communications). Located on-site at Oak Ridge National Laboratory, Fall 2015.
42. Religious studies minor (College of Interdisciplinary Studies in collaboration with the departments of English, Sociology, and History), Fall 2015.
43. Established a university-wide minor in Innovation and Entrepreneurship, Fall 2015. Entrepreneurship/Innovation certificate (College of Interdisciplinary Studies in Collaboration with the College of Business and the College of Engineering) - TBR form is complete, estimated launch: Spring of 2016.
44. Establish a concentration in Teaching English to Speakers of Other Languages (TESOL)) within the existing Master of Professional Studies (MPS), Fall 2016.
45. Establish a Graduate Certificate in Teaching English to Speakers of Other Languages within the existing Master of Professional Studies (MPS), Fall 2016.
46. Accelerated Bachelor of Science/Master of Science Program in Mechanical Engineering. Approved by TBR on Nov. 4, 2015.
47. Accelerated Bachelor of Science/Master of Science Program in Computer Science. Approved by TBR on Nov. 4, 2015.
47. Fast-Track MS Program in Mechanical Engineering, Fall 2015.
48. 1+1 MS Degree Program in Engineering, Fall 2015.
49. Established a new concentration in Data Science within the BS in Computer Science, Fall 2016.
50. Fast Track options Bachelor/Masters of Arts in Curriculum & Instructions, Spring 2016.
51. Bachelor of Science in Vehicle Engineering, Fall 2015.
52. Establishment of a new Cybersecurity, Education, Research and Outreach Center (CEROC), 2016.
53. Establishment of a Master of Accountancy Program, Approved: May 17, 2016.
54. Established a new concentration in Parallel, Distributed and High Performance Computing within the BS in Computer Science, Approved by TBR: April 6, 2016.

Also,

- Summer 2014 - Piloted Accelerated BSN Option for students with a prior bachelor's degree - first cohort to earn BSN in 18 months of continuous study



## Terminated / Phased Out Academic Programs

- Computer Science Information Technology concentration within the B.S. in Computer Science, approved by TBR, January 2015.
- Agency Counseling concentration within the Master of Arts [Approved by TBR on January 9, 2014, phase out by Fall 2015]
- Risk Management and Insurance Concentration within the MBA Program – Pending TBR approval
- MSN RODP Nursing Informatics Concentration [Submitted to TBR, March 2015]

## Structural Reorganization and New Entities

- Establishment of the Division of Digital and Distance Education, 2015
- Establishment of the Center for Teaching and Learning Excellence, 2013
- Establishment of the College of Graduate Studies (*formerly Graduate Studies Program*), 2014
- Establishment of the Honors College (a two-year process – in progress)
- Establishment of the Rural Development Institute, Approved by the Academic Council, 2015
- Establishment of an Office of Assistant Vice President for Recruitment, 2016.
- Establishment of a centralized tutoring and Learning Support Services, 2014
- Establishment of the Office of Quality Enhancement Plan, 2015
- Establishment of Math Emporium, 2014
- Establishment of the Writing Excellence Studio (in the construction stage), 2015
- Establishment of Campus Compass (a one-stop-shop student help-desk), 2013
- Construction of Tech Wall – an interactive wall with various student success content, in progress
- Change from Central Advising to A Hybrid Model
- Reorganization of the Office of the Provost
- Establishment of an agri-tourism site in collaboration with the Friends of White Plains including a regional quilt study center, 2015
- New QEP (Quality Enhancement Program) per SACSCOC

## New Or Revised Academic Affairs Policies

1. International Undergraduate Admissions
2. Transfer Credit for International Undergraduate Students
3. International Undergraduate Students Readmissions
4. International Academic Partnerships
5. Faculty-Led Study Abroad Short-Term Programs
6. Academic Freedom and Responsibility
7. Awarding Posthumous Degrees
8. Emeriti Faculty
9. Endowed Chair Holder Appointment
10. Academic Faculty Roles and Responsibilities
11. Appointment and Evaluation of Academic Deans
12. Appointment and Evaluations of Chairpersons
13. Distance Education
14. Faculty Evaluation of University Administrators [pending]
15. Faculty Voluntary Separation

16. Honorary Degrees
17. Articulation with Proprietary Schools
18. Class Attendance
19. Undergraduate Admissions Requirements
20. Undergraduate Academic Fresh Start
21. Readmission After Academic Suspension
22. General Graduate Admissions Requirements
23. Graduate Academic Fresh Start
24. Graduate Administrative Support Assistantships
25. Graduate Research Assistantship Responsibilities
26. Graduate Teaching Assistantship Responsibilities
27. Graduate Teaching Associate Responsibilities
28. Graduate Studies Executive Committee Policy
29. Online Graduate Degree Program: Graduate Student Requirements
30. Retaining a Graduate Assistant Position
31. Requirements for a Baccalaureate Degree and Graduation
32. University Committees
33. Approval of Academic Programs, Units, and Modifications
34. Grade Appeals Policy
35. Academic Credit from Other Institutions

*Additionally, other policies were developed dealing with enrollment, admissions, financial aid, registration, international students, graduate college, scholarships, travel abroad.*

## Newly Appointed Senior Administrators

(Associate and Assistant Vice Presidents, Deans, Associate Deans, Chairs, Directors, Managers)

- **Associate Vice President, Division of Digital and Distance Education** – May 2016
- **Assistant Vice President for Retention** (formerly a Director position) – January 2016
- **Assistant Vice President for Recruitment** (formerly Director of Admissions), January 2016
- **Dean, College of Business** - Appointment of the Interim Dean (2014) and permanent Dean (2015)
- **Dean, College of Education** - Appointment of the Interim Dean (2014) and permanent Dean (2015)
- **Dean, College of Graduate Studies** – Appointment of the Dean, 2014
- **Dean, College of Agriculture and Human Ecology** – Appointment of the Dean, 2015
- **Dean, School of Nursing** - Appointment of the Interim Dean of Nursing, formerly Director (2013) and permanent dean (2015)
- **Interim Dean, College of Interdisciplinary Studies** – Appointment of the Interim Dean, January 2016
- **Director, MBA Program** - Appointment of the Interim Director, 2014
- **Director, Center for Teaching and Learning Excellence** - Appointment of the Interim Director (2013) and permanent Director, January 2016
- **Interim Director, Women’s Center** - Appointment of the Interim Director, May 2016
- **Director, College of Graduate Studies** - Appointment of the Director of Graduate Studies, 2013
- **Director, Career Services** - Appointment of the Director, 2014
- **Registrar** - Appointment of the Interim Registrar, 2014
- **Director, Advisement Services** - Appointment of the Director, 2014

- **Coordinator, Faculty Development Program**- Appointment of the Coordinator, 2014
- **Director, Military and Veterans Affairs** - Appointment of the Director, 2014
- **Director, Retention Services** - Appointment of the Director, 2014
- Membership appointments within various new ad hoc committees in consultation with faculty and Faculty Senate
- **Associate Dean, College of Education** – Appointment of the Associate Dean, 2014
- **Associate Dean, College of Graduate Studies** - Appointment of the Associate Dean, 2014
- **Chair, Biology Department**, - Appointment of the Chair, 2014
- **Chair, English Department**, Appointment of the Chair, 2014
- **Chair, Accounting Department** – Appointment of the Chair, 2014
- **Chair, Exercise Science Department** – Appointment of the Chair, 2014
- **Manager, Craft Center** – Appointment of the Promotions and Marketing Manager, 2014
- **Community Liaison, International Education** – Appointment of Community Liaison, 2015
- **Associate Dean, College of Engineering** – Appointment of the Associate Dean, 2015
- **College of Engineering** – Appointment of the Student Success Center Director, 2014
- **Director, Center for Energy Systems Research** – Appointment of the Director, 2015
- **Director, Appalachian Center for Craft** – Interim Director appointed in 2015
- **Director, Center for Manufacturing Research** – Appointment of the Director, 2014
- **Manger of Operations** – Provost’s Office, 2014
- **Director, School of Agriculture** – Appointment of the Interim Director, 2014
- **Library Archives** – Appointment of the University Archivist, 2015

## Hiring of Tenure-Track Faculty

- Sixty-eight tenure-track faculty members were hired between July 2013 and December 2015

## New Academic Partnerships

- Universita Degli Studi Di Messilna, Italy, 1/20/2015
- Hellenic American University, Greece, 7/30/2014
- Universidade do Sagrado Coracao, Brazil, Signed by Brazil
- Takachiho University, Japan, Pending
- Robert Gordon University, Scotland, Pending

## Business Operations

- New college strategic plans (Engineering, Education, Business [in progress], Interdisciplinary Studies, Agriculture and Human Ecology [in progress])
- Initiatives to construct an entirely new budget model – presently in progress.
- Departmental Profiles – Dashboard charts made available on our IR web site for quick display of each unit’s performance. Results are also compared with the Delaware report.
- Fundraising plans for each college – submitted the plans to the Advancement/Foundation
- Construction of Business Continuity Plans for individual units [in progress]
- Restructuring of the Office of Graduate Studies to better serve our graduate students and Graduate Faculty

- Deans' Retreat in August 2013 to discuss and identify our priorities for the academic year
- Restructuring of the Provost's Office to enhance our operational efficiency. The plan was submitted to HR in Feb. 2014.
- Restructuring of the Interdisciplinary College to govern new and additional programs
- Identified targets for student enrollment and retention and provided major support in terms of positions, funding and technology to the Enrollment Management division to accomplish the task
- Expansion of the student recruitment geographic area
- Standardization of TTU course syllabi
- Standardization of TTU offer letters to new faculty hires
- Establishment of a dashboard data sharing to track graduate student applications and undergraduate enrollment– with wide dissemination of data to all concerned
- Reorganized the Academic Affairs Executive Council and Deans' Council structures for efficiency and efficacy
- Establishment and implementation of business protocol for deans and other direct reports
- The importance of proper annual faculty and staff evaluations - justifications for various ratings
- Establishment of a new faculty position request procedure and an earlier time-table in order to make the process more transparent by involving the participation of all deans in the discussion stage
- Faculty training for Title IX and reporting procedures as well as ADA training [In Progress]
- New Graduate Faculty Membership Requirements and Term Durations (including Associate Membership and Adjunct Associate Membership)
- Restructuring of the MBA Program including a new curriculum by eliminating the pre-MBA modules, a new director and additional funding for outreach and promotional activities
- Evaluation of the entire campus on-line and distance learning initiatives and considerations for expansion of the programs beyond the region. [In Progress]
- Developed a process (including a timeline and appropriate forms) for faculty position requests by college deans and established a transparent way to discuss all the requests.
- Data-informed decision making – Dashboards, e.g. Graduate Admission, Dept. Profiles, Student Retention, High-Demand Courses
- Volpe Library customized reports for individual colleges showing the services and funding provided by the library for each college, 2014.
- Continuity of Operations Plans (COOP) for all units reporting to the Provost, 2015.
- Additional funds were allocated to support the following units/programs:
  - ✓ Women's Center
  - ✓ Diversity Programs
  - ✓ Legislative Interns
  - ✓ Teaching Quality Initiatives (TQI)
  - ✓ Individual Development and Evaluations Assessment (IDEA)
  - ✓ New faculty moving expenses
  - ✓ SACSCOC preparation
  - ✓ Faculty job postings
  - ✓ Math Lab renovation
  - ✓ Undergraduate Research (URECA)
  - ✓ High school student scholarships
  - ✓ Craft Center and Art Department
  - ✓ Faculty recruitment
  - ✓ Faculty development
  - ✓ Military Science

- ✓ Strategic initiatives for new deans
  - ✓ Additional funding to support international recruitment
  - ✓ Marching band
  - ✓ Lab equipment (Arts and Science)
- \$1,000,000.00 one-time fund distributed for Graduate Assistantships
  - \$1,000,000.00 one-time fund allocated for hiring of adjunct faculty to offer additional new sessions of high-demand courses
  - Budget Model - In order to ensure faculty participation, we invited the faculty leadership to work together with the staff representatives and our deans to consider a proposed model that we developed with academic deans last year or any other model that they deemed more appropriate for TTU. A consulting firm provided assistance on various available options. The committee reviewed various models and chose to construct a unique model with some elements from the well-known RCM model, with substantial revisions and modifications. The work is in progress and is targeted for implementation in the AY 16/17.
  - Evaluation of the entire campus on-line and distance learning initiatives and considerations for expansion of the programs beyond the region, 2014.

## Accreditation - SACSCOC Reaffirmation of the Institution's Accreditation

- SACSCOC Compliance Certification – The University completed the Compliance Certification report and the QEP report and received an excellent preliminary report of the reaffirmation committee. The visit will take place in March 2016.
- Institutional Effectiveness (IE) Reports – Completing the 3<sup>rd</sup> year reports for academic programs and 2<sup>nd</sup> year reports for non-academic programs.
- Faculty Credential Database – Gathered faculty/course data and verified faculty credentials and qualifications in preparation for SACSCOC visit.
- Quality Enhancement Plan (QEP) – a new QEP topic is selected: “Creative Inquiry” and is piloted.
- Completed the leadership Team Orientation for Reaffirmation of Accreditation

## Performance Funding

- Highest Performance Funding Score (97.5) – 2013-14 for FY 2015. Highest among all Tennessee Board of Regents and University of Tennessee System institutions (corresponding to incentive funding-5.4% additional appropriations). This includes such activities as: Academic Audits, accreditation activities, major field tests, senior exit exams, NSSE surveys and QEP projects
- Institutional Effectiveness (IE) Reports were obtained from non-academic programs
- Implementation of the Compliance Assistance Software for SACSCOC Reaffirmation
- Faculty Credentials work completed for SACSCOC purposes

## Academic Audit

Five Academic programs (three undergraduate programs and two graduate programs) have successfully undergone the TBR mandated Academic Audit:

*BS in Sociology program*  
*BS in Agriculture Program*

*BS and BA in History program*  
*Ph.D. in Environmental Science*  
*Ph.D. in Exceptional Learning*

## Program Accreditation

- Five engineering undergraduate programs completed a successful ABET accreditation on-site visit, 2014:
  - ✓ BS in Chemical Engineering
  - ✓ BS in Civil Engineering
  - ✓ BS in Computer Engineering
  - ✓ BS in Electrical Engineering
  - ✓ BS in Mechanical Engineering
- The Department of Counseling and Psychology received initial 2 year accreditation with CACREP, 2014.
- The Bachelor of Computer Science submitted a comprehensive ABET Interim Review Report , 2014.
- The Bachelor of Music completed a successful NASM accreditation on-site visit.
- The College of Education received full accreditation from the Council for the Accreditation of Educator Preparation (CAEP, formerly NCATE), 2015.
- The Didactic Program in Dietetics received full accreditation from the Accreditation Council for Education in Nutrition and Dietetics (ACEND)
- The Bachelor of Fine Arts (BFA) had completed a successful NASAD Accreditation On-Site Visit, 2014.

## Diversity and Inclusion

- Diversity and Inclusion Training
- Diversity and Inclusion Committees established within each college
- Formation of an Ad Hoc Committee to define, formulate policies and implement training and awareness for prevention of Violence Against Women, Sexual Assault, and Domestic Violence
- Expansion of the Women's Center's responsibilities and its budget
- Campus Awareness Sessions regarding the Americans with Disabilities Act

Nearly every first-time freshman enrolled at Tennessee Tech University for the Fall 2015 semester participated in rich conversations about the benefits of diversity and having an inclusive mindset. This is just one example of a number of diversity and inclusion efforts that have taken place at Tennessee Tech recently. In Summer 2015, the university implemented formal sessions regarding diversity and inclusivity into the Freshman Orientation program. The university also launched a Diversity Scholarship Initiative to provide scholarships for students from underrepresented groups. All colleges and schools at Tennessee Tech have established diversity and inclusion committees. Some of these committees have become very active and even have begun to positively impact faculty searches. Tennessee Tech will host a diversity summit later in 2016 entitled "Don't Wait, Cultivate: Real Strategies to Build and Support a Diverse Workforce in Higher Education." This

collaborative experience will focus on university strategies for recruiting and retaining minority faculty and staff.

## Construction Projects

- Participated in the selection of the architectural firm and reviewed the various design options for a \$90,000,000 Science and Research facility to be completed in 2018.
- Proposed, received approval and worked with the architect on the design and site selection of an International House to be used for international student events and administrative offices.
- Proposed and received approval for a complete renovation of a major campus building to move all Enrollment Management offices to one prime location.
- Proposed, received approval and assembled a team of experts to construct an interactive wall for existing and prospective students who visit the campus.
- Provided funding and assistance for the establishment of a state-of-the-art Center for Teaching and Learning Excellence.
- Provided funding and assistance for the establishment of a Math Emporium.
- Provided funding and assistance for the establishment of a Writing Studio.
- Identified a site and provided assistance for the establishment of a MakerSpace.

## Physical Facilities & Safety

- Selection of a new home for Enrollment Management division. Jere Whitson Building design underway to become a new home for Enrollment Management division
- Received internal approval for the construction of an International House
- Grand opening of the \$100K ROTC Rappel Tower, 2015.
- ROTC Building - moved into a new ROTC Building, 2014.
- Business Media Center and the Innovation Institute space completed at the Volpe Library
- Opening of the new Child Development Lab in Southwest Hall, 2014.
- Creation and Opening of new Play Scape for the Child Development Lab
- Library new space renovation for the Center for Teaching and Learning Excellence
- Each college established a faculty committee to review the current and future building renovations/remodeling
- Laboratory Safety Inspections with plans to immediately address any safety related issues

## International Programs

- Development of an international program strategy
- Approval of a new Assistant Director position to enhance international recruitment
- A new organizational structure for the international programs office
- Additional funding to support international recruitment
- Hiring of a new Assistant Director position to enhance international recruitment
- Request for a new location for international programs (International House)

- Developed new avenues to attract international students from Europe, Russia, South American and South Korea. Continued to work toward recruiting students from Colombia, Japan, Brazil and Indonesia as well as continued working on recruiting from China, HK, Taiwan, Malaysia, Vietnam and Thailand.
- Signed new MOU's with 3 universities in Kazakhstan (Karaganda State University, Northern Karaganda State, Zhetysu State University, and Rudny State University), Meliksah University in Turkey, Astafiev Krasnoyarsk State Pedogogical University in Russia, Hellenic American University in Athens, Robert Gordon University in Scotland-UK, Maritime Academy of Asia and Pacifics-the Philippines, University of Pasig-in the Philippines, Technologiucal University of the Philippines, and Takachiho University in Tokyo, Japan.
- Establishing a  $\frac{1}{2} + \frac{1}{2} + 1$  MS program with Vellore Institute of Technology (ARAI) and the Automotive Research Association of India (ARAI) for a Pathway to a TTU MS Degree
- Establishing a  $\frac{1}{2} + \frac{1}{2} + 1$  MS program with College of Engineering, Pune and the Automotive Research Association of India (ARAI) for a Pathway to a TTU MS Degree
- Establishing a  $1 + 1$  MS program Automotive Research Association of India (ARAI) for a Pathway to a TTU MS Degree

## Enrollment

- Establishment of an Office of Assistant Vice President for Recruitment and the hiring of the AVP to start in January 2016..
- Expansion of the recruitment geographical area.
- Enrollment market analysis and data acquisition.
- Hiring of new recruiters for community colleges and international students.
- On-line education strategy for the entire institution.
- Establishment of the Community Day event– An open house Saturday event inviting community college students as well as high school and non-traditional students to campus for advising, registration, visit with departments' faculty and staff, lunch and various campus activities. The inaugural event was on November 8, 2014 during the University's Homecoming Day.
- One million dollars additional funding for graduate student support
- Partnership with Cookeville High School and the Putnam County VITAL Collegiate High School (VCHS) for Dual Enrollment (U.S. History)



## Outcomes of Major Initiatives as Dean of Engineering – CSU

### Summary of Accomplishments as Dean

<b>Undergraduate Enrollment</b>	↑	<b>119%</b> increase in new undergrad enroll. since 2005
<b>New Freshman Enrollment</b>	↑	<b>146%</b> increase in new freshman enroll. since 2005
<b>New Transfer Enrollment</b>	↑	<b>92%</b> increase over a five-year period
<b>New Graduate Enrollment</b>	↑	<b>51%</b> increase since 2005
<b>Retention</b>	↑	<b>11%</b> increase in retention - New Fulltime Students
<b>Fund-raising (Gifts, Donations &amp; Endowments)</b>	↑	<b>116%</b> increase in Endowment Growth over a 5-yr. period.
<b>Scholarships for Engineering Students</b>	↑	<b>407%</b> increase from 2005 to 2009
<b>Re-Accreditation</b>	+	<b>No Weaknesses</b> listed, Only Points of Strength
<b>Grant Funding</b>	↑	<b>Increased</b> (from 23%) <b>to Over 46%</b>
<b>Private Donor Endowment</b>	↑	<b>Over \$1,000,000.00</b>
<b>Cost Savings</b>	↑	<b>\$700,000</b> [without affecting the academic programs]
<b>Facility Improvement</b>	↑	<b>Over 1.5 Million Dollars</b>
<b>Revenue Increase to Academic Programs</b>	↑	<b>Through Technology Fee</b>
<b>New Academic &amp; Degree Programs</b>	↑	<b>7 New Programs</b> [plus 1 certificate program]
<b>Suspended/Closed Programs</b>	↓	<b>1</b>
<b>Merged Programs</b>	↔	<b>2</b>
<b>National Media Coverage of the College</b>		<b>CBS Evening News, CNBC, Reuters, BW</b>
<b>College Awards and Commendations</b>		<b>Ohio Secretary of State, Auditor of State, Nortech</b>
<b>New Operational Programs &amp; Initiatives</b>	↑	<b>40</b>
<b>Co-op Program Restructuring/Accreditation</b>	+	[Completely restructured and accredited]
<b>Faculty Morale</b>	↑	<b>Independent Accreditation Report</b>

<b>New Partnerships</b>	↑	[Many universities, <b>36</b> high schools and <b>10</b> Corp.s]
<b>Grad Student Support</b> from Externally Funded Research	↑	<b>34%</b> [FY 07 vs. FY 06]
<b>Comprehensive Internal Review</b>	+	<b>Satisfactory - No unresolved issues</b>
<b>Honors Program Participation</b>	↑	<b>Almost Doubled</b> [the # of eng. students 07 vs. 08]
<b>Off-Campus Locations</b>	↑	<b>New Off-Campus Offices</b> [14 locations]
<b>GPA of Newly Admitted Freshmen</b>	↑	<b>3.55 out of 4.00</b>
<b>Average ACT of Applicants</b>	↑	<b>From 22.5 to 23.5</b>
<b>New Research and Design Centers</b>	↑	<b>2</b>
<b>Strategic Plan</b>	+	A five-year plan completed & being implemented
<b>New Endowed Chairs</b>	↑	<b>1</b>

## Summary of Accomplishments as Dean of Engineering - CSU

**Changed a declining new undergraduate enrollment to one of the fastest growing programs nationwide**

- ✓ 119% increase in new undergraduate enrollment over a five-year period [CSU 2010 Book of Trends, pa. 12]
- ✓ 146% increase in new freshman enrollment over a five-year period [CSU 2010 Book of Trends, pa. 12]
- ✓ 92% increase in new transfer enrollment over a five-year period [CSU 2010 Book of Trends, pa. 12]
- ✓ 51% increase in new graduate enrollment over a five-year period [CSU 2010 Book of Trends, pa. 12]
- ✓ 11% increase in retention of new full-time students – from 69% to 80% in 2009
- ✓ 116% increase in Endowment Growth- Giving & Scholarships over a five-year period [2010 Book of Trends, pa. 178] from \$1,56,151 to \$3,369,490.
- ✓ 407% increase in engineering scholarships from 2005 to 2009 [\$506,032 to \$2,567,628 – 2009 Book of Trends]
- ✓ Almost doubled the number of engineering students in the Honors Program
- ✓ Double and triple digit increases in the number of under-represented students over a five-year period [CSU 2010 Book of Trends, pa. 59]: 26% increase in African American students, 112% Hispanic, 15% Asian, 33% Native American
- ✓ Million dollar endowment to the College – Seven new endowments in 2010
- ✓ Doubling of the external grant funding
- ✓ Triple and quadruple increases in cash gifts to the College
- ✓ 7 new academic programs including a new MS in Biomedical Engineering
- ✓ New local, national and international partnerships
- ✓ 40 new initiatives to change the College's status quo mode of operation
- ✓ Best re-accreditation on the record, successful internal and external comprehensive reviews of the programs
- ✓ Completion of a five-year strategic plan and its successful implementation
- ✓ Formation of Fenn Academy
- ✓ Establishment of 15 off-campus branch offices
- ✓ Formation of Fenn Research & Development Institute
- ✓ Hiring of excellent new faculty in key strategic areas
- ✓ Improvement of faculty morale as noted by external reviewers through independent interviews

- ✓ Cost cutting measures - putting the College on a good financial footing
- ✓ Establishment of two new research and design centers
- ✓ Remodeling, renovation and security measures for engineering buildings
- ✓ Accreditation of the Co-op program by CAFCE – First U.S. Engineering College
- ✓ Formation of a new University STEM Center (Science, Technology, Engineering, Mathematics, and Medicine) in collaboration with colleges of Science and Education
- ✓ Formation of new research and design centers
- ✓ Formation of Fenn International Programs
- ✓ National media coverage of the College's accomplishments including CBS Evening News, Reuters, CNBC and Business Week
- ✓ A New Endowed Chair in Clean Energy
- ✓ Many College awards and certificates of commendations from government officials and legislators

### The 2006 recipient of Administrative Award

(presented to only two other CSU faculty administrators)

This award was presented based on the following recommendation:

.... Dr. Ghorashi was given, among others, the responsibility of rejuvenating recruitment at the College. During the 2005-06 academic year, Cleveland State University's Fenn College of Engineering hit a significant milestone: It increased its first year student enrollment by 65% and its transfer student enrollment by 43%, surpassing enrollment targets and accomplishing a task that has not been achieved in the College's recent history.

This was a result of a complete restructuring of the recruitment operations by Dr. Ghorashi that resulted in a very significant increase in student applications and enrollment while most other colleges within the University experienced losses. Key changes made included initiation of a major marketing campaign that included multi-media usage such as print, radio, web, and television outreach as well as mailings to student prospects, telephone contacts, individual and group tours, emails to students and educators, letters directly to parents of students, and open houses.

In addition, Dr. Ghorashi instituted a number of pilot programs. This included the Fenn Ambassador's Program where current students are asked to interact with potential recruits. He also worked to increase the number of partnerships with industry in which the companies would be involved in recruiting and fundraising through activities such as an Industry/Media Night event. Moreover, he solicited feedback from students via informal receptions, held Continuous Improvement (Kaizen) Luncheons with front-line staff, and re-organized the staff responsibilities to more closely match recruiting needs and develop seamless operations.

Finally, in September 2005, Dr. Ghorashi established a unique program called Fenn Academy, a partnership among high schools, industry, and the University for the purposes of improving recruitment and the long-term retention of those recruits. The goal of the Academy is to develop pre-engineering programs at partnering high schools that include significant industry participation (Shadow An Engineer, summer cooperative experiences, scholarship commitments, etc.); curriculum development and teacher training aligned with Cleveland State engineering courses; and outreach programs such as early advising, guest faculty lectures, and engineering camps. Once the Academy is fully developed, it is the College's expectation that participating students called Fenn Scholars will graduate from high school and matriculate to Cleveland State, academically prepared to enter university engineering courses, familiar not only with the University, but also with the career trajectory of an engineer.

### 40 New Programs Implemented in 10 Months [2007 - 2009]

Cleveland State University

1. Complete Restructuring of the CO-OP Program & Accreditation
2. International Graduate Student Recruitment Program
3. Intensified, Customized and Targeted Recruitment
4. New Advising Procedures

5. Web Site Improvement
6. New Fenn Academy Branch Offices
7. Placement of Pre-Engineering Students in the College
8. Pre-Engineering Curriculum for Partner High Schools of Fenn Academy
9. Adopt-A-Freshman Program
10. Accelerated BS/MS Programs
11. Four-Year Engineering Technology Program (Not Just 2+2)
12. Fenn Distinguished Research Professors Program
13. Distinguished Scholars Program
14. Fenn Distinguished Lecture Series Program
15. Research Funding Bulletin
16. Visiting Scholars Program
17. Grant Writing Support & Hiring of a Grant Writer
18. Summer Undergraduate Research Program Support
19. Core Research Programs Support
20. Development of New Eligibility Criteria for Graduate Assistants
21. Recognition Measures [Establishment of Seven Faculty and Staff Award Programs]
22. State-of-the-College Address Event
23. Budget Accountability Measures
24. Physical Environment Improvement and Building Repair and Construction
25. Safety and Security Measures
26. Open Communication with Faculty, Students, Adm., Staff and Other Stakeholders
27. Establishing and Communicating a Sense of College History and Sharing of Institutional Memories
28. Formation of a Flat Organizational Structure
29. Management/Personnel Changes
30. Staff Job Description Review and Restructuring of Responsibilities
31. Development of a Business Continuity Plan
32. Cost Cutting Measures & Revenue Increase
33. New Allocation Method for House Bill and Tech Fee Funds
34. Fund Raising Plan and a Major Gifts Officer Development Officer)
35. ABET (Accreditation Board) – Preparation & Response Plan - Continuous Improvement (Two ABET Visits)
36. Compliance Plan for the College's Comprehensive Internal Review Including Laboratory & IT Safety
37. Expanded the Chairmen's Role in the Decision Making Process
38. Formation of Fenn Research and Development Institute (FRDI)
39. Restructuring of the College's Visiting Committee and Engaging the Members
40. New Local, National and International Partnerships

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### **Fundraising, Endowments and Gifts, Cleveland State University**

Worked with CSU Development Foundation to hire a Major Gifts Officer and constructed a fundraising plan. During the tenure as Dean, the College received numerous gifts from alumni and supporters, among them, Endowed Distinguished Professorship, Research Endowment and Co-Op Endowment. As Dean worked with the College alumni, potential donors and the Development Office to increase the pledges to the College of Engineering.

### **Major Endowments and Gifts to the College – Fenn College Dean Period (2006-2011):**

\$500,000.00	Betty L. Gordon Endowed Distinguished Professorship – The recipient to be recommended by the Dean, June 11, 2008.
\$500,000.00	Gordon Alternative Energy Research Endowment – The Dean to oversee the disbursement and distribution of the funds and the endowment, June 11, 2008.
\$100,000.00	Anthony Colnar gift to the College, December 2007.
Shares of Hess Corp.	William F. Bland Co-Op Endowment, March 19, 2007 (to provide scholarships for students who have financial need and academic potential and who intend to participate in the co-op program, or similar program, within the Fenn College of Engineering)

\$30,000.00	Martin & Black Family Scholarship Endowment, June 17, 2010 (to provide scholarship awards for Electrical Engineering students)
\$50,000.00	Terrence V. and Mary K. Zuk Endowment, June 30, 2010 (to provide scholarships for students who also are members of Varsity Soccer or Baseball teams)
\$25,000.00	Connectors Unlimited, Inc. Engineering Scholarship Endowment, Sept. 29, 2010 (to provide scholarship awards for Mechanical Engineering students)
\$92,356.00	Edward Sobey Endowment, December 2010 (to provide discretionary support for the Engineering Dean)
\$50,000.00	James Heckelman Endowment, December 2010 (to provide scholarship awards for Electrical Engineering students)
\$25,000.00	Byron and Dreama Smith Scholarship Endowment, December 2010, (to provide scholarship awards for Engineering and Nursing students)
\$25,000.00	Richard Bowen and Associates Engineering Scholarship, December 2010 – as part of a pledge for \$300,000, April 5, 2011.
\$100,000.00	Ronald R. Ledin Fenn Academy Engineering Education Endowment Fund, June 20, 2011, (to provide resources necessary to support qualified students pursuing careers in engineering and technology programs)
Ray E. Saccany	Endowment, Dec. 7, 2009 (to provide scholarships and/or fellowships for varsity athletes who are pursuing a major, or plan to pursue a major in Engineering, and who have financial need and have demonstrated academic potential) – Approx. \$25,000.
Karpinski Engineering Scholarship Agreement, Dec. 15, 2009 (to provide scholarship awards to engineering students)	
Keith N. Ward	Endowment, Nov. 17, 2009 (to provide scholarships for engineering students who have financial need and academic potential – value to be determined)

Monte Ahuja Endowment, June 2011 (“Ahuja gives \$10 million to CSU”. “The majority of the money will be earmarked for scholarships in business, with a portion dedicated for scholarships in engineering”, *The Plain Dealer cover page, June 29, 2011*). Approximately \$1,600,000 – The actual amount yet to be finalized.

Cash received during the period which includes gifts, bequests, and pledge payments:

\$844,107.48	July 1, 2010 to March 31, 2011
\$988,574.34	July 1, 2009 to June 30, 2010
\$941,818.00	July 1, 2008 to June 30, 2009
\$1,045,633.00	July 1, 2007 to June 30, 2008
\$333,699.00	Jan. 1, 2007 to June 30, 2007 [Estimated: 834,248 x 0.4]

In-Kind Gifts (Equipment) to the Fenn College of Engineering – Dean Period (2006-2011):

- Daedal Square Rail Table with Precision Ball Screw, Donor – Lawrence Schrader, Jr., Global Motion Control Training Manager, Parker Hannifin Corporation, December 2008
- Servo Type 140 Y-Axis Power Feed, Ser. # 140-467451, High Quality Tools Co., Bruce Walker, June 2009
- 15 DK-DE1-2C20N UNIV Education Kit, Altera Corporation, October 15, 2010
- 10 DK-DE2-2C35N UNIV Education Kit, Altera Corporation, October 15, 2010
- Visualization Software, InduSoft Corporation, April 7, 2011 [\$65,700]
- Boundary Systems, Pro/Engineer Software, Spring 2011 [\$13,100]

### Summary of 2007 – 2011 Fundraising as of 8/3/2011 [Over \$8 Million in Four Years]

**Cash** including gifts, bequests and pledge payments:

7/1/2010 to 4/30/2011	\$1,000,137.00	[FY 2011 up to April]
7/1/2009 to 6/30/2010	\$988,574.34	[FY 2010]
7-1-2008 to 6-30-2009	\$941,818.00	[FY 2009]
7/1/2007 to 6/30/2008	\$1,045,633.00	[FY 2008]
1/1/2007 to 6/30/2007	\$333,699.00	[Estimated: 834,248 x 0.4]
	(\$250,000.00)	[Shown as “Endowments” below]
<b>Total Cash</b>	<b>\$4,059,861.34</b>	

### **Endowments**

6/29/2011	\$1,600,000.00	Approximate Amount
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6/20/2011	\$100,000.00	
December 2010	\$25,000.00	
12/21/2010	\$92,356.00	
12/21/2010	\$50,000.00	
12/21/2010	\$25,000.00	
9/29/2010	\$25,000.00	
6/30/2010	\$50,000.00	
6/17/2010	\$25,000.00	
12/7/2009	\$25,000.00	
7/12/2008	\$500,000.00	
7/12/2008	\$500,000.00	
2/24/2008	\$100,000.00	
Shares of Stock	Hess Corporation	
<b>Total Endowments</b>	<b>\$2,950,000.00</b>	+ shares of stocks, Ward and Karpinsky
<b>Gifts in Kind</b>		
March 2009	\$12,000.00	[Estimated Value of New Equipment]
April 2011	\$65,700.00	
Spring 2011	\$13,100	
<b>Total Gifts-in-Kind</b>	<b>\$90,800.00</b>	
<b>Other External Funds</b>		
July 2008 to Jan. 2009	\$1,500,000.00	[Estimated Roof Repair & Physical Fac. Improvement]
<b>Total Other Funds</b>	<b>\$1,500,000.00</b>	

<b>Fundraising Grand Total, CSU:</b>	<b>\$8,600,661</b>	(In about four years)
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### Scholarships:

From 2008 and 2009 CSU Book of Trends, Table 8.7:

CSU Foundation: Endowment Growth by College - Engineering Scholarships:

2006	\$1,214,346
2007	\$1,907,459
2008	\$2,277,871 [2 <sup>nd</sup> highest in actual \$ after Law College]
2009	\$2,567,628 [13% increase in one year]

**An increase of 407% in five years** - since the \$506,032 in 2005

### Formation of Fenn Academy <http://www.csuohio.edu/engineering/fennacademy/>

As Associate Dean for Academic Affairs initiated, planned, proposed, established and directed a consortium of Northeast Ohio high schools, corporations, and Fenn College of Engineering in order to establish pre-engineering programs in area high schools and support the students both academically and financially from high school through college via special courses, scholarships and co-op opportunities. We started with one high school partner and one corporate supporter. Today, Fenn Academy is composed of over 40 participating high schools and we have 14 satellite offices located in our partner schools within a five county region. Currently, ten companies and several non-profit entities support our efforts. As a result, an increasing number of students have decided to pursue an engineering career. Fenn Academy has been featured in numerous print and electronic media articles as well as television and radio programs and has been suggested by Utah educators as a model for the Utah System of Higher Education. Some recent media articles about Fenn Academy - available on the web:

- [Attracting the Best and Brightest](http://www.imakenews.com/eletra/mod_print_view.cfm?this_id=981211&u=cppa&show_issue_date=F&issue_id=000227389&lid=b11&uid=0) : Cleveland State University's Fenn Academy by Dave Patton, PhD, CPPA Director , December 20, 2007 )
- [New CSU Program to groom engineers](http://www.crainscleveland.com/apps/pbcs.dll/article?AID=/20050912/FREE/50911003&SearchID=73255942174028), by Shawn Turner, *Crain's Cleveland Business*, September 12, 2005.

### Formation of Fenn Research & Development Institute (FRDI)

As Dean, in January 2007, proposed the establishment of an entity for faculty, research staff and students to work closely with the industry. This proposal was well accepted by the faculty and all the stakeholders and became a

part of the College's strategic plan. The Institute's establishment was announced in my State of the College Address in March of 2009.

### **Formation of the Center for Diagnostics, Imaging and Visualization, Ohio Aerospace Inst.**

Planned (1990-1993), established and chaired (1993-1998) the Center for Diagnostics, Imaging and Visualization (CDIV) at the Ohio Aerospace Institute. The center's objectives were as follows: 1. Fostering collaboration among Ohio Scientists in order to undertake cutting edge research projects that otherwise could not be accomplished due to lack of required facilities and expertise, 2. Making Ohio a magnet for DIV research and thereby attracting aerospace, medical, materials, and automotive industries, 3. Providing training and education to Ohio scientists and engineers, 4. Discovering and developing the application of sophisticated diagnostic techniques for industrial use. The center's member institutions included the following:

- NASA Lewis Research Center, led by:
  - Dr. Sol Gorland, Chief, Launch Vehicle Technology Branch
  - Dr. Daniel Lesco, Chief, Optical Measurements Systems Branch
  - Dr. Edward Mularz, Chief, Aerothermochemistry Branch
  - Dr. Anthony Strazisar, Senior Aerospace Scientist
  - Dr. Robert Smally, Chief, Electronic Systems Branch
- The Ohio State University, led by: Dr. Robert S. Brodkey, Chemical Engineering Department and Dr. Samimy, Mechanical Engineering Department
- Case Western Reserve university, led by: Dr. Alexander Dybbs, Mechanical Engineering Department
- Sverdrup Corporation, led by: Dr. John Lepicovsky
- Edison Industrial Systems Center, led by: Dr. Behrouz N. Shabestari, Director of Vision Systems
- The University of Toledo, led by: Dr. James Farison, Electrical Engineering Department
- Ohio Aerospace Institute, Director for Research
- University of Cincinnati, led by: Dr. Atam Dawn, Electrical Engineering Department
- University of Akron, led by: Dr. Jack Braun, Mechanical Engineering Department

The Center was involved in education, training and research applications in the areas of High Speed Flows, Unsteady Flows, Separated Flows, Multiphase Flows, Imaging Systems, Medical Imaging, Biomedical Flows, Combusting and Reacting Flows, Rotating Machinery and Reciprocating Engines, Particle Image Velocimetry, Flow visualization, Planar Laser Induced Fluorescences, Mie Scattering, CARS and LDV. Moreover, the center submitted research proposals, conducted workshops, seminars, international conferences, and fostered research in its areas of core competencies. The Center chairman reported to the Vice President and Director of Research at the Ohio Aerospace Institute.

### **Establishment of a Comprehensive Recruitment/Marketing Campaign, Cleveland State**

As Associate Dean, established a marketing campaign that included multi media usage. Radio ads that highlighted all of the engineering majors offered at CSU, as well as Cooperative Education, free tutoring and more. These radio ads were designed in addition to a set of outreach efforts, including mailings to student prospects, telephone contacts, individual and group tours, emails to students and educators, letters directly to parents of students, and open houses. In summary, during the first six months of my appointment as Associate Dean the following tasks were accomplished:

- 2,582 customized letters and post cards to students, parents and high school teachers/counselors
- 40 radio ads (rush-hours and weekends)
- New recruitment brochures and inserts
- New catalogs
- College fairs
- Personalized college tours
- Welcome events and orientations
- Follow up on students who were admitted, but not enrolled
- College enrollment sign on the building
- Designed and made arrangements for the preparation of two college videos for recruitment of graduate and undergraduate students.

### **Enhancing Retention and Graduation Rates**



As CSU Associate Dean of Engineering, worked in a team of six members with McKinsey Consultants, Stamats Inc., and university administrators and developed a comprehensive strategy to increase the university's retention and graduation rates. My contributions included strategies for freshman year advising (in part based on the ideas that I have proposed in my book on "How to Become an Exceptionally Outstanding Young Person", sophomore year experience, learning communities, mentoring by faculty, university life and physical environment, financial aid and scholarship strategies to motivate student performance.

- **First Year Experience:** As a method for improving the freshman-to-sophomore retention rate, the College will initiate and expand programs targeting the critical first year to ensure a strong start leading toward graduation, with a focus on industry experiences, student/faculty research, minority/female role modeling, and peer mentoring.
- **Early Intervention Tracking System:** To help identify potential student problems before they become insurmountable, the College will develop an electronic-based student tracking system that will allow for early intervention when needed and will track a student through graduation. This tracking system will be applied to junior and senior high school students who are part of Fenn Academy as well as freshman engineering and sophomore engineering transfer students.

As Dean, paid particular attention to student retention issues and personally met with new students, sent welcome letters to new students as well as invitations for a visit from the Dean's Office and department chairs, encouraged faculty to participate in the newly formed "Adopt-A-Freshman program", restructured the first year advising, added a new graduate student advisor to the advising team, increased the number of tutors and created an early connection between freshmen and their respective departments' faculty. As a result, Fall to Fall retention rates for new, full time, first year cohort enrolled in Fall 06 and Returned in Fall 07 improved by 10% and the College showed the highest retention rate at the University.

[Source: 2008 CSU Book of Trends, Table 5.3, Page 97]

### **Graduation Teams, Fenn College of Engineering**

In the process of creating "Graduation Teams" for every single engineering student in order to increase the retention rate and graduation rates of our students (partly based on the article: "For-Profit Colleges Change Higher Education's Landscape"- The Chronicle of Higher Education, February 7, 2010). Each new student upon arrival will have the names, phone numbers and e-mail addresses of his/her Fenn College graduation team members who will assist that student until graduation. Each graduation team will have four members who could address any problems that our students might face, as follows:

- An enrollment Advisor who maps out each student's entire program of study (designated by the Dean's Office)
- An Academic Advisor who works with the student on implementing the program of study (designated by the department)
- A Financial Counselor who assists with completing student-aid applications and sorts out the student's financial concerns (designated by the Financial Aid Office)
- Student Services Manager who arranges for tutors, peer assistance and refers the student to a variety of CSU offices who can help our students with non-academic problems (designated by the Dean's Office)

We are also tracking our students' progress toward graduation and have contacted those who are near graduation and for one reason or another have not yet finished their programs to see how we can help.

### **Research and External Funding, Fenn College**

Significant increase in the number of proposals funded - For the period of January 1, 2007 to August 31, 2007, 46% of all submitted proposals were funded for a total of \$3,113,632.00 vs. 23% funded for a total of \$1,415,606.00 for the same period in 2006. On top of this increase, during the same period in 2008, the funding increased to \$4,932,263 – a further increase of 58%. In short, over a two-year period, the external funding increased from approximately 1.5 million dollars to about 5 million dollars.

CSU Graduate Student Support from Externally Funded Research:

Fiscal Year 2006 (\$244,660)	vs.	Fiscal Year 2007 (\$328,160)	34% increase
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[Source: 2008 CSU Book of Trends, Table 4.14, Page 89]



### **New Centers**

- Center for Advancements in Renewable Energy (CARE), CSU, established in 2010, M. Rashidi – Director.
- Design and Innovation Center (DICE), CSU, established in 2008, E. Keshock – Director.
- STEMM Center, established in 2010 in collaboration with two other CSU colleges - will bring together the expertise among three CSU colleges, namely: Engineering, Science and Education. This new center will be an interdisciplinary, inter-college entity for Science, Technology, Engineering, Mathematics, and Medicine (STEMM) and will serve as a central focus and coordinating body for the University's activities in this educational endeavor. The goals are to encourage innovative STEMM education programs, enhance and strengthen community partnerships, increase grant activity, strengthen the K-12 student pipeline and nurture promising programs related to regional economic development in STEMM.

Knowledge and Innovation Center, A joint proposal submitted by Nance College of Business and Fenn College of Engineering to offer R&D and educational programs in the areas of renewable energy, medical device design, technology certificate programs and onsite MBA program in the City of Beachwood.

### **Recruitment of New Faculty and Professional Staff, CSU**

Recruited and hired tenure-track faculty, adjunct faculty, part-time faculty, research and professional staff with Ph.D. and M.D. degrees from major universities and with outstanding credentials.

### **Women and Under-Represented Groups – Pipeline to Engineering**

- Responded to the Ohio Board of Regents RFP and assembled a team of faculty and administrators from two CSU colleges and two liberal arts colleges, one a women's college, to establish a pipeline between engineering and arts and sciences. Engineering Across the Pipeline is an important initiative that links the CSU engineering college and local liberal arts institutions in harmony with the STEM – Science, Technology, Engineering, and Mathematics - priorities. This program, funded by a \$474,700 grant was a collaboration among the Fenn College of Engineering and the College of Science at Cleveland State University, and partner institutions Baldwin Wallace College and Ursuline College.  
The program focused on increasing the number of engineering professionals in the Northeast Ohio by providing a career pathway to students who showed an interest and ability in physics, biology, chemistry, and mathematics at the undergraduate level.
- Joined the IDEAL (Institutions Developing Excellence in Academic Leadership) project, a three-year NSF ADVANCE Partnership for Adaptation, Implementation and Dissemination project to seed gender equity transformation at five regional public universities in northern Ohio.
- Through Fenn Academy, established partnership agreements with two all-girls high schools (Saint Joseph Academy and Regina High School) to work with the students starting the 9<sup>th</sup> grade and to attract more girls into engineering.
- Established partnerships with high schools with high percentage of under-represented groups in engineering and started programs to engage the students in on-campus and work site activities.

**Results-** Two CSU pre-engineering programs were listed as 2007 Top 15 CSU Degree Seeking Programs with Highest Minority Students Enrollment: Undergraduate, Pre-College of Engineering: (52%) and Undergraduate Pre-Engineering: (26%). [Source: 2008 CSU Book of Trends, Table 6.7, page 120]

One pre-engineering program listed as 2007 Top 15 Degree Seeking Programs with Highest Female Students Enrollment: (19%). [Source: 2008 CSU Book of Trends, Table 6.8, page 121]

Increased the number of underrepresented students significantly with 26% increase in African American students, 112% increase in Hispanic students, 15% increase in Asian or Pacific Islanders and 33% increase in Native Americans. [Source: 2010 CSU Book of Trends, Table 3.22, page 59]

### **International Partnerships & Articulation Agreements**

As Associate Dean and later as Dean of Fenn College, initiated articulation and partnership agreements with universities, four-year colleges and community colleges. This included both domestic as well as overseas institutions of higher education and these efforts are currently underway. Following is a list of international institutions:

- AGH University of Science and Technology, Poland, March 21, 2011.
- National Research Tomsk Polytechnic University, Russia, May 10, 2010.
- National University of Science and Technology Misis, Moscow, RF. May 10, 2010.
- Universidad Nacional del Sur, Argentina, 2009.
- Bahceshir University, Istanbul, Turkey, 2009.
- Kathmandu University, Nepal, 2008
- The Universidad Nacional De Santiago Del Estero, Argentina, Nov. 10, 2008.
- The Universidad Nacional De Tucuman, Argentina, Nov. 10, 2008.
- Bialystok Technical University, Poland, December 2008.
- Gayatri Vidya Parishad College of Engineering, India, November 27, 2007.
- Nanyang Polytechnic, Singapore (Mr. Chan Lee Mun, Deputy Principal and Registrar, 2005)
- India – JNTU University
- Two universities in China ( Tsinghua University and CQIT, Chongqing )
- College of Engineering Roorkee (COER), India (Prof. Jagadeesh, Professor Vijay Arora, 2005)

Additionally, partnership discussions with the following institutions:

- Fachhochschule Jena, University of Applied Sciences Jena, Germany (University President Professor Dr. Gabriele Beibst and Dr. Helmut Assfalg, 2006)
- Chongqing Institute of Technology, China (Dr. Wei, Dean of the College of Biomedical Engineering and Dr. Liu, Chongqing, 2006)
- Berufsakademie Heidenheim University of Cooperative Education, Germany (Vice President Andreas Mahr and Professor and Chairman Eberhard Bappert, 2006)
- China's Tsinghua University, (1+3 Bachelors Program in Business and Engineering), 2007.

### **Partnerships & Articulation Agreements with Community and 4-Year Colleges**

- Baldwin Wallace College, 2009
- Ursuline College, 2009
- Central State University, Ohio (Dr. Carlos Vargas, Provost, 2005)
- Lakeland Community College, Ohio (Dr. Don Anthan, Dean, 2005)
- Cuyahoga Community College, Ohio (Dr. Mary Reiss, Associate Dean, 2005)
- Lorain County Community College (Kelly Zelesnik, Academic Dean, Engineering Tech., 2011)

### **Partnerships & Articulation Agreements with Chambers of Commerce**

- City of Lakewood, Lakewood Chamber of Commerce, Westshore Career and Technical Center (Nathan Kelly, Director of Development - City of Lakewood, Kathy Berkshire, President - Lakewood Chamber of Commerce, Linda Thayer, Director – Westshore Career and Technical District, David Estrop, Superintendent – Lakewood Board of Education, June 15, 2009)
- City of Lakewood, Lakewood Chamber of Commerce, Westshore Career and Technical Center and CSU's Fenn College of Engineering, MOU, December 2008.

### **Articulation Agreements with Major Corporations, Hospitals and Career Centers**

As Dean, formed the following partnership agreements:

- Middough Corporation
- Goodyear Tire and Rubber
- Lincoln Electric Corporation
- Northeast Ohio Sewer District
- Gebauer Company
- Ford Motor Company
- Northeast Ohio Sewer District
- Lubrizol Corporation
- Akron General Hospital

Signatory to the following partnership agreements:

- Cuyahoga Valley Career Center and Fenn College of Engineering – Engineering Technology Dept.
- Akron General Medical Center and Fenn College of Engineering
- University Transportation Center and Shaker Heights School District

### **Partnerships with Northeast Ohio School Districts**

Formed the following new partnerships, memorandums of understanding or articulation agreements:

- Cleveland Heights School District – Fenn Academy
- Shaker Heights School District – Fenn Academy
- Regina High School – Fenn Academy
- St. Joseph Academy – Fenn Academy
- Valley Forge High School – Fenn Academy
- Normandy High School – Fenn Academy
- CVCC to Technology program
- Lorain County Joint Vocational High School – Fenn Academy
- Mentor Public Schools – Fenn Academy
- West Shore Career Technical Education District – Fenn Academy
- Bay Village High Schools – Fenn Academy
- Rocky River High Schools – Fenn Academy
- Westlake City High Schools – Fenn Academy
- Lakewood High School – Fenn Academy
- Euclid City Schools – Fenn Academy
- Euclid STEM High School – Fenn Academy
- Cuyahoga Valley Career Center – Fenn Academy
- Cuyahoga Heights High School – Fenn Academy
- Brecksville / Broadview Heights High School – Fenn Academy
- Garfield Heights High School – Fenn Academy
- Independence High School – Fenn Academy
- Nordina High School – Fenn Academy
- North Royalton High School – Fenn Academy
- Revere High School – Fenn Academy
- Twinsburg High School – Fenn Academy
- Six District Educational Compact – Fenn Academy
- Kent – Fenn Academy
- Cuyahoga Falls – Fenn Academy
- Stow / Munroe Falls – Fenn Academy
- Hudson – Fenn Academy
- Tallmadge – Fenn Academy
- Woodridge – Fenn Academy
- Roosevelt High School – Fenn Academy
- Aurora City School District – Fenn Academy
- Cleveland Municipal School District – Fenn Academy
- Success Tech – Fenn Academy
- John Hay High School – Fenn Academy
- Parma Senior High School – Fenn Academy
- Cleveland Heights High School – Fenn Academy
- Rhodes High School – Fenn Academy
- Wickliffe High School – Fenn Academy

Other Partnerships and Agreements with Industry and National Research Centers

As Associate Dean and later as Dean of Fenn College, proposed and implemented a plan to involve the local industry to work in partnership with the college in recruitment, proposals, and fundraising programs. In that respect, worked with the following corporations:

Rockwell Automation

Goodyear Tire & Rubber Company, October, 2008.

Lubrizol

Ford Motor Company

Parker Hannifin Corporation

Great Lakes Construction

Middough Consulting Inc.

The Great Lakes Construction Company

Nortech [Non-Profit]

The Osborn Engineering Company

Keithley Instruments

URS Corporation

American Metals

Baker and Hostetler

Rockwell Automation

Burgess and Niple, Eaton Corporation

R. E. Warner

Camp Inc. [Non-Profit]

Moen

Karpinski Engineering

Superior Tool Company

As Chairman of the Diagnostic, Imaging and Visualization Center, involved the following industry and research centers to partner with the center in realizing its goals:

NASA Lewis Research Center

Sverdrup Corporation

Edison Industrial Systems Center

Ohio Aerospace Institute, Director for Research

Participant in the Establishment of the University Clean Energy Alliance of Ohio

As Fenn College Dean, participated in the formation of the UCEAO (Founding Member), acted as the point-of-contact for CSU, and was a signatory to the Memorandum of Understanding that was signed in Columbus on April 23, 2007 by fifteen Ohio universities in the presence of the Ohio Governor and the Chancellor of the Board of Regents. In a letter to the participants, United States Senator George Voinovich wrote "I commend the Alliance for its efforts in addressing our nation's pressing need for energy independence. I look forward to reviewing its recommendations and pledge my continued support of its endeavors."

Restructuring and Accreditation of CO-OP Program & Formation of Fenn Co-op

As Dean of the College of Engineering, obtained accreditation for the College's cooperative education program. In that respect, identified the accreditation criteria and completed a strategic plan to achieve the goals and objectives of the program. The college's Undergraduate Affairs Committee and subsequently the entire faculty approved the plan to include co-op courses in the curriculum. Furthermore, completely restructured the co-op program in order to make it a true educational experience for students and not just a job. The changes included new career orientation courses, faculty involvement, assigned advisors, industry mentors and a rigorous work/school schedule. The Co-op program became an accredited program in February 2010 and was named Fenn Co-op. Also, developed a co-op web site: <http://www.csuohio.edu/engineering/coop/>

First U.S. Engineering College to Become Accredited by CAFCE

From the CSU News Release #14784: <http://www.csuohio.edu/news/releases/2010/03/14784.html>

"Cleveland State University's Fenn College of Engineering, founded in 1923, announced today that it has become the first Canadian Association For Co-operative Education (CAFCE) accredited school in the nation. The CAFCE accreditation recognizes colleges and universities with high-quality co-operative education programs, which are evaluated based on the following five dimensions:

Structural criteria

Co-op in the institutional context

Institutional commitment criteria

## Quality program delivery criteria Monitoring and evaluation criteria

This prestigious and groundbreaking accreditation establishes Fenn College's Co-operative Education Program as one with proper structure, objectives and monitoring capabilities that meet independent external reviews and approvals. The accreditation ensures that students and employers involved with the program will participate in a clearly defined educational experience that enhances and complements the learning process, while offering opportunities for engaged learning in a real-world work setting and providing benefits to the employer as well."

### **Formation of Student Ambassadors Group**

<http://www.csuohio.edu/engineering/fennacademy/fennambassadors.html>

As Associate Dean of Engineering, proposed and initiated the formation of a Fenn College Student Ambassador group to assist the college with its outreach programs, recruitment efforts, and public relations activities. The first meeting of the group took place on September 15, 2005. Participating students assist with recruiting activities both on and off campus, and regularly attend open houses, alumni events, fundraising dinners, corporate networking workshops, and other University activities. Students also serve as guest presenters at many campus events, welcoming parents and new students to the campus, and encouraging students to pursue their engineering career goals. The group includes both undergraduate and graduate students from all engineering disciplines. Many of the students are also leaders in Fenn's engineering student chapter organizations, including the Society of Women Engineers, the National Society of Black Engineers, the Institute of Electrical and Electronics Engineers, the Joint Engineering Council, the American Society of Mechanical Engineers, the American Society of Civil Engineers, the Institute of Industrial Engineers, and the American Institute of Chemical Engineers. The leadership skills that Engineering Student Ambassadors learn while participating in these organizations helps the students to be excellent representatives of Cleveland State and outstanding recruiters for the Fenn College of Engineering.

### **International Graduate Student Recruitment**

As Dean, started a program of establishing a formal recruitment process between Fenn College and its overseas "feeder schools". As the first step, department chairmen and faculty were assigned the task of contacting colleges in India, China, Argentina, Eastern Europe and Turkey. Successful preliminary contacts were supported and developed into agreements that brought additional graduate students to various programs.

### **Budget Efficiency**

As Associate Dean, submitted a FY 2006 budget for recruitment and retention that included many new activities at an overall reduced cost compared to the previous years. The cost cutting measures reduced the actual spending by over 70% while increased the number of admits to the university for AY 2007 by 64%.

### **Accountability Measures**

As Dean of Engineering, established procedures to identify staff responsibilities and office protocol as well as training sessions to make sure that everyone would be aware of university rules and procedures.

### **Diversity in an Academic Setting**

As Fenn College Dean, initiated programs and efforts to establish inclusiveness, awareness and respect and a recognition that our learning environment is supported and enhanced by the diversity of faculty, staff and student body:

- Diversity Training and Education seminars.
- Assigned an associate dean to represent the College and the University in a joint NSF proposal regarding academic careers in engineering and science in partnership with Case Western Reserve University, Kent State, University of Akron and University of Toledo that will "encourage equitable recognition and promotion of intellectual talents of *all* of its faculty members." – The proposal was entitled: Institutions Developing Excellence in Academic Leadership (IDEAL).
- Through Fenn Academy, partnered with several Cleveland schools to assist in student preparation for careers in engineering.
- Through Fenn Academy, partnered with two schools to assist in preparation of women for careers in engineering.

- In spring of 2011, established a diversity committee within the college to advance access and diversity and support personal development of diverse students, faculty and staff.

### **Experience Working with Collective Bargaining**

As Dean, Associate Dean and Chairman, I acquired experience to work with faculty, professional staff and classified staff collective bargaining units.

### **Improvement of the Physical Environment and Building Construction & Repair**

As Engineering Dean, worked with the Physical Plant directors to renovate the engineering college building, improve lighting, student lounge space with access to the latest electronic equipment and monitors, carpeting, painting and other cosmetic improvements to make the public areas of the building inviting and friendly to our students. Also, with the help of faculty, submitted a complete report to the appropriate authorities regarding Stilwell Hall roof problems describing the extent of damage to equipment and the resulting delays in the on-going projects and asked for assistance in that regard. This resulted in garnering a Project Budget of \$1,350,000.00 (Project No.: CP-0712 Stilwell Hall Roof Renovation – Office of the University Architect). We have continued to make physical and cosmetic improvements to our facilities, student lobbies and student chapter offices. Recently we constructed a new CO-OP and Engineering Student Services facility.

### **Student, Faculty and Staff Engagement, CSU**

As Dean, I continued to focus on engaging our students, creating a welcoming and pleasant atmosphere for our new students and responding to their needs. One way for colleges to retain and engage their students and their alumni is by celebrating their traditions. After over half a century, we re-established the old Fenn College Freshman Picnic tradition. But we also established new ones, such as The State of the College Address, the Spring Gala fundraising event, Adopt A Freshman, Graduation Team event which identifies a team of faculty and staff responsible for each student's success and outlines a roadmap to graduation with clarity.

**Results:** In an independent 2011 survey by Eduventures, Inc. performed for CSU in responding to the question, "How would you rate your overall campus experience?", engineering and two other CSU colleges shared the top rating. And Fenn College scored the highest rating on the categories of: "I will recommend CSU to a friend", and "I feel like I am part of the campus community at CSU" [*New Student Satisfaction: Perceptions of University Support Services, EDUVENTURES Research and Consulting for Higher Education, March 2011*]

### **Faculty and Staff Morale**

As Engineering Dean, took measures to improve morale and collegiality among the faculty and staff. We also added events to celebrate the achievements of our faculty and staff. These included:

- The establishment of Fenn College Distinguished Faculty Awards in teaching, research and service.
- The establishment of Fenn Distinguished Research Professor Award
- Establishment of the Distinguished Staff Award.
- Kaizen (continuous improvement) Staff Award
- Open communication and sharing of information.
- Meetings with individual faculty members in their offices to listen to their concerns and their suggestions.
- Equitable treatment of faculty with respect to their workload and assignments.

### **Curriculum Efficiency, Chemical Engineering Department, CSU**

As Acting Chairman of the Chemical and Biomedical Engineering department, assessed the frequency of the course offerings, reviewed the headcount data, and class enrollments and rescheduled classes in Fall of 2005 to make the most efficient use of both personnel and facilities, reducing part-time teaching while addressing the needs of the department's students and faculty, e.g. the Spring term (second) ChE Principles course that has been running with three or four students and excessive technical electives with very low enrollments were cancelled, math and computer courses were assigned to other engineering departments with qualified tenure-track faculty as opposed to part-timers and Unit Operations laboratory course was considered for expansion into two sessions as opposed to one for students' safety and learning purposes.

### **College Capacity Utilization Assessment**

As Fenn College Associate Dean, for Academic Affairs, performed a complete college capacity utilization study. The study analyzed the engineering college's ability to absorb additional students without committing additional resources such as faculty and space. In this study each department's lecture courses and laboratory courses were differentiated by undergraduate and graduate courses. The results were submitted in form of a 110-page report to the Provost's Office, 2005. The report was used as a model for all colleges to follow.

### **Ohio Collaborative for Engineering Excellence in Education and Research**

Participated in constructing a partnership involving the: Ohio Board of Regents, Ohio Business Roundtable, Ohio Manufacturing Association, and Ohio Engineering Deans Council to draft a document for establishing the Ohio Collaborative. "In October 2010, the Chancellor initiated the Collaborative for Excellence in Engineering Education and Research in Ohio, as a partnership between the Ohio Board of Regents, Ohio engineering colleges, and Ohio's businesses. The goal is to leverage the assets of the State's extraordinary engineering higher education infrastructure to drive its future economic prosperity." <http://www.ohiohighered.org/engineering>

### **Efforts to Improve the Research Environment, College of Engineering, CSU**

#### **Financial Incentives**

- Established "Distinguished Fenn Research Professor" to financially reward research-active faculty and further promote research activities
- Recognized the college's active researchers for market adjustments
- Asked for and received approval for competitive start-up funds for new hires
- Increased our financial commitment by providing significant cost-share funds to Principal Investigators

#### **Recognitions**

- Established the "Outstanding Research Faculty" award to be presented annually with a large photograph of the recipient on display in our main lobby
- Publically announced the receiving of grants to all college faculty and staff via congratulatory e-mails to PIs
- Posting of all new and additional funding on the college's website

#### **Logistics**

- Implemented, Same-Day proposal approval and same-day or the next day forwarding to OSPR, except for cases that involved substantial complications
- Hired a grant writer to assist the faculty
- Routinely circulated the information for grant writing seminars and webinars to all faculty

#### **Networking**

- Organized events on campus (e.g. recent OAI Industry Day) to bring faculty closer to industry to create opportunities for future collaborations and funding

#### **Outreach**

- Established the Fenn Research and Development Institute to promote collaborations with industry
- Publish the "Fenn Research" magazine annually to promote the college's research capabilities to US and international academic and research institutions as well as to industry

### **Operational Efficiency Improvement Measures**

As Associate Dean of Engineering, implemented both restructuring and Kaizen (incremental improvements) techniques to improve the efficiency of operations, reduce waste and non-value adding activities. In that regard, restructured staff functions and coordinated the operations with various internal and external "customers" (units) for a seamless flow. Planned events to articulate the need for continuous improvement and receiving of feedback from internal and external customers.

### **Departmental Outcome Assessments and North Central Association Accreditation Reports**



As CSU Director of Doctor of Engineering Program, Associate Dean, and Member of the University Assessment Council participated in various assessment reviews, grant applications. Completed a College of Engineering Assessment Infrastructure Report and Doctor of Engineering Assessment Report, 2004/2005 for NCA Accreditation.

### **Extended Campus Course Offerings**

As Associate Dean and member of the Management Team for CSU Extended Campus and Summer Programs, facilitated the offering of engineering courses at the CSU's extended campuses and Ohio Aerospace Inst.

### **Distance Learning, Ohio Aerospace Institute**

As Chairman of Diagnostics, Imaging, and Visualization Focus Group at the Ohio Aerospace Institute and CSU Coordinator, proposed and assisted in establishing a distance-learning program at OAI that subsequently offered many courses through member universities. Later, worked to offer an entire master's in Software Engineering.

### **Enrollment and Budget Forecasting**

Proposed and assisted in formulating an enrollment-forecasting model for Cleveland State University's budget. The resulting empirical formula closely forecasted the future Fall term enrollments for budgeting purposes.

### **Faculty and Staff Recognitions and Awards**

As Associate Dean of Engineering, established a program of staff award and recognition to periodically reward the staff members who made significant contributions to the college. The first such event took place on June 30, 2005. The success of the first event led to the establishment of an annual event (July 18, 2006-2<sup>nd</sup> event).

As Dean, established several award programs to recognize and reward the performance of faculty and staff as follows:

- Distinguished Fenn research professor (\$5,000 per year for three years plus other amenities)
- Distinguished College Faculty research award (gift, plaque and a large photo in the main lobby)
- Distinguished College Faculty teaching award (gift, plaque and a large photo in the main lobby)
- Distinguished College Faculty Service award (gift, plaque and a large photo in the main lobby)
- Distinguished College Staff award (gift, plaque and a large photo in the main lobby)
- Faculty and Staff Safety Award (plaque and monetary award)
- Staff Kaizen award (plaque and monetary award)
- Displayed large size photographs of distinguished faculty and staff in a prominent location.

### **Continuous Improvement (Kaizen Events and Luncheons)**

As Associate Dean of Engineering, established a program of continuous and gradual improvements (Kaizen) and reviewed the progress with staff in periodic luncheon events.

### **Communication with Faculty, Students, Administrators, Staff, and Other Stakeholders**

As Dean of Engineering, established the following programs:

- Friday afternoons Coffee with the Dean – an open house event open to all students, faculty, staff, parents, industry representatives and other stakeholders.
- Opened the Dean's Cabinet meetings to all faculty, students and staff and invited them to participate.
- Distributed the minutes of the Cabinet meetings to all stakeholders.
- Routinely informed the entire faculty and staff of all the major on-going events.
- Prepared fliers with "The Unknown Fenn College", brag points about the college and distributed them widely both within the university and in the region.

As Associate Dean and Director of Fenn Academy, I maintained that all of our stakeholders should be continuously informed of all the on-going developments. As such, I developed two quarterly newsletters:

- Fenn Academy News
- Recruitment and Retention Report

These reports were made available electronically and hard copies were also mailed to the community leaders. Additionally, on an almost regular basis, I inform faculty and students about the academic issues that might be of



interest to them. Also, I have served with an open-door policy and in general respond to all the phone and electronic inquiries on the same day that I receive them. I have made a policy for myself and my staff to process all the routine business forms on the same day that our office receives them.

### **Staff Job Description Review and Restructuring of Responsibilities**

As Associate Dean, and later as Dean of Engineering, conducted a thorough review of job responsibilities of my staff and, in close consultation with staff, restructured the responsibilities to ensure a more efficient and seamless operation.

### **A Participant in the Establishment of the Ohio Aerospace Institute**

As CSU Coordinator, worked with a group of coordinators from nine other Ohio universities and NASA to establish the Ohio Aerospace Institute in 1989. The institute has since grown to become a major consortium.

### **Inter-University Cooperation and Faculty Interaction, Ohio Aerospace Institute**

As Ohio Aerospace Institute Coordinator, and as Chairman of the Diagnostics, Imaging and Visualization Center, worked with representatives from other institutions: University of Cincinnati, University of Akron, Ohio University, University of Dayton, The Ohio State University, Wright State University and University of Toledo and established research programs and inter-university collaborative efforts, 1988.

### **House Bill and Tech Fee Funds**

As Dean, articulated to the department chairmen the need to revisit the current formula for the allocation of the House Bill and Tech Fee (fees that students pay per credit hours) funds. The proposed plan involved all department chairs in the decision making process.

### **State of the College Address**

As Dean, established a new tradition in the college and presented the first State of the College Address during the 2007 Order of the Engineer event highlighting the historical developments as well as the circumstances facing the College at the time and proposed a roadmap for the future of the college for faculty and staff's consideration. In 2008, the second State of the College Address was delivered. It was focused on the regional economic development issues and the role of institutions of higher education.

In 2009, the third State of the College Address focused on the results, achievements and accomplishments that were realized as a result of the changes that were made:

The fourth State of the College Address was delivered in 2010: <http://www.youtube.com/watch?v=mr8M9vKgUIw>

In 2011, combined the State of the College Address with a newly established Spring Gala fundraising event with proceeds going into a scholarship fund for engineering students. The fifth State of the College Address and Inaugural Spring Gala fundraising event was held on April 21, 2011.

### **Formation of the Council of Associate Deans**

As Associate Dean, formed the Council of Associate Deans (October 2006) at CSU in order to regularly meet and discuss the best administrative practices and ways to encourage collaboration among the CSU colleges.

### **Budget - Cost Cutting Measures**

As Dean, carefully reviewed the college's budget and implemented appropriate cost cutting measures to reduce the college's deficit without impacting the academic programs and the delivery of the quality education that Fenn College is known for. These cost cutting measures resulted in savings of \$702,087.00 and increased the revenue by \$80,000.00 for the 07 fiscal year. These included, among others:

- Temporary elimination of one associate dean position (first six months).
- Reduction in part-time teaching and staff hours.
- Reduction in library expenses, e.g. unused subscriptions.
- Elimination of a consultant position.
- Acquiring services to the college at no cost (1.5 million dollar new roof construction) and in some cases at a reduced cost (Stilwell Hall renovation).
- A new budget and spending approval process.

- Increased revenue by approx. \$80,000.00 (College Tech Fee)

In 2008 I proposed the development of a college-wide budget building process requiring: 1) direct input from the chairs, 2) advanced planning for the following fiscal year with built-in contingency plans, 3) formation of a College Budget Planning/Finance Committee to directly involve our faculty and staff in the College's budget building process and enhance our budget transparency.

### **Organizational Restructuring**

As Dean of Engineering constructed and implemented a flat organizational structure that eliminated inefficiencies and middle-management layers.

### **Development of a Business Continuity Plan**

As Engineering Dean, took the following measures to develop a comprehensive business continuity plan:

- Formed a team and developed a Business and Administrative Manual for the benefit of college faculty, staff and administrators which includes contracts, financial data, Family Educational Rights and Privacy Act training information, computer back-up procedures, software training, grant PI training, technology transfers and patents, gifts, gifts-in-kind, job descriptions, college policies and pertinent university policies.
- Established a committee to identify data critical to the mission of the College and to developed a plan to protect the College's computers and servers. Also, developed a college computer security policy and Business Continuity Plan to prevent loss of data in case of a disaster.
- Developed a five-year plan for the purchase/replacement of office and instructional equipment, e.g. computers, printers, scanners, copiers, fax machines.

### **Board of Trustees' Engineering Task Force**

Worked with the CSU Board of Trustees Engineering Task force to identify the growth potential of the College and set benchmarks to achieve the desired objectives over a five-year period.

### **Expanded the Chairmen's role in the Decision Making Process - Decentralization**

As Dean, decentralized some of the administrative functions to make the department chairmen more involved in the decision making process; e.g. College wide Tech Fee distribution, Graduate Assistant/Tuition Grant funding allocation, House Bill/University Tech Fee requests, co-op program and course scheduling.

### **Enrollment Growth in the Pre-Engineering Program (head count)**

The number of new freshman pre-engineering students grew by 94% since 2005 and the new undergraduate engineering enrollment increased by 70% in 2006. At the graduate level enrollment increased by 66% when compared with 2005 [from CSU 2007 Book of Trends, page 12].

### **On Time Performance**

As Dean of Fenn College of Engineering, established a program to eliminate delays and miscommunications. There has been no delay or occasion of missing a deadline in the past ten months. With a few exceptions, all forms, proposals, contracts and partnership agreements have been signed and processed within one or two days after being received.

### **Establishment of New Programs to Help Graduate Student Recruitment Efforts**

As Interim Director of Doctor of Engineering Program at CSU, helped to establish:

- A five-year B.S.-M.S. programs in chemical and biomedical engineering
- Conducted informal receptions with groups of students to receive direct feedback from the student body
- Prepared a marketing campaign that included videos, web, Power-Point, and hard copy presentations to recruit graduate students.
- Established New Graduate Students Luncheon events to welcome and assist new graduate students. Forty new graduate students attended in Fall 2004 (November 23, 2004), and 48 attended in Fall 2005. The

University Provost and College Dean as well as a number of University Directors, Associate Deans and other officials were present to assist the students.

- As Director of Doctor of Engineering Program, established a focus group to assess the recruitment and retention of international graduate students and to report its findings.

### **Establishment of New Programs to help Retention and Professional Development of Graduate Students**

As Interim Director of Doctor of Engineering Program, and then as the Director:

- Arranged for Workshops to teach technical writing and oral presentation taught by experts who teach in the private sector
- Established procedures to process student forms, applications, petitions, and graduation forms without any delay and designed electronic forms to avoid paper and facilitate transmission.

### **Revitalization of the Alumni Association Activities**

As Associate Dean, revitalized and energized the Engineering Alumni Association:

- Requested and received an increase in the Engineering Alumni group's allotment from the University's Alumni Association Office
- Identified activities that would attract more alumni to the group, such as: breakfast meetings with well-known alumni, holiday parties, establishment of a newsletter, more direct involvement in college affairs (award ceremonies, recognitions), and tours of campus facilities.

### **Cooperative Education, CO-OP Internship and an Internship plan**

As Interim chairman of Chemical and Biomedical Engineering department, approved a five-year program for cooperative education with co-op internship and part-time internship components, July 2005. As Director of Fenn academy established an internship program for high school seniors who chose to attend Fenn College. The program called for two paid internship periods in the summer between the high school senior year and freshman year and then again the summer between freshman year and sophomore year.

### **Fenn Academy Branch Offices**

Established branch offices at participating school districts equipped with computers for on-line advising, office furniture and literature stands to send staff for office hours and banners showing the Fenn Academy/CSU logos. Twelve Fenn Academy offices have been established thus far in Northeast Ohio.

### **Teaching and Learning Initiatives**

- As Assistant Dean and then as Associate Dean of Engineering arranged for the first and second (2006) Teaching/Learning Workshops in the Fenn College of Engineering.
- As a professor implemented interactive teaching/learning style and web-based courses.
- Published papers in the area of teaching/learning

### **Inclusion of Underrepresented Groups**

As Director of Fenn Academy, identified several high schools to assist them with program development and for recruitment. These schools have high percentages of minority students, including those located within the Cleveland Municipal School District. Specific program activities are designed to attract women and minority students. The first partnership agreement was signed in May 2006 with Early College Program, Cleveland Municipal School District housed in John Hay High School.

In the 2008 CSU Book of Trends, Pre-Engineering is listed as "Top 15 [CSU] Degree Seeking Programs with Highest Female Students Enrollment by Level Fall 2007" in terms of Minority as a % of Total Major Enrollment" (19%).

[Source: 2008 CSU Book of Trends, Table 6.8, Page 121]

### **Financial Incentives and Industry Involvement**

In FY 2004, 60% of the CSU's undergraduate students received Pell Grants. With financial considerations one of the top reasons for students dropping out of Cleveland State, I determined that offering scholarship support was critical to move students through to graduation. As such, I have strengthened the involvement of industry in the

student experience, from recruitment to graduation, through development of a strong industry-supported program.

## **MEDIA RECOGNITION FOR ADMINISTRATIVE ACCOMPLISHMENTS**

- Colleges seek to expand schools of engineering, The Cleveland Plain Dealer, Published: Sunday, October 17, 2010.
- When It Comes to Enrollment Growth, The Fenn College of Engineering is Setting the Pace, CSU Perspective, Winter 2011
- Cleveland State University striving to turn research into jobs, The Cleveland Plain Dealer, Published: Friday, August 27, 2010, 5:45 PM  
[http://www.cleveland.com/business/index.ssf/2010/08/cleveland\\_state\\_university\\_striving\\_to\\_turn\\_research\\_into\\_jobs.html](http://www.cleveland.com/business/index.ssf/2010/08/cleveland_state_university_striving_to_turn_research_into_jobs.html)
- \$475,000 grant to support “Engineering Across the Pipeline”, The Cleveland Stater, Thursday, April 9, 2009.
- Fenn College of Engineering, Perspective, Cleveland State University, pp.5, Spring 2009.  
<http://www.csuohio.edu/class/com/clevelandstater/news/news101508.html>
- Creating a Path for Future Engineers – Program Encourages High Schoolers, The Plain Dealer, Metro Section, B1, by Angela Townsend, Plain Dealer Reporter, Monday, November 26, 2007.
- Dr. Ghorashi New Dean of Engineering, The Cleveland Stater, Thursday, February 19, 2009.  
<http://www.csuohio.edu/class/com/clevelandstater/news/news101204.html>
- Cleveland Engineering Society Names President and Appoints Ex-Officio Member of the Board of Directors, Cleveland Business Connects, pp. 8, August 2008.
- Fenn Good for Future of Schools, Harry Featherstone, The Daily Record, Wooster, Ohio, Thursday, April 10, 2008.
- Academy Students Visit Fenn College of Engineering at Cleveland State, Manufacturing and Pre-Engineering Academy, Six District Educational Compact, Winter 2008.
- Public Engineering Programs Raise the Bar in NE Ohio, Celebrating National Engineers Week, CJN, pp. 4, February 22, 2008.
- Ranger’s Report, Cox Cable Channel 74, a program on Fenn Academy, taped on Nov.20, 06.
- Press Release – Lakewood School District, Fenn Academy Partnership.
- Opening Doors to Your Future, Six District Educational Compact, Annual Report 2006-2007.
- Campus News Briefs, On Campus (Cleveland State University’s Newspaper), January 24, 2007.
- CSU President’s Report to the Faculty Senate, Speaker of the House and Ohio Business Roundtable, *CSU Faculty Senate*, pp. 23, December 8, 2006.
- What a Difference a Year Makes, Fenn College of Engineering and Fenn Academy, CSU Office of Annual Giving publication, October 2006.
- Fenn College of Engineering – Fenn Academy, *Facts about Cleveland State University*, 2007.
- University Recognized by Northern Ohio Live, Fenn Academy, CSU Perspective, Fall 2006/Winter 2007.
- Faculty Win Merit Awards, *On Campus* (Cleveland State University’s Newspaper), June 5, 2006.
- Fenn Academy – Partnership Promotes Engineering, *On Campus* (Cleveland State University’s Newspaper), September 19, 2005.
- Fenn College of Engineering Offers Ohio’s First Pre-Engineering Program, *The Cauldron* (Cleveland State University’s Student Newspaper), September 19, 2005.
- CSU, District Officials Praise New Partnership, *Lakewood Sun Post, Sun Newspapers*, September 15, 2005.
- New CSU program to groom engineers, by Shawn Turner, *Crain’s Cleveland Business*, September 12, 2005.
- Fenn Academy gets gears rolling, By Matt Gorey, *The Cleveland Stater*, Vol. 7, No. 7, October 14, 2005.
- Fenn Academy recognized as part of Dr. Michael Schwartz, *CSU President’s State of the University Address*, Fall 2005.
- CSU Launches Fenn Academy for Aspiring High School Engineers, *SMART Talk*, A joint Initiative of Martha Holden Jennings Foundation, the Cleveland Foundation, and the Ohio Department of Education, Oct. 2005.
- Radio Interview – WKNV -CSU Men’s Basketball, Half Time guest interview, *Spotlight Focus*, Fenn Academy, December 29, 2005 (CSU vs. Loyola game).
- Lakewood Students & Parents Have More Options, *Lakewood City Schools Report Card*, December 2005.
- Fenn Academy, *CSU President’s Newsletter*, Volume 11, Issue 1, January 2006.
- Fenn Academy, *Crain’s Cleveland Business*, January 16, 2006.
- University President’s Report – Fenn Academy, *Minutes of the Meeting of the Faculty Senate*, April 19,

2006

- New Partners Join Fenn Academy, On Campus (Cleveland State University's Newspaper), Vol. 29, No. 8, May 1, 2006.
- Fenn Academy documentary, Linda Thayer, West Shore Technical Education District, *Technimedia Studios* Documentary, Career Pathways Production, 2006.
- Targeting Young Minds, *Perspective magazine*, spring 2006.
- Fenn Academy, WCPN Announcements during the morning NPR program, May 25, 2006, June 2, 2006.
- Urban Upgrade, by Shannon Mortland, *Crain's Cleveland Business*, June 5, 2006.
- Faculty Win Merit Awards, On Campus (Cleveland State University's Newspaper), Vol. 29, No. 9, June 5, 2006.
- Young Minds, Fenn Academy is targeting high school students interested in pursuing engineering careers. *CSU Homepage, www.csuohio.edu*, July 6, 2006.
- Small Schools forge Identities, Panther Proud, Euclid City Schools, Summer 2006.
- Northern Ohio Live Honorable Mention for the formation of Fenn Academy. *Northern Ohio Live Magazine*, "The Best of this region's Best! ..... recognizing outstanding individuals and organizations who have made a special contribution to the quality of life in the region.", October 2006.

#### **NATIONAL & GLOBAL MEDIA COVERAGE**-A Partial List of Fenn College Accomplishments in the News (2006-2011)

- **CNBC** - <http://www.cnn.com/id/31256233>
- **Business Week** - [http://www.businessweek.com/magazine/content/09\\_27/c4138greenbusi149054.htm](http://www.businessweek.com/magazine/content/09_27/c4138greenbusi149054.htm)
- **CBS Evening News**
- **Reuters UK** - <http://uk.reuters.com/article/environmentNews/idUKTRE55A5PD20090611>
- **Reuters India** - <http://in.reuters.com/article/environmentNews/idINTRE55A5PD20090611>
- **Yahoo UK and Ireland** - <http://uk.news.yahoo.com/22/20090611/twl-environment-us-newyork-energy-1202b49.html>
- **Crain's Cleveland** - <http://www.crainscleveland.com/article/20090612/BLOGS03/906129961/-1/BLOGS>
- **Scientific American** - <http://www.scientificamerican.com/section.cfm?id=partnernews&category=&year=2009&month=6&offset=16>
- **International Business Times** - <http://www.ibtimes.com/articles/20090611/nyc-water-towers-seen-as-ground-quot-wind-farms-quot.htm>
- **SiloBreaker** - [http://www.silobreaker.com/nyc-water-towers-seen-as-ground-for-wind-farms-16\\_2262380586951770129](http://www.silobreaker.com/nyc-water-towers-seen-as-ground-for-wind-farms-16_2262380586951770129)
- **Calgary Herald** - <http://www.calgaryherald.com/business/turbines+could+turn+into+urban+wind+farms/1686210/story.html>
- **STV.TV** - <http://news.stv.tv/environment/102020-nyc-water-towers-seen-as-ground-for-wind-farms/>
- **Topix** - <http://www.topix.com/energy/wind-energy/2009/06/nyc-water-towers-seen-as-ground-for-wind-farms>
- **Energy For Us All** - [Energy For Us All](http://www.energyforusall.com/) - <http://www.energyforusall.com/>
- **ClimateArk.com** - <http://www.climateark.org/shared/reader/welcome.aspx?linkid=129849&keybold=solar%20AND%20%20energy>
- **Global Good News** - Science Good News - <http://www.globalgoodnews.com/science-news-a.html?art=124477095625774670>
- **Earth-Stream** - [http://www.earth-stream.com/Earth/Clean-Energy/NYC-water-towers-seen-as-ground-for-wind-farms-18\\_151\\_175325.html](http://www.earth-stream.com/Earth/Clean-Energy/NYC-water-towers-seen-as-ground-for-wind-farms-18_151_175325.html)
- **Planeta Azul** - <http://www.planetaazul.com.mx/www/2009/06/12/nyc-water-towers-seen-as-ground-for-wind-farms/>
- **Earth Friendly Grocery Bags** - <http://earthfriendlygrocerybags.com/8666-nyc-water-towers-seen-as-ground-for-wind-farms>
- **SkyScraperCity.com** - <http://www.skyscrapercity.com/showthread.php?p=38244934>

#### **College of Engineering External Recognitions**

- 2010 NorTech Innovation Award for Advanced Energy, Power and Propulsion, February 24, 2010.
- Certificate of commendation, Secretary of State of Ohio, Feb. 24, 2010.
- Letter of congratulations from the Auditor of State of Ohio, March 18, 2010.
- CSU - A Year to Remember [2009-2010]. Notable Achievement, Wind Turbines.

## RESEARCH AND SCHOLARLY ACTIVITIES

### 2003 Distinguished Faculty Research Award, Cleveland State University

One of the few academic contributors to Vision 2020 report. “This study was also stimulated by a request from the White House Office of Science and Technology Policy for industry advice on how the U.S. government could better allocate R&D funding to advance the manufacturing base of the U.S. economy.” “The contributors to Vision 2020 included technical and business leaders in the U.S. Chemical Industry who studied the factors affecting the competitiveness of the industry in a rapidly changing business environment and set out to develop a vision for its future.” “This landmark document establishes a long-term path for the future of the chemical industry based on key market, business, and environmental needs.”

### PUBLICATIONS

79. A Systematic Approach to Retaining and Increasing the Number of Engineering Graduates in Order to Strengthen a Regional Economy, Management of Engineering & Technology, 2008, PICMET 08, Cape Town, South Africa, July 27 – 31, 2008, ISBN: 978-1-890843-17-5, NSPEC Accession Number: 10152099, 2008.
78. Rupture of Thin Liquid Films Utilizing Binary Fluid Mixtures, R. Gorla, L. Byrd, D. Kost, and B. Ghorashi, International Journal of Fluid Mechanics Research, Vol. 32, No.6, 2005.
77. Determination of Output from A Unit of An Enterprise Architecture in Response to A Change in the Mode of Operation – A Blueprint for Process Modeling and Simulation, B. Ghorashi and J. Stafford, Proceedings of the 2005 Portland International Conference on Management of Engineering and Technology, PICMET 05, 2005.
76. Agile Manufacturing Practices in the Specialty Chemical Industry: An Overview of the Trends and Results of a Specific Study, A. Guisinger and B. Ghorashi, International Journal of Operations & Production Management, Vol. 24 No. 6, pp. 625-635, 2004.
75. Heat Transfer in a Thin Liquid Film in the Presence of Electric Field for Non-Isothermal Interfacial Condition, R. S. R. Gorla, J.E. Gatica, B. Ghorashi, P. Ineure, and L. W. Byrd, International Journal of Fluid Mechanics Research, Vol. 29, No. 2, 2002.
74. Heat Transfer in a Thin Liquid Film in the Presence of Electric Field, R.S.R. Gorla, J.E. Gatica, B. Ghorashi, P. Ineure, Chemical Engineering Communications, 191: 1-14, 2004.
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[http://www.amazon.com/s/ref=nb\\_ss\\_b?url=search-alias%3Dstripbooks&field-keywords=bahman+ghorashi](http://www.amazon.com/s/ref=nb_ss_b?url=search-alias%3Dstripbooks&field-keywords=bahman+ghorashi)

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### TECHNOLOGY VISION 2020/ THE U.S. CHEMICAL INDUSTRY REPORT

<http://www.ccrhq.org/vision/welcome.html>

One of the few academic contributors to a major technology report. "This study was also stimulated by a request from the White House Office of Science and Technology Policy for industry advice on how the U.S. government could better allocate R&D funding to advance the manufacturing base of the U.S. economy." The contributors to Vision 2020 included technical and

business leaders in the U.S. Chemical Industry who studied the factors affecting the competitiveness of the industry in a rapidly changing business environment and set out to develop a vision for its future. Technology Vision 2020 is a call to action, innovation, and change. The report outlines the current state of the industry, a vision for tomorrow, and the technical advances needed to make this vision a reality.

“The Chemical Industry Vision2020 Technology Partnership (Vision2020) was launched in 1996 with the publication of *Technology Vision 2020-The U.S. Chemical Industry*. This landmark document establishes a long-term path for the future of the chemical industry based on key market, business, and environmental needs. Priorities were established in New Chemical Science and Engineering Technology, Supply Chain Management, Information Systems, and Manufacturing and Operations. Five chemical industry professional associations participated in the development of the *Vision*.”

American Chemical Society, American Institute of Chemical Engineers, Chemical Manufacturers Association, Council for Chemical Research, Synthetic Organic Chemical Manufacturers Association, 1997, copies of the report can be obtained from: American Chemical Society, Department of Government Relations and Science Policy, 1155 16<sup>th</sup> street, NW, Washington D.C. 20036.

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## WORKSHOP PROCEEDINGS

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- Three-Dimensional Imaging Versus Two-Dimensional Techniques, planar Reacting Shear Layer Experiment Review Proceedings, Internal Fluid Mechanics Division, NASA, Lewis Research Center, January 1989.

## PATENT APPLICATION

Submitted a Patent Disclosure, Ghorashi Circular Combustor (GCC) to the Cleveland State University, Office of Research Services for patent application.

## EDITOR

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  3. Optimization Studies of a Reverse Flow Circular Combustor with MCZ's, B. Ghorashi, S. Taruvai and G. McBeath.
  2. Simplified Jet Fuel Reaction Mechanism for Lean Burned Combustion Application, C.M. Lee, K. Kunda and B. Ghorashi.
  1. Application of Quality Management Techniques to Chemical Engineering, M.A. Jamiol and B. Ghorashi.

## ERESEARCH REPORTS TO FUNDING AGENCIES

18. Flow Diagnostics, Chemically Reacting Turbulent Flow Modeling and Turbulent Mixing, (A Summary of Project Studies in Combustion), Final Report to NASA, GHO-R14, January 1995.
17. Development of Imaging Techniques for Utilization in Turbulence and Combustion Research, Final Report to NASA, GHO-R13, April 1994.
16. Flow Mixture Patterns in a Lean Pre-Mixed, Pre-Vaporized Combustor Under Advanced Supersonic Cruise Conditions, Final Report, GHO-R16, April 1994.
15. Toroidal Combustor Concept Studies, B. Ghorashi, Report to the Internal Combustion Branch (Dr. Chun), Propulsion Systems Division, NASA Lewis Research Center, December 1993.
14. Toroidal Combustor Concept Studies, B. Ghorashi, G. McBeath and S. Taruvai, Report to the Internal Combustion Branch, Propulsion Systems Division, NASA Lewis Research Center, November 1992.
13. Flow Visualization Studies of a Circular Combustor Under Chemically Frozen Conditions, B. Ghorashi, Report of a Review Study and a Suggested Design to the Combustion Technology Branch, Propulsion Systems Division, NASA Lewis Research Center, August 1988.
12. A Fundamental Study of Fluid Jet Characteristics When Applied to Cutting and Machining, B. Ghorashi, E.E. Graham and T. Miller, Progress Report to the Advanced Manufacturing Center, May 1988.
11. A Fundamental Study of Fluid Jet Characteristics When Applied to Cutting and Machining, B. Ghorashi, E.E. Graham and R. Deshpande, Progress Report to the Advanced Manufacturing Center, Fall 1987.
10. A Study of Performance of Lubricants Under Actual Operating Conditions, E.E. Graham and B. Ghorashi, Progress Report to The State of Ohio, Research Challenge Program, April 11, 1986 to November 30, 1986.
9. Solar Energy Storage - A Direct Contact Phase Change Process, B. Ghorashi and J. Duqum, Report to CSU Development Foundation, 1983.
8. Analytical Investigation of the Property Enhancement and Bubble Generation for Controlled Porosity Glasses, B. Ghorashi, et. al., Technical Progress Report to Advanced Materials Research Center for the Commercial Development of Space, Program Four, Battelle's Research Institute, Columbus, Ohio, October 1, 1986 to November 6, 1986.
7. Analytical Investigation of the Property Enhancement and Bubble Generation for Controlled Porosity Glasses, B. Ghorashi, ET. al., Technical Progress Report to Advanced Materials Research Center for the Commercial Development of Space, Program Four, Battelle's Research Institute, Columbus, Ohio, March 31, 1986 to September 15, 1986, [Year End Report].

6. Analytical Investigation of the Property Enhancement and Bubble Generation for Controlled Porosity Glasses, B. Ghorashi, et. al., Technical Progress Report to Advanced Materials Research Center for the Commercial Development of Space, Program Four, Battelle's Research Institute, Columbus, Ohio, August 1, 1986 to August 31, 1986.
5. Analytical Investigation of the Property Enhancement and Bubble Generation for Controlled Porosity Glasses, B. Ghorashi, et. al., Technical Progress Report to Advanced Materials Research Center for the Commercial Development of Space, Program Four, Battelle's Research Institute, Columbus, Ohio, July 1, 1986 to July 31, 1986.
4. Analytical Investigation of the Property Enhancement and Bubble Generation for Controlled Porosity Glasses, B. Ghorashi, et. al., Technical Progress Report to Advanced Materials Research Center for the Commercial Development of Space, Program Four, Battelle's Research Institute, Columbus, Ohio, May 16, 1986 to June 30, 1986.
3. Analytical Investigation of the Property Enhancement and Bubble Generation for Controlled Porosity Glasses, B. Ghorashi, et. al., Technical Progress Report to Advanced Materials Research Center for the Commercial Development of Space, Program Four, Battelle's Research Institute, Columbus, Ohio, March 31, 1986 to May 15, 1986.
2. Fluid Dynamics and Design Considerations of A Circular Combustor Under Chemically Frozen and Chemically Reactive Conditions, B. Ghorashi, NASA-ASEE CASE-LEWIS, Summer Faculty Fellowship Program, Department of Mechanical and Aerospace Engineering, Case Institute of Technology, Case Western Reserve University, Final Report, pp. D 80-82, 1988.
1. Flow Structures in a Combustion Process, Imaging, B. Ghorashi, NASA-ASEE, CASE-LEWIS, Summer Faculty Fellowship Program, Department of Mechanical and Aerospace Technology, Case Institute of Technology, Case Western Reserve University, Final Report, pp. D 98-101, 1987.

## OTHER REPORTS

Architectural/Design Standards Steering Committee Report to Hudson Township Trustees, B. Ghorashi, R.S. Kagler, K.M. Zak, M.A. Vidalis, E.N. Ritter, N. Henderson, P. Bourn and M.L. Carr, 1993.

## GRANTS

- Fenn Academy, Operating Funds, Lubrizol Corporation, CSU Foundation, 2013. \$10,000.00
- Fenn Academy, Scholarships Fund, Lubrizol Corporation, CSU Foundation, 2013. \$32,000.00
- Fenn Academy Fund, The Lincoln Electric Foundation, Operating Funds, 2012. \$10,000.00
- Fenn Academy, Operating Funds, Lubrizol Corporation, CSU Foundation, 2012. \$10,000.00
- Fenn Academy, Scholarships Fund, Lubrizol Corporation, CSU Foundation, 2012. \$24,000.00
- Ronald R. Ledin Fenn Academy Engineering Education Fund, Fenn Academy Executive Director's Discretionary Fund, June 20, 2011. \$100,000.00
- Fenn Academy Fund, The Lincoln Electric Foundation, Operating Funds, July 2011. \$10,000.00
- Industrial Internship Experience at Rockwell Automation, Rockwell Automation, Co-PI, LINPA12 - continuation, 2011. \$60,000.00
- Upper Stage Engine Test Article Lead, NASA Glenn Research Center, GHORA28, 2007 – 2009. \$344,595.00
- Increasing Diversity in Engineering and Sciences: Alliance for Graduate Education and the Professoriate (IDEAS – AGEP), NSF grant, Co-PI, an alliance among state universities in Ohio, selected for funding by NSF-pending, April 2011.
- Engineering Across the Pipeline, Co-PI, Ohio Board of Regents, 2009 \$982,353.00  
[\$474,700.00 + \$507,653], 0230-0620-01 GATIC29 (GATIC26-29), cost-share # 0010-0620-01 CSGATIC26
- Fenn Research and Development Institute (FRDI) Industrial Internship Experience at Rockwell Automation, Rockwell Automation, Co-PI, LINPA12, 2010. \$30,000.00
- Fenn Academy Fund, The Lincoln Electric Foundation, Operating Funds, 2010. \$10,000.00
- Fenn Academy, Operating Funds, Lubrizol Corporation, CSU Foundation, 2010.
- Fenn Academy, Scholarships Fund, Lubrizol Corporation, CSU Foundation, 2009. \$12,000.00
- Fenn Academy Pathways to Engineering Summer Academy, Co-



investigator, Ohio Board of Regents, 2009 Regents STEM Academies, 2009.	\$171,383.00
▪ <u>Fenn Research and Development Institute (FRDI) Service Learning Program</u> , Rockwell Automation, GHORA30, 2009.	\$30,000.00
▪ <u>State of the College Address-Steel Ring Event and Scholarships</u> , Parker Hannifin Corporation, 2009.	\$9,000.00
▪ <u>Fenn Academy</u> , Scholarships Fund, Lubrizol Corporation, CSU Foundation, 2009.	\$20,000.00
▪ <u>Fenn Academy</u> , Operating Funds, Lubrizol Corporation, CSU Foundation, 2009.	\$10,000.00
▪ <u>Fenn Academy Fund</u> , The Lincoln Electric Foundation, 2009.	\$7,000.00
▪ <u>Fenn Academy Fund</u> , Parker Hannifin Corporation, 2009.	\$10,000.00
▪ <u>Fenn Academy Fund</u> , Middough Corporation, 2009.	\$20,000.00
▪ <u>Fenn Academy Fund</u> , Burgess & Niple Corporation, 2009.	\$500.00
▪ <u>Fenn Academy Fund</u> , Middough Corporation, 2008.	\$20,000.00
▪ <u>Fenn Academy Fund</u> , Lincoln Electric Corporation, 2008.	\$7,000.00
▪ <u>Fenn Academy Fund</u> , Ford Motor Company, 2008.	\$3,000.00
▪ <u>Fenn Academy Fund</u> , Burgess & Niple Corporation, 2008.	\$500.00
▪ <u>Fenn Academy Fund</u> , Middough Corporation, 2007.	\$20,000.00
▪ <u>Fenn Academy Fund</u> , Lubrizol Corporation, 2007.	\$40,000.00
▪ <u>Fenn Academy Fund</u> , Lincoln Electric Corporation, 2007.	\$7,000.00
▪ <u>Fenn Academy Fund</u> , Northeast Ohio Sewer District, 2007.	\$10,000.00
▪ <u>Fenn Academy Fund</u> , Parker Hannifin Corporation, 2006.	\$25,000.00
▪ <u>Fenn Academy Fund</u> , Middough Corporation, 2006.	\$20,000.00
▪ <u>Fenn Academy Fund</u> , Ford Motor Company, 2006.	\$5,000.00
▪ <u>Fenn Academy Fund</u> , Karpinski Engineering, 2006.	\$500.00
▪ <u>Fenn Academy Fund</u> , Burgess & Niple Corporation, 2006.	\$500.00
▪ <u>Fenn Academy Fund</u> , Lubrizol Corporation, 2006.	\$2,000.00
▪ <u>Fenn Academy Fund</u> , The Great Lakes Construction Company, 2006.	\$1,500.00
▪ <u>Fenn Academy Fund</u> , Dr. John Tomko, 2006.	\$500.00
▪ <u>Fenn Academy Operating Fund</u> , Provost and Senior Vice President for Academic Affairs Office, 2006.	\$30,000.00
▪ <u>Ohio Space Grant Consortium</u> , OSGC -NASA, Ohio Aerospace Institute, GHORA25 – Project Continuation, 2007-2008.	\$8,000.00
▪ <u>Ohio Space Grant Consortium</u> , OSGC -NASA, Ohio Aerospace Institute, GHORA25 – Project Continuation, 2006-2007.	\$3,000.00
▪ <u>Ohio Space Grant Consortium</u> , OSGC -NASA, Ohio Aerospace Institute, GHORA25, 2005-2006.	\$6,113.66
▪ <u>Engineering Management</u> , The Ohio Learning Network grant, containing funds for development of the following modules by Professor Ghorashi: Agile manufacturing, Just-in-time manufacturing, Co-PIs for development of other modules include professors: Gatica, Shah, Javangula and IEM Group, 2002-2003.	\$118,000.00
▪ <u>Fluid Flow and Mixing Process in a Circular Combustor for the HSCT Applications</u> , Continuation, NASA, Lewis Research Center, 1991-1992.**	\$99,298.00
▪ <u>A Study of Flow Pattern in the Ghorashi Circular Combustor Prototype</u> , Supplement to GHO R14, Doctoral Student: Giorgio McBeath, NASA, Washington 20417-70620, GHO T22, 1991-1992.	\$22,000.00
▪ <u>Development of an Image Processing and Analysis Technique for Utilization in Turbulence and Combustion Research</u> , Continuation, NASA, Lewis Research Center 21493-80620, GHO R13, 1990-1991.	\$81,774.00
▪ <u>Fluid Flow and Mixing Process in a Circular Combustor for the HSCT Applications</u> , Continuation, NASA, Lewis Research Center 21406-90620, GHO R14, 1990-1991.	\$88,484.00
▪ <u>A Study of Flow Pattern in the Ghorashi Circular Combustor Prototype</u> , Supplement to GHO R14, Doctoral Student: Giorgio McBeath, NASA, Washington 20412-50620, GHO R20, 1990-1991.	\$22,000.00

▪ <u>Flow and Mixing Pattern in a Lean Pre-Mixed, Pre-Vaporized Combustor Under Advanced Supersonic Cruise Cycles</u> , NASA Lewis Research Center 21413-00620, GHO R16, 1989-1990.	\$25,352.00
▪ <u>Flow Visualization Studies of the Mixing Process in a Proposed Circular Combustor for the HSCT Application</u> , Continuation, NASA Lewis Research Center 21406-90620, GHO R14, 1989-1990.	\$80,989.00
▪ <u>Development of an Image Processing and Analysis Technique for Utilization in Turbulence and Combustion Research</u> , Supplement to GHO R13, NASA Lewis Research Center, 21493-80620, GHO R13, 1989-1990.	\$86,000.00
▪ <u>Development of an Image Processing and Analysis Technique for Utilization in Turbulence and Combustion Research</u> , NASA Lewis Research Center, 21493-80620, GHO R13, 1989-1990.	\$26,000.00
▪ <u>A Study of Flow Pattern in the Ghorashi Circular Combustor Prototype</u> , Supplement to GHO R14, Doctoral Student: Giorgio McBeath, NASA, Washington Supplement to 21406-90620, GHO T15, 20407-90620, 1989-1990.	\$18,000.00
▪ <u>Flow Visualization Studies of the Mixing Process in a Proposed Circular Combustor for the HSCT Applications</u> , NASA Lewis Research Center, 21406-90620, GHO R14, 1989-1990.	\$57,127.00
▪ <u>Development of an Imaging Technique for Utilization in Turbulence and Combustion Research</u> , Continuation for the Second Year, NASA Lewis Research Center, 21493-80620, GHO R13, 1988-1989.	\$86,206.00
▪ <u>Development of an Image Processing and Analysis Technique for Utilization in Turbulence and Combustion Research</u> , NASA Lewis Research Center 21493-80620, GHO R13, 1987-1988.	\$100,000.00
▪ Principal Investigator and Project Director: <u>A Fundamental Study of Fluid Jet Characteristics When Applied to Cutting and Machining</u> , Advanced Manufacturing Center Cleveland Advanced Manufacturing Program, Co-Investigator: E.E. Graham, 2153-0648, 1987-1988.	\$81,295.00
▪ <u>A Study of Performance of Lubricants Under Actual Operation Conditions</u> , State of Ohio Research Challenge Program, Co-P.I.: E.E. Graham, 21567-50620, GRH R1 OBOR Research Challenge, 1986-1987.	\$23,000.00
▪ <u>Analytical Investigation of the Property Enhancement and Bubble Generation for Controlled Porosity Glasses</u> , CSU Cost Share, CO-P.I.'s: A. Evans, M. Ibrahim, 1986.	\$34,073.00
▪ <u>Analytical Investigation of the Property Enhancement and Bubble Generation for Controlled Porosity Glasses</u> , Advanced Materials Research Center for the Commercial Development of Space, Battelle Research Institute Co-P.I.'s: A. Evans, and M. Ibrahim, 21472-60660, EVA-R-3, 1986.	\$65,000.00
▪ <u>Unsteady Flow Analysis of Advanced Propellers</u> , NASA Lewis Research Center 21455-70620, GHO R9, NAG3-483, 1983-1984, 1985-1986.	\$62,553.00
▪ <u>A Study of Acoustic Excitation</u> , NASA Lewis Research Center, 21455-20620, GHO R10, NCC 3-49, 1985-1986.	\$9,798.00
▪ <u>Synthetic Battery Cycling</u> , NASA Lewis Research Center, 21445-20620, GHO R7, NCC 3-31, 1983-1984.	\$16,916.00
▪ <u>Solar Energy Storage (A Direct Contact Phase Change Process)</u> , CSU Development Foundation, 21348-40620, 1982-1983.	\$ 5,000.00
▪ <u>Interactive Simulation and Data Analysis Applied to Electrochemical Systems</u> , NASA Lewis Research Center, 21436-60620, GHO R4, NCC 3-16, 1981-1982.	\$16,362.00
▪ <u>Study of a Heat and Momentum Transfer of Non-Newtonian Fluids in a Pipe Flow</u> , CSU Development Foundation, 21320-80620, 1979-1980.	\$ 3,158.00

## OTHER GRANTS

- Space Grant Colleges/Consortia NASA's National Space Grant College and Fellowship Program, Ohio Aerospace Institute, Proposal Co-Authors: J. Essman, Ohio University, A. Faghri, Wright State University, B. Ghorashi,

Cleveland State University, R. Irey, University of Toledo, L.A. Kennedy, Ohio State University, J. Padovan, University of Akron, D.C. Stouffer, University of Cincinnati, P.J. Sweeney, University of Dayton, J. Wallace, Case Western Reserve University, Funding for Five Years:

Fiscal Year 1989	\$75,000.00
Fiscal Year 1990 (funding to support fellowships)	\$100,000.00
Subsequent Years per year (subject to matching funds)	\$225,000.00
▪ <u>Fourth International Conference, Laser Anemometry-Advances and Applications</u> , Proposal Co-Authors: Bahman Ghorashi, Cleveland State University, Alexander Dybbs, Case Western Reserve University, Sponsors:	
Ohio Aerospace Institute	\$ 7,000.00
NASA, Lewis Research Center	\$20,000.00*
Cleveland State University	\$ 5,000.00
Case Western Reserve University	\$ 5,000.00
▪ <u>OAI/CSU Campus Office</u> , Ohio Aerospace Institute.	\$ 4,000.00
▪ <u>OAI Graduate Fellowship</u> , Master's Student: Chau Huang, Ohio Aerospace Institute 20513-10620, 1990-1991.	\$ 8,550.00

### Grants in Partnership with Other Colleges/Institutions

- Choose Ohio First Scholarship Program – participated in partnership with CSU College of Science and other institutions (CWRU). The partnership received approximately \$2,000,000 dollars over a five-year period, July 2008.

\* Through Research Focus Groups

## THESES SUPERVISED AND DIRECTED RESEARCH

### Agile Manufacturing / Management of Technology Research

- Energizer Battery Company's Journey to Become a Lean Enterprise, Melissa A. Britton, Master's Project, 2006.
- Inter-firm Collaboration Strategies – A Review of Biotechnology Industries, Kiran Kumar Voruganti, Masters Thesis, 2005.
- Agility Assessment in a Manufacturing Plant, Scott Maruna, Master's Thesis, 2003.
- Determination of Intellectual Output from A Unit of An Enterprise Architecture In Response to A Change In Modality - Process Modeling and Simulation, Jeff Stafford, Research Project, 2002.
- Agility and Strategic Planning as Applied to the Adhesive Industry, Nitin Das, Masters Thesis, 1999.
- Just-In-Time Applied to Chemical Process Industry, Rahul Rajaram, Master's Thesis, 1998.
- Traditional R&D VS. Team Integration R&D, Amit Shah, Master's Thesis, 1998.
- Agile Manufacturing Practices in the Specialty Chemical Industry, JIT, Belal Shadid, Master's Project, 1998.
- Agile Manufacturing, System Focus Applied to Chemical Industry, Dean Mullen, Master's Project, 1998.
- Agile Manufacturing, System Focus Applied to Chemical Industry, Lisa Young, Special Topic Project, 1998.
- Agile Manufacturing / a Study of the Needs of Small and Intermediate Size Industries, Allen Guisinger, Master's Thesis, 1997.
- Applying Agile Manufacturing Principles and JIT to Chemical Process Industry, Amjad Abu-Ali, Master's thesis, 1997.
- Agile Manufacturing Gap Assessment Program, Scott Maruna, Special Project, 1997.
- Global Sourcing, Jitendra Jain, Master's Project, 1995.
- Application of Quality Management Techniques to Chemical Engineering, Mary Ann Jamiol, Master's Project (1993).

### Fluid Mechanics, Combustion and Propulsion Research

- Analysis and CFD Study of Gas Transport through a Proton Exchange Membrane Fuel Cell (PEMFC) Electrode, Phaneendra Uppalapati, Masters Thesis, 2006.
- Thin Film Rupture on a Flat Plate as Influenced by Marangoni Effects, David Kost, Master's Thesis, 2003.
- The Effect of Turbulent Structures on Transport in Industrial Ventilation Systems, John Varley, Master's Project, 1996.
- Determination of the Effect of Properties of 20% Glass-Filled/Nylon 6, 6, Compounded on Two Different Types of Twin Screw Extruders, Sudhir Javangula, Master's Project, 1994.
- A Study of Flow Pattern in a Proposed Circular Combustor for the HSCT Application, Giorgio McBeath, Doctoral Project (1993).
- Flow and Mixing Pattern in a Lean Pre-Mixed, Pre-Vaporized Combustor under Advanced Supersonic Cruise Cycles, Chi Lee, Doctoral Project (1993).
- Fuel Injection and Flow Mixing in a Circular Combustor, Chau Hoang, Doctoral Project (1990).



- Modeling of Flow in a Proposed Circular Combustor, Henry Lewendoski, Graduate Student and Sastry Taruvai, Research Assistant (1989).
- Fluid Dynamics and Design Considerations of an Internal Combustion Engine with Chemically Reactive Flow, (1988, NASA-Lewis).
- Development of an Image Processing and Analysis Technique for Utilization in Turbulence and Combustion Research, Chowen Wey, Research Associate (1988).
- Filtration of Oily Sludge, Richard B. Stalzer, Master's Project (1986).
- Image Analysis of the Stereoscopic Views of the Turbulent Structures in a Combustion Process, (1987, NASA-Lewis).
- Atmospheric Dispersion of Pollution in Complex Terrain, Daniel R. Straitiff, Master's Project.
- Blood Flow in and Adjacent to an Artificial Heart System, Swaminathan Jayaraman (1987).
- A Study of Performance of Lubricants under High Shear Rates, C.J. Huang (1987).
- Analytical Investigation of Bubble Generation for Controlled Porosity Glasses, W.J. Kim, Graduate Student, 1986. M. Yekta-Fard, Post Doctoral Research Associate (1986).
- Heat Transfer to a Turbulent Non-Newtonian Fluid Flowing in a Heated Horizontal Pipe, P. Wangskarn, Doctoral Project (1986).
- Viscometry Measurements, Ruth Crowl, Senior Project.
- Viscosity Measurements, a Comparison between Capillary and Rotational Viscometer Data, Mark Freedman, Master's Project (1986).
- Unsteady Flow Analysis of Advanced Propellers, Venod G. Mengle, Post-Doctoral Research Associate (1986)
- Acoustic Excitation Phenomenon, Upstream Excitation of an Axisymmetric Jet, Ganesh Raman, Master's Thesis (1986).
- A Fundamental Study of Fluid Jet Characteristics, Ravindra Deshpande and Clair Whiting, Research Assistants (1988).
- Analogy among Heat and Momentum Transfer for Non-Newtonian Fluids in Laminar Flow through Pipes, David Hirsch, Master's Thesis (1981).

### **Fluid Flow and Heat Transfer Research**

- Thermal Energy Storage, Clair Reynolds, Master's Project and Scott Swan, Senior Project.
- Thermal Energy Storage, Direct Contact-Phase Change Process, Jamal Duqum, Master's Thesis (1979).
- Thermal Energy Storage-Heat Transfer and Calorimetric Studies, Antonie Wehbe, Master's Thesis (1984).

### **Other Research Projects (Simulation, Data Analysis, Design)**

- Synthetic Battery Cycling, Eric Heylman, Research Assistant (1984).
- Flat Plate Solar Collectors, Design Characteristics and Theory of Operation, Ralph Goshe, Master's Project (1983).
- Interactive Simulation and Data Analysis Applied to Electrochemical Systems, Eric Heylman, Research Assistant (1982).

## **RESEARCH RELATED ACTIVITIES**

### **Formation of the Agile Manufacturing Research Group (AMRG)**

Founder and Coordinator of the Agile Manufacturing Research Group (1992-2006). This research group involved many graduate students, industry participants and several colleges who collaborated in various research projects and workshops. The industry participants were: Richard Strehle, Pasquale Digirolamo, Kathi Dierks-Rancer, John Ryan, Gerry Nieman, Brian Magloski, Robert Dirienzo and Jeffrey Paliwoda of *B F Goodrich Aerospace Division*, Jeffrey Michaels of *B F Goodrich Specialty Chemicals Division*, John Varley, Scott Jordan and Robert Scherry of *Brewer-Garrett Company*, Aimee Mutere and Dan Flowers of *Research Organics Company*, Ferro Corporation, Avery Denison Corporation, Fasson Corporation and Pat Vano of *Loctite Corporation*.

### **Formation of the Fluid Flow Research Group**

Founder and coordinator of the Fluid Flow Research Group. This group consisted of numerous M.S., doctoral and post-doctoral students and faculty from various universities who collaborated on fluid flow related projects (1989-2006).

- Founder and Coordinator of the College of Engineering "Fluid Flow Research Group Seminar Series," (1988 - 1992) an Interdepartmental Seminar Series in the Area of Fluid Mechanics.

### **Other Research Related Activities**

- Member of the Technical Program Advisory Committee, Advanced Manufacturing Center, Cleveland State University, 1985.
- Member of the Graduate College Research and Creative Activities Committee, Cleveland State University, 1982-

1984.

- Member of the Advisory Committee on Funding Graduate Student Research, Ohio State University, 1978.

### **AMERICAN SOCIETY OF MECHANICAL ENGINEERS CONFERENCE CHAIRMANSHIP**

Chairman, ASME, Fourth International Conference on Laser Anemometry-1991, with Alexander Dybbs as co-chairman.

### **SCIENTIFIC CONFERENCE AND SYMPOSIUM SESSION CHAIRMANSHIPS**

- Session Chairman, Agility in Manufacturing, Portland International Conference on Management of Engineering and Technology, Portland, Oregon, July 1997.
- Session Chairman, Measurement Techniques, Session III, 4<sup>th</sup> Miami International Symposium on Multi-Phase Transport and Particulate Phenomena, December 1986.
- Invited Session Chairman, 33rd Heat Transfer and Fluid Mechanics Institute, Scheduled for June 1993.
- Session Chairman, Session A1: Heating/Cooling in Commercial Buildings, Solar Collectors, 8th International Conference on Alternative Energy Sources, 1987.
- Invited by the Case Western Reserve University, Professor Alexander Dybbs, to be on the Organizing Committee of the Fourth International Conference, Laser Anemometry - Advances and Applications.
- Invited Session Chairman, 32nd Heat Transfer and Fluid Mechanics Institute, June 1991.
- Session Chairman, Sessions 2.C and 4.C, Chemical Reactions and Combusting Flows, Fourth International Conference on Laser Anemometry, August 1991.

### **NATIONAL TASK FORCE MEMBERSHIP**

- Member of the Technology and Manufacturing Competitive Task Group. Members of the task group include the American Institute of Chemical Engineers, The American Chemical Society and The Chemical Manufacturer's Association. The TMCTG will consider the input provided by these task forces to develop a road map for industry and government to follow to help create a unified vision for the industry.
- Member of the Cleveland Panel of the National Center for Postsecondary Improvement, A collaborative research venture; Stanford University, University of Pennsylvania and University of Michigan, 1997.

### **REVIEWER (JOURNALS AND SYMPOSIUMS)**

- American Chemical Society, the Petroleum Research Fund.
- Invited Reviewer, Industrial and Engineering Chemistry
- Research, American Chemical Society, 1988.
- Invited Reviewer, International Journal of Energy Systems, 1985.
- AIAA Air Breathing Propulsion Technical Committee Session, AIAA 27th Aerospace Sciences Meeting, 1988.
- Fourth International Conference on Laser Anemometry, Cleveland, Ohio, August 1991.
- NASA Small Business Innovation Research (SBIR) Commercial Potential Review, and SBIR phase II Commercial review, 1998.

### **RESEARCH WORKSHOPS**

- Arranged an Agile Manufacturing Workshop at Cleveland State University. Participants included industry representatives as well as CSU students and faculty, August 1997.
- Arranged an Imaging Research Workshop through the Ohio Aerospace Institute. The workshop included guest speakers from Stanford University and The Ohio State University as well as presentations by imaging researchers from universities, industry and research laboratories. A booklet of proceedings of the invited lectures and abstracts was then prepared and distributed to the workshop attendees.
- Participated in the planning stage of a three-day workshop which included short courses by Stanford University and Case Western Reserve University faculty members, August 1990, preceding the International Conference on Applications of Laser Techniques to Fluid Mechanics.

### **RESEARCH LABORATORY DEVELOPMENT**

- Complete development of two separate systems for Thermal Energy Storage and Transport Phenomena studies. These systems include flow loops, test sections and data acquisition capabilities.

- An intra-departmental proposal for creation of a graduate Rheology Laboratory and creation of a Transport Phenomena Laboratory. This proposal was approved by the Department. Equipment and facilities include a Laser Doppler Velocimetry System, an Anemometer unit, a completed Haake Viscometer System (Rotovisco), a bench scale wind tunnel and flow visualization equipment.

### **SPACE UNIVERSITY/CONSORTIA**

Appointed member to the Proposal Writing Committee of the Ohio Aerospace Institute to prepare the Space University/Consortia proposal.

### **INTER-UNIVERSITY RESEARCH RELATED ACTIVITIES**

Appointed member to the Research Committee of the Ohio Aerospace Institute to represent Cleveland State University. The committee was composed of one representative from each of the following institutions: University of Cincinnati, University of Akron, Ohio University, University of Dayton, The Ohio State University, Wright State University and University of Toledo, 1988.

### **COOPERATIVE RESEARCH WITH CALIFORNIA STATE UNIVERSITY- SACRAMENTO**

Initiated a cooperative research project with the College of Engineering (Dean Donald H. Gillott) and the Mechanical Engineering Department (Professor Fredrick Reardon) at the California State University, Sacramento, 1989-1991.

### **JOINT COOPERATION WITH CASE-WESTERN RESERVE UNIVERSITY**

A cooperative effort with CWRU to hold an international conference on Application of Laser Techniques to Fluid Mechanics. The conference took place in Cleveland in the Summer of 1991.

### **MASTER'S AND DOCTORAL THESIS COMMITTEES**

37. Patrick Callihan, 2010, "A Major Study of American Compared with Japanese Automotive Industry – Their Strategies Affecting Survivability", Doctoral Dissertation, Committee Member, August 2010.
36. Phaneendra Uppalapati, 2004, "Analysis and CFD Study of Gas Transport through a Proton Exchange Membrane Fuel Cell Electrode", Masters Thesis, Major Advisor.
35. Sarah Milliron, 2005, "Understanding AFP (Anti-Freeze Proteins) Interactions with Cell Membrane", Masters Thesis, Committee Member.
34. Kiran Kumar Voruganti, 2004, "Agility Applications in Enterprise Architecture", Masters Thesis, Major Advisor.
33. Scott Maruna, 2003, "Agility Assessment of a Paint Manufacturing Plant", Master's Thesis, Major Advisor.
32. David Kost, 2002, "Thin Film Rupture on A Flat Plate as Influenced by Marangoni Effects", Master's Thesis, Major Advisor.
31. Pijarn Ineure, 2001, CSU "Heat Transfer to A Thin Film in Presence of Electric Fields", Doctoral Dissertation.
30. Nitin Das, 1999, CSU "Agility and Strategic Planning as Applied to Adhesive Industry", Masters Thesis, Major Advisor.
29. Amit Shah, 1998, CSU "Agile Manufacturing-System Focus", Masters Thesis, Major Advisor.
28. Amjad Abu-Ali, 1997, CSU "Agile Manufacturing- Specialty Chemical Industry", Masters Thesis, Major Advisor.
27. Rahul Rajaram, 1998, CSU, "Agile Manufacturing-Specialty Chemical Industry", Masters Thesis, Major Advisor.
26. Allen Guisinger, 1997, CSU "Agile Manufacturing", Masters Thesis, Major Advisor.
25. Sudhir Javangula, "Mixing of Glass Fibers with Nylon, 6, 6", Major Advisor.
24. Jane B. Romal, 1995, CSU, Doctoral student, "JIT and Accounting Lag as Applied to U.S. Manufacturers".
23. Donglin Peng, 1994, CSU, Doctoral Student.
22. Chau Hoang, 1990, Major Advisor, CSU, Doctoral Student, "Fuel Injection and Flow Mixing in a Circular Combustor."
21. Jinkook Lee, 1990, CSU, Doctoral Student, "Convective Wall Plume in Power-Law Fluids."
20. Chi Lee, 1989, Major Advisor, CSU, Doctoral Student, "Flow and Mixing Pattern in a Lean Pre-Mixed, Pre-Vaporized Combustor under Advanced Supersonic Cruise Cycles."
19. Henry Lewendoski, 1989, Advisor, CSU, Doctorate, "Numerical Modeling of the Flow Pattern in the Ghorashi Circular Combustor."
18. Giorgio McBeath, 1989, Major Advisor, CUS Doctoral Student, "A Study of Flow Pattern in the Ghorashi Circular Combustor Prototype."
17. James R. Yuko, 1988, CSU, Master's, "Heat Transfer in a Laminar Cylindrical Wall Jet."

16. Timothy J. Sullivan, 1988, CSU, Master's, "Simulating Transitional Flow and Heat Transfer over Flat Plates and Circular Cylinders Using a K-E Turbulence Model."
15. Ravindra Deshpande, 1987, Co-Advisor, 1987, CSU, Master's, "A Fundamental Study of Fluid Jet Characteristics."
14. Thoyagarajan Nagarajan, 1987, CSU, Doctoral Student, "Solidification Processing of Lf-Caf<sub>2</sub> Alloys."
13. Swaminathan Jayaraman, 1987, Major Advisor, CSU, Master's, "Blood Flow in and Adjacent to an Artificial Heart System."
12. Sami Sarrouh, 1986, CSU, Master's, "Effect of Streamline Curvature on Turbulent Convective Heat Transfer."
11. P. Wangskarn, 1986, Major Advisor, CSU, Doctoral Student, "Heat Transfer in Unsteady Turbulent Flows in Turbomachinery."
10. Ganesh Raman, 1986, Major Advisor, CSU, Master's, "Thermal Energy Storage-Heat Transfer and Calorimetric Studies."
9. C.J. Huang, 1986, Co-Advisor, CSU, Doctoral Student, "A Study of Performance of Lubricants under High Shear Rates."
8. A. Ameri, 1986, CSU, Doctoral Student, "Heat Transfer in Unsteady Turbulent Flows in Turbomachinery."
7. Kyung Ahn, 1986, CSU, Doctoral Student, "Space Station Solar Receivers Design (Developing A Computer Model to Simulate Solar Receivers)."
6. James Makki, 1986, CSU, Doctoral Student, "Vapor Phase Lubrication of High Temperature Surfaces."
5. Antoine Wehbe, 1984, Major Advisor, CSU, Master's, "Thermal Energy Storage-Heat Transfer and Calorimetric Studies."
4. Amir Alhaddad, 1983, CSU, Doctoral Student, "Heat Transfer in Pulsatile Flows."
3. Dalamadi Vishwanath, 1981, CSU, Master's, "Simulation Analysis of Pulse Combustion Burner."
2. David Hirsch, 1981, Major Advisor, CSU, Master's, "Analogy among Heat and Momentum Transfer for Non-Newtonian Fluids in Laminar Flow through Pipes.
1. Jamal Duqum, 1979, Major Advisor, CSU, Master's, "Thermal Energy Storage, Direct Contact Phase Change Process."

## RESEARCH AND PEDAGOGICAL PROPOSALS

Submitted 48 research and pedagogical proposals. Details are available. Additionally, many non-research related proposals were submitted.

## NATIONAL SPACE GRANT PROPOSAL

Participated in the proposal writing task of the Ohio Aerospace Institute (OAI) as an appointed member representing the Cleveland State University. The nine participating universities, submitting as a consortium through the OAI, prepared a proposal to NASA in response to its announcement for consortia of colleges and universities to be designated as Space Grant Institutions thus entitling it to annual funding for research, curriculum development and graduate fellowships.

## RESEARCH COLLABORATIVE PROPOSALS WITH OTHER INSTITUTIONS

- Flowfield Measurements and Characterization Through Diagnostics, Imaging and Visualization Techniques, in Collaboration with Colleagues from The Ohio State University, Case Western Reserve University, University of Akron and University of Cincinnati.
- A Center for Diagnostics, Imaging and Visualization Research and Training, in Collaboration with Colleagues from Case Western Reserve University and The Ohio State University.

## RESEARCH COLLABORATIVE PROJECTS WITH OTHER UNIVERSITIES AND INSTITUTIONS

- Collaborative projects with academia: A. Dybbs, Case Western Reserve University, F. Reardon, University of California – Sacramento, J. Essman, Ohio University, A. Faghri, Wright State University, R. Irey, University of Toledo, L.A. Kennedy, Ohio State University, J. Padovan, University of Akron, D.C. Stouffer, University of Cincinnati, P.J. Sweeney, University of Dayton, J. Wallace, Case Western Reserve University.
- Collaborative Projects with research institutions: NASA, Battelle Memorial Institute, Advanced Manufacturing Center.

## INDUSTRIAL RESEARCH COLLABORATION

The following companies and research institutions have participated in various research and project initiatives:

- Lubrizol Corporation
- Brewer-Garrett Corporation

- B.F. Goodrich Specialty Chemicals
- Goodrich Aerospace
- Research Organic
- Loctite Corporation
- Avery International
- NASA
- General Electric

### **PARTIAL LIST OF HONORS AND AWARDS – [abbreviated]**

- Was presented with the Leadership Excellence Coin by Lt. Colonel Steve Peterson, TTU Army ROTC, Feb. 28, 2015.
- Fenn College of Engineering Recognition plaque for achievements as Dean, Sept. 22, 2011, College of Engineering Faculty Meeting, specifically for:
  - *Formation of Fenn Academy and increase in the undergraduate and graduate enrollment and higher quality first year students.*
  - *Preparing the College's strategic plan for the years 2010 – 2015.*
  - *Initiating FRDI (Fenn Research & Development Institute).*
  - *Establishing faculty and staff awards.*
  - *Delivering annual State of the College address and hosting student awards/steel ring ceremony.*
  - *Increasing major gifts and scholarship funds.*
  - *Adding new faculty*
  - *Co-op program accreditation and internationalization of co-op.*
- Certificate of Appreciation for Excellent Service, Participation and Leadership on the Cleveland Engineering Society Board of Directors, June 30, 2011. [Kenneth Alfred, Executive Director and David Peace, President]
- 2006 CSU Administrative Award in recognition of outstanding administrative achievements.
- Lakewood Board of Education, publicly recognized on behalf of Fenn Academy and Fenn College of Engineering Scholarship Program, December 03, 2007.
- The 2006 Northern Ohio Live magazine's Awards of Achievement finalist and "Honorable Mention" for the formation of Fenn Academy. "The Best of this region's Best! Awards of Achievements is Northern Ohio Live's signature publication and black-tie event recognizing outstanding individuals and organizations who have made a special contribution to the quality of life in the region."
- Merit Recognition Award for Teaching, Research, and Contributions to the Profession, Cleveland State University, 2005."To be eligible for the Merit Recognition Award, a faculty member must be currently engaged in productive "teaching, research, creative achievements, or contributions to the profession" and must demonstrate a record of achievement over the last three years".
- 2003 Distinguished Faculty Research Award, Cleveland State University, 2003.
- Letter of commendation from Cuyahoga County Commissioner Peter Lawson Jones: "You are to be commended for your outstanding achievements in the field of chemical and bio-medical engineering as well as your role in mentoring many graduate and post-graduate students. Your work will ensure that Greater Cleveland is recognized as a vibrant scientific and technical research center." October 21, 2003.
- Resolution No. 10/22/03 (03-55) by the Board of Trustees of Cleveland State University congratulated Bahman Ghorashi.
- Resolution No. 93-12-19-E ... by the Board of Township Trustees of Hudson Township, Summit County, Ohio,"... Be it resolved by the Board ... that Bahman Ghorashi who has served this community on the Steering Committee for Architectural/Design Standards has distinguished himself in volunteer service to Hudson Township and is deserving of this expression of gratitude for such service and the many contributions made to this community as a consequence thereof."
- Certificate of Commendation from The Ohio House of Representatives, the 112th General Assembly of Ohio "...A remarkable individual, combining community concern and commitment with selfless initiative to become a dynamic force in the university area ... with admirable dedication you have directed yourself toward meaningful involvement in your field of study and research and as a result you have gained the respect of the entire community ... your many accomplishments have earned you the esteem of all those with whom you have worked and have helped to guarantee a high level of success for all organizations with which you have been involved ... We congratulate you for your contributions and salute you as one of Ohio's finest citizens." Representatives Mike Stinziano and Vern Riffe, Speaker of the Ohio House of Representatives.

- Certificate of Appreciation – In recognition of your outstanding support of Career Services Center, CSU – Exciting Careers in the 21<sup>st</sup> Century – presented by Paul Klein, October 3, 2008.
- Recognized by Dr. Michael Salkind, President of the Ohio Aerospace Institute as "One of the key participants in the creation of OAI".
- Congratulations to Associate Dean Bahman Ghorashi from CSU President, Dr. Michael Schwartz during his University President's Report to the Faculty Senate on April 19, 2006: "What he has been able to achieve is really very good and may be a model for the rest of us."
- Ohio Aerospace Institute Recognition Award, as a Focus Group Chairman.
- The National Aeronautics and Space Administration and the American Society for Engineering Education Certificate of Recognition for research contributions made through the 1987 Summer Faculty Fellowship Prog.
- The NASA and the American Society for Engineering Education Certificate of Recognition for research contributions made through the 1988 Summer Faculty Fellowship Program.
- Nominated by Cleveland State University President, Dr. Walter Waetjen, Vice President and Provost, Dr. John Flower, Dean of Graduate College, Dr. Georgia Lesh-Laurie and Chemical Engineering Department Head, Dr. George Coulman for the Dreyfus Teacher-Scholar Award for "Young faculty members with exceptional promise who combine interest and demonstrated ability in teaching and performing imaginative research."
- Letter of Appreciation from the Hudson Township Trustees Chairman, Mr. Daniel Moos, for community services performed as a member of the Hudson Township Architectural Design Guideline Steering Committee.
- Letter of Appreciation from Dr. Harold Allen, Provost and Senior Vice President, Cleveland State University, "I continue to be most impressed by your efforts and am very proud of what you have accomplished".
- Letter of Appreciation from Dr. Ted Keith, Interim Director of Research and Academic Affairs at the Ohio Aerospace Institute for service to OAI as an On-site Faculty during the January to June 1990 period, "...over the past year you have done a marvelous job of assisting with the OAI program. There is no question that the DIV Focus group would not have been able to get off to its 'flying start' were it not for your enthusiasm. What is more, your work as a campus coordinator has been exemplary. Speaking for OAI, we deeply appreciate your efforts and obviously look forward to your continued participation."
- National Aeronautics and Space Administration - American Society of Engineering Education Summer Faculty Fellowship, Case Western Reserve University - Lewis Research Center Program.
- Collateral Faculty, Ohio Aerospace Institute.
- Letter of Appreciation from Dr. Gitanjali Kaul, Vice Provost, "for assisting the Office of Institutional Research in recruiting first-year students to participate in the Collegiate Learning assessment (CLA) testing ...Individuals like yourself who go beyond the call of duty to offer time and energy to projects like CLA enable CSU...reach its continuing goal of becoming a student-focused center of scholarly excellence by providing an accessible and exceptional education to all.", 2005.
- Letter of Commendation from Dr. Jules B. LaPidus, Vice Provost and Dean of Graduate School, The Ohio State University.
- Graduate School Leadership Award from the Graduate School of the Ohio State University.
- Robert's Fellowship, Chemical Engineering Department, Ohio State University.

#### **MEDIA - RESEARCH RELATED RECOGNITIONS AND PROFILES**

- *Crain's Cleveland Business*, January 05, 2004, "CSU prof's work earns accolades, funds".
- *Northern Ohio Live Magazine*, April 1991.
- *On Campus*, Cleveland State University newspaper (several articles).
- *ChEdition*, CSU Chemical Engineering Department newsletter, Vol. 1, No. 1, 1989.
- *Focus on Fenn*, Fenn College of Engineering newsletter, Vol. 1, No. 2, 1991.
- *News Release from Whelan Communications, Inc.* to all major news agencies nationwide (Laser Conference), July 1991.
- *Cleveland Plain Dealer*, Cleveland's daily newspaper, August 6, 1991.
- *OAI Update*, Ohio Aerospace Institute newsletter, Vol. 2, No. 4, 1991.
- *Small Business News/Cleveland*, August 1992.



## INVITED LECTURES AND SEMINARS

### U.S. Academia

- Stanford University, Aeronautics and Astronautics Engineering Department, Palo Alto, California.
- University of California- Berkeley, Mechanical Engineering Department, Berkeley, California.
- University of Akron, Chemical Engineering Department, Akron, Ohio.
- The Ohio State University, Chemical Engineering Department, Columbus, Ohio.
- University of Illinois at Chicago, Dep. of Pharmaceutics, School of Pharmacy, Chicago, Illinois.
- Youngstown State University, Chemical Engineering Department, Youngstown, Ohio.
- California State University, Mechanical Engineering Department, Sacramento, California.
- Columbia University, Accelerating Social Innovation in Engineering Education, New York, New York, Fall 2011.

### International Academia

- University of Oxford, Department of Engineering Science, Oxford, England.
- Cambridge University, Department of Engineering, Cambridge, England.
- University of Manchester, Department of Engineering, Simon Engineering Laboratories, Manchester, England.
- Imperial College of Science and Technology, Department of Aeronautics, London, England.

### Research Centers

- NASA Kennedy Space Center, STS-129 STEM Workforce Forum, November 15, 2009, Cocoa Beach, Florida.
- NASA Glenn Research Center, Combustion Branch.
- NASA, Lewis Research Center, Joint Institute for Aerospace Propulsion and Power
- NASA, Lewis Research Center, Aerothermochemistry Branch.
- NASA, Lewis, Internal Fluid Mechanics Division, Turbulence Modeling Group, Lewis Working Group Seminars
- NASA, Lewis Research Center, Propulsion Systems Division, Combustion Technology Branch.

### Industry

- AMOCO Research Center, Exploratory Polymer Group, Naperville, Illinois.
- B.F.Goodrich Specialty Chemicals Division, Brecksville, Ohio.
- Ford Motor Company, Scientific Research, Chemistry Department, Dearborn, Michigan.
- BP America, Materials Division Director and the Imaging Group Director, Warrensville Research Center, Warrensville, Ohio.

## PRESENTATIONS AT SYMPOSIUMS AND CONFERENCES

- Portland International Conference on Management of Engineering and Technology.
- American Institute of Chemical Engineers Annual Conference.
- American Society of Mechanical Engineers Annual Conference.
- American Chemical Society, Central Region.
- Society of Engineering Science.
- Rolla Biennial Symposium on Turbulence.
- International Symposium on Combustion.
- Miami International Conference on Alternative Energy Sources
- Ohio Academy of Science Annual Conference.
- International Symposium on Multi-Phase Transport and Particulate Phenomena.
- Heat Transfer and Fluid Mechanics Institute Conference.
- American Society for Engineering Education, North Central Section Conference.

## INTERNATIONAL EXPERIENCE

(Presentations, Invited Lectures and Attendance at Workshops and Symposiums)

- Sydney, Australia, 1992.
- Taipei, Taiwan, 1991.
- Cambridge, England, 1987
- Orlean, France, 1990.

- Oxford, England, 1987.
- Lisbon, Portugal, 1990.
- London, England, 1987.
- Toronto, Canada, 1988.
- Manchester, England, 1987.

## RESEARCH AND TEACHING SUPERVISION

1978 – 2013 Supervision of over 80 graduate Research Assistants, Teaching Assistants, Laboratory Assistants, Master's and Doctoral Level, graduate students working on their projects, advanced degrees, and Post-Doctoral Research Associates.

## ACADEMIC ADVISING

1978 - 2000 On average, over the first twenty-two years, approximately 20 undergraduate students and several graduate students per academic term. Undergraduate advising was assigned to one faculty after 2000.

Advising of NASA employees who were interested in participating in the Chemical Engineering Graduate Program at CSU, Fall 1986, Summer 1987.

## ACTIVITIES IN PROFESSIONAL ORGANIZATIONS

### Local Professional Organizations

- Cleveland Engineering Society, Member of the Management of Technology Division, 1995.
- Cleveland State University Representative to the Cleveland Section of the American Institute of Chemical Engineers, 1980-1984.
- Faculty Advisor to the Student Chapter of the American Institute of Chemical Engineers, Cleveland State University, 1979-1982.
- Engineer's Week Advisor, Chemical Engineering Department, Cleveland State University, 1979-1982, and 1999-2000 when the student group received the first prize both in the local as well as the regional competitions

### National Professional Organizations

- Manufacturing Operations Group, American Institute of Chemical Engineers - The task force met through teleconferences, and meetings which took place in Washington, D.C. Professor Ghorashi worked with members from Phillips Petroleum Company, Eastman Kodak, Hoechst Celanese, Air Products, BP Chemicals, Dow, Dupont Medical Products, TRW Safety Systems, Scios Nova Inc., Shell Chemical Company, Mallinckrodt Chemical Company and a legal counsel.
- International Activities Committee, American Institute of Chemical Engineers, past member of the AIChE's International Activities Committee.
- National Center for Post-secondary Improvement, member of the Cleveland panel. NCPI is a collaborative research venture among Stanford University, University of Pennsylvania and University of Michigan. Dr. Ghorashi is a participant in the Cleveland panel of NCPI.

## PROFESSIONAL SERVICES

Limited participation in the development of the NASA/Battelle Center for Commercialization of Space. Participation in meetings between university and industrial counterparts, 1986.

## POST-DOCTORAL AND RESEARCH ASSOCIATES

- Dr. Venod G. Mingle, Ph.D., Cornell University, "Unsteady Flow Analysis of Advanced Propellers," 83-84.
- Dr. Mohsen Yekta-Fard, Ph.D., Michigan Tech., "Analytical Investigation of Bubble Generation and Related Bubble Dynamics for Controlled Porosity Glasses," 1986.
- Dr. Chowen Wey, Ph.D., Georgia Tech., "Development of an Image Processing and Analysis Technique for Utilization in Turbulence and Combustion Research," 1988 - 1991.

## GRADUATE STUDENTS AND RESEARCH ASSISTANTS

Supervised 43 graduate students and Research Assistants



## TEACHING

### **2005 CSU Merit Recognition Award for Teaching, Research, and Contributions to the Profession**

“To be eligible for the Merit Recognition Award, a faculty member must be currently engaged in productive teaching, research, creative achievements, or contributions to the profession” and must demonstrate a record of achievement over the last three years”.

Nominated by Cleveland State University President, Dr. Walter Waetjen, Vice President and Provost, Dr. John Flower, Dean of Graduate College, Dr. Georgia Lesh-Laurie and Chemical Engineering Department Head, Dr. George Coulman for the Dreyfus Teacher-Scholar Award for "Young faculty members with exceptional promise who combine interest and demonstrated ability in teaching and performing imaginative research."

### **LABORATORY DEVELOPMENT AND CREATIVE TEACHING ACHIEVEMENTS**

- Modification of several laboratory experiments, namely, Mixing (1985), Kinetics and Conduction Heat Transfer (1983).
- Initiation and Development of Solar Energy Laboratory Experiments for Undergraduate Instruction.
- Development of several studio techniques for teaching of a media technical course in cooperation with Cleveland State University's Instructional T.V. Coordinator, Mr. George Fournier, 1979.

### **WEB-BASED COURSE DEVELOPMENT**

Development of modules to be offered in Spring Semester 2004 on the web for prospective students who cannot attend the campus due to distance or scheduling conflicts.

### **TEACHING AND EDUCATIONAL PUBLICATIONS**

(Please see the publications section for additional information):

- Lean and Agile, A Supplementary book for the Undergraduate / graduate Agile Manufacturing class, Cleveland State University-Barnes & Nobles Bookstore.
- Lecture Notes in Fluid Mechanics, A Supplementary book for the Undergraduate Fluid Mechanics class, Cleveland State University-Barnes & Nobles Bookstore.
- Transport Phenomena, A Supplementary book for the Undergraduate Chemical Engineering Transport Phenomena class, Cleveland State University, to become available at Barnes & Nobles Bookstore, In Press.
- A Systematic Approach for Long-Range Laboratory Development
- Teaching of Engineering Courses Through A Television Network System
- Teaching of a Rheology Course in a Television Studio With Live Class Participation

### **TEACHING/LEARNING WORKSHOPS**

- On a self-initiative basis, organized the First Teaching Workshop in the recent history of Fenn College (at least the last twenty years). Dr. Rosemary Sutton, professor of Curriculum Foundation and CSU Teaching Award Winner was invited as a facilitator and the workshop was conducted successfully in Spring of 1995. It attracted engineering faculty and students as well as faculty from other CSU colleges. The evaluation results collected and compiled by Dr. Sutton rated Professor Ghorashi very highly in his effectiveness. Dr. Ghorashi's rating on his part "How Can the College of Engineering Support Excellence in Teaching" was rated: exceptionally useful.
- As Associate Dean, organized the second “Teaching/Learning Workshop” for engineering faculty on April 27, 2006. The workshop speaker was Dr. William Beasley who covered: The Top Ten Requirements of Good Teaching, The Seven Principles of Good Instruction, The First Day of Class, and The Role of Assessment. The workshop was attended by many faculty and lasted over an hour beyond its allotted time to answer all the questions.

### **Courses Taught at CSU**

1. Separation Processes (CHE 431), Fall 1978, 1979, 1980, 1981, and 1982.
2. Chemical Engineering Thermodynamics (CHE 323), Winter 1980.
3. Transport Phenomena (CHE 375), Summer 1980, Fall 93,96,97,98,99, Fall 2002, Fall 2004, Fall 2012.
4. Material and Energy Balances (CHE 202), Summer 1980.
5. Special Topics, Solar Engineering and Rheology (CHE 490).
6. Process Device & System Synthesis (CHE 204), Summer 1985.

7. Unit Operations Laboratory I (CHE 411), Fall 1985 and 1987, (CHE 420, Semester Course) Spring Semester
8. Unit Operations Laboratory II (CHE 412), Spring 1979, 1980, 1982, 1984, 1987, 1996, 1998.
9. Principles and Applications of Rheology (CHE 632/595), Winter 1979, Fall 1983, Spring 1988, Spring 1993,
10. Advanced Transport Phenomena (CHE 606/506/ESC 721), Winter 1979, 1981, 1982, and Fall 1983.
11. Principles of Solar Engineering (CHE 461), Spring 1981.
12. Fundamentals of Polymers (CHE 582), Winter 1981.
13. Advanced Topics, Unsteady Flow (CHE 634/ESC 780), Spring 1981.
14. Special Topics (CHE 691), Transport, Rheology, Solar Engineering, System Focus, Sum. & Fall 1979, Sp. 1981, Sum. 1997, Winter 1998.
15. Special Topics (CHE 691), Rheology-Viscometric Measurements.
16. Special Topics (CHE 691), Solar Engineering, Design and Operation of Solar Collectors.
17. Turbulent Flow (CHE 634/734), Winter 1982, Fall 1986.
18. Process Design and Cost Estimation II (CHE 454), Spring 1982, 1983, 1984, (CHE 441, Process Design II, Semester course) Spring Semester 1999, 2000, 2013.
19. Engineering Science Thermodynamics (ESC 321), Summer 1983, Fall 1986.
20. Fluid Mechanics (ESC 301), Fall 1984, Winter, Spring and Summer 1985, Spring 1989, Fall 1991, Winter 1992, Winter 1994, Summer 1994, Fall 1994, Winter 1995, Spring 1995, Fall 1995, Winter 1996.  
AY 92/93,93/94, 95/96, 97, Summer 97, Fall 97, Winter 98, Fall Semester 2000, Spring 2001, Fall 2001, Fall 2002, Spring 2003, Fall 2003, Spring 2004, Spring 2005, Summer 2012, Spring 2013.
21. Polymer Engineering (CHE 480), Winter 1985.
22. Unit Operations Laboratory {a new course} (CHE 420), Spring 2000.
23. Process Design and Cost Estimation I {a new course} (CHE.....), Fall Semester 1998, 1999.
24. Process Design and Cost Estimation I (CHE 453), Winter 1986 and 1988.
25. Acoustic Excitation Phenomenon (CHE 696/ESC 796), Spring 1986.
26. Material Science (ESC 270), Co-instructor, Spring 1994.
27. Principles of Rheology (CHE 495/595), Spring 1994.
28. Combustion Systems I (CHE 660/760), Winter 1995.
29. Combustion Systems II (CHE 661/761), Spring 1995.
30. Master's Thesis (CHE 690).
31. Master's Project (CHE 691).
32. Doctoral Dissertation (CHE 899).
33. Agile Manufacturing (CHE 451/551, initially offered under Special Topics), Summer 97, 98, 99, (CHE 451/551) Fall 2000, Fall 2001, Spring 2003, Spring 2004, Fall 2004, Fall 2005, Fall 2006, Fall 2012.
34. Transport Phenomena-a new course in Transport (CHE 306), Fall 2002.
35. Selected Topics - Agility in Higher Education (CHE 494), spring 2006.
36. Heat Transfer, MET 420, Fall 2011.
37. Thermodynamics, MET 345, Fall 2011.
38. Fluid Dynamics, MET 350, Spring 2012.
39. New (semester course) Transport Phenomena (CHE 306), Fall 2012.

### Teaching at NASA

Introduction to Turbulent Flow, taught to chemical and mechanical engineers at National Aeronautics and Space Administration, Lewis Research Center.

### Teaching at the Ohio State University

Assisted in the teaching of Fluid Mechanics, Mass Transfer and Heat Transfer in the Dept. of Chemical Eng.

### Teaching in the Television Studios of CSU

Development of an audio-visual graduate level rheology course, taught in the television studios of CSU, 1979.

### DISTANCE-LEARNING EDUCATIONAL TELENETWORK TEACHING PROGRAM

Participated in the planning stage of the Ohio Aerospace Institute (OAI) Educational Telenetwork Teaching Program. OAI, in concert with nine Ohio universities, developed an Educational Telenetwork Program. The program curriculum consisted of graduate level engineering and science courses which were transmitted to all interested sites and institutions within the State of Ohio. Also, similar programs in other states were reviewed.

### OTHER TEACHING EFFORTS

- Development of a new teaching/learning style based on active participation and involvement of students in class, Spring Semester 2003. A paper on this methodology and its results is currently under preparation.
- Teaching of Advanced Concepts in Fluid Mechanics, Non-Newtonian Flow and Heat Transfer to many masters, doctoral

and post-doctoral students prior to the start of their research programs.

### **TEACHING EVALUATIONS**

- Consistently rated highly by students through their end of the term written comments and as noted by the College of Engineering Personnel Action Committee in their recommendation for promotion and tenure: "Dr. Ghorashi has been consistently placed above average in student evaluations and has received quite favorable testimonials from recent graduates in the program. The committee believes that Dr. Ghorashi has proven himself to be a fully competent teacher", October 1982. In concurrence, the College Dean, Dr. Comparin, wrote "...He has made significant contributions to the improvement of instruction in his department. His efforts in improving the undergraduate laboratory program are worthy of special mention".
- A senior faculty colleague, who on an unannounced basis attended a graduate-class lecture, wrote "He is an excellent teacher"..."I have had personal interviews with some of his students and they all expressed their high regard for him as one of the best teachers they ever had"..."He is one of the best instructors in the College.", 1989.
- Also, Another senior colleague and former Dean of the college of Engineering wrote "He has developed seven new courses at the graduate level and taught fluid flow at NASA and he presented them successfully", 1989.

### **ALUMNI EVALUATIONS**

Received letters of gratitude and support from many alumni who are currently employed at various industrial and research organizations.

### **PEER EVALUATIONS**

Received letters of commendation, appreciation, support and recommendation from university administrators and faculty colleagues in different engineering disciplines and professional societies.

### **TEACHING - PROGRAM AND CURRICULUM DEVELOPMENT**

- Initiated and performed, together with the representatives of the Mechanical and Civil Engineering Departments, a review of the undergraduate fluid mechanics core course for engineers, ESC 301 (1989).
- Conducted a survey of undergraduate thermodynamics courses at different universities (1979-1980).
- Made recommendations for inclusion of computer programs in the undergraduate fluid mechanics course, ESC 301 (1990).

### **NEW COURSE DEVELOPMENT**

#### **Development of Doctoral Level Courses:**

15. Combustion Systems I (1995)
14. Combustion Systems II (1995)
13. Acoustic Excitation Phenomena (1986)
12. Introduction to Turbulent Flow (1982)
11. Unsteady Flow (1981)

#### **Development of Graduate/Undergraduate Courses**

10. Agile Manufacturing (1997)
9. Principles of Rheology (1994)
8. Principles of Mass Transfer (1994)
7. Polymer Processing (1985)
6. Solar Energy (1981)
5. Fundamentals of Polymers (1981)
4. Rheology (1979)
3. New (Semester System Course) Transport Phenomena

#### **Development of Web-Based Courses**

2. Agile Manufacturing module
1. Lean Manufacturing module

## SERVICE TO THE UNIVERSITY AND COMMUNITY

### Certificate of Commendation from the Ohio House of Representatives, the 112th General Assembly of Ohio:

"...A remarkable individual, combining community concern and commitment with selfless initiative to become a dynamic force in the university area ... with admirable dedication you have directed yourself toward meaningful involvement in your field of study and research and as a result you have gained the respect of the entire community ... your many accomplishments have earned you the esteem of all those with whom you have worked and have helped to guarantee a high level of success for all organizations with which you have been involved ... We congratulate you for your contributions and salute you as one of Ohio's finest citizens." Representatives Mike Stinziano and Vern Riffe, Speaker of the Ohio House of Representatives.

Resolution No. 93-12-19-E ... by the Board of Township Trustees of Hudson Township, Summit County, Ohio,"... Be it resolved by the Board ... that Bahman Ghorashi who has served this community on the Steering Committee for Architectural/Design Standards has distinguished himself in volunteer service to Hudson Township and is deserving of this expression of gratitude for such service and the many contributions made to this community as a consequence thereof."

### SERVICE TO THE COMMUNITY

- Served on an Ad Hoc Committee on Industrial Design and Standards, City of Hudson Village (1995).
- Served on the Hudson Township Architectural/Design Standards Steering Committee (1993).
- Past participation in CSU Speaker's Bureau to present such topics as "Engineering Education."
- Presentations (Engineering Profession) on behalf of the Cleveland Chapter of the American Institute of Chemical Engineers. These presentations were delivered to high school students during "Career Days."
- Participation (Judge) in The Science Fair for high school students
- Presentation to high school Honor Students at the 43rd Annual Award Ceremony of The Cleveland Society of Engineers on behalf of the College of Engineering, Cleveland State University, 1989.
- Presentation of scholarships to high school students at the Cleveland Technical Societies Council - 60<sup>th</sup> and 61<sup>st</sup> Annual Scholarship & Achievement Awards, May 2006 and May 16, 2007.
- Arranged visits and conducted tours of the campus and Engineering College laboratories for high school students and their parents, 1990.
- Represented the Ohio Aerospace Institute at the Student Affairs Committee of the Cleveland Chapter of the American Society of Materials (ASM) Young Members Night, 1990.
- Advisor to a publication by Education Advisory Board: "Guiding Student Choice to Promote Persistence", Academic Affairs Forum, 2015.

### SERVICE TO THE PROFESSION – UNIVERSITIES/SYSTEM

#### Assisting Other Faculty (Faculty Development)

Assisting other faculty colleagues with their teaching development by visiting their classes (based on their invitations) and giving feedback on how to make improvements in their teaching styles. Some examples include:

- Dr. George Chazimavroudis, Graduate class
- Dr. A. Annapragada, Senior design class
- Dr. Rolf Lustig, Junior Thermodynamics class
- Dr. Rolf Lustig, Graduate class

#### Administrative Committee Memberships

61. TTU Cost of Education Model Committee, 2015 – Present.
60. Tennessee Board of Regents - Search Committee for the Associate Vice Chancellor, October – November 2014.
59. Tennessee Board of Regents Academic Affairs Sub-council, 2013 – present.
58. TTU President's Cabinet, 2013 – present.
57. TTU Academic Council, 2013 – present.
56. TTU Curriculum Committee, 2013 – present.
55. TTU Academic Affairs Executive Council – presiding, 2013 – present.
54. TTU Provost's Cabinet – presiding, 2013 – present.

53. TTU Deans' Council - presiding, 2013 – present.
52. Search Committee for the Vice President for Advancement, 2010 – 2011.
51. Search Committee for the Vice President for Enrollment and Student Affairs, 2010 – 2011.
50. CSU's New Pathway Program Advisory Committee, 2010 – 2011.
49. University Admissions and Standards Committee, Ex Officio Member, 2009 – 2011.
48. Engaged Learning Enrollment Team – member of the Academic Leaders team, 2008.
47. Provost Search Committee, Appointed by CSU President, Dr. Schwartz, to represent all CSU Associate Deans, 2006-07.
46. Member of a CSU Recruitment and Retention Team led by consultants for analysis of recruitment and retention, Summer 2006.
45. College of Engineering liaison to the University Strategic Planning Committee, 2005-2007.
44. Doctoral Program Directors Committee of the Graduate College, 2005-2007.
43. Extended Campus Management Committee, 2005-2007.
42. Chairman, Undergraduate Petition Committee, 2005-2007.
41. Undergraduate Affairs Committee, Fenn College of Engineering, Membership as Associate Dean, 2005-07.
40. Graduate Affairs Committee, Engineering College, Membership as the Director of Doctoral Program, 2005-2007.
39. University Retention Steering Committee, 2006-2007.
38. Student Value and University Enrollment Initiative – Retention Team, 2006-2007.
37. Management Team for Extended Campus and Summer Programs, 2005-2007.
36. University Assessment Council, 2005-2007.
35. Science and Technology Alliance, 2005-2007.
34. Ohio Space Grant Consortium, CSU Campus Representative, 2005- 2007.

#### **University Committee Memberships**

33. University Senate Academic Steering Committee, 2003-2005.
32. Planning and Budget Advisory Committee, 2004-2005.
31. University Budget Committee, 2004-2005.
30. Faculty Senator, University Senate, 2003-2005.
29. Dean's Representative to the Fenn College Graduate Affairs Committee, 2004-2005.
28. ESC Committee, Fenn College of Engineering, 1990-2013.
27. CSU Distinguished Faculty Selection Committee, 2004.
26. CSU, Steering Committee Member, Center for International Services and Programs, 1998- 2001.
25. CSU, Planning and Budget Advisory Committee, 1994-1998
24. CSU, University Enrollment Forecasting Committee, 1995-1997.
23. CSU, Engineering College Doctoral Program Review Committee, 94-96
22. CSU, Chemical Engineering Graduate Committee Chairman, 1994-1996
21. CSU College of Engineering Personnel Action Committee, 1994-1995
20. CSU College of Engineering Peer Review Committee, 1995-1996
19. Architectural/Design Standards Steering Committee, Hudson Township, 1993
18. Industrial Design Standards Ad Hoc Committee, City of Hudson Village, 1995
17. University Instructional Media Services Committee, Cleveland State University, 1992-1994.
16. On-Site-Faculty Representative at the Building Committee of the Ohio Aerospace Institute, 1990.
15. College of Engineering ESC 301, Engineering Science Core Course Committee, 1990 – 2013.
14. Appointed by the University President to the Equal Opportunity Panel, CSU, 1991-1993.
13. Chemical Engineering Professional Leave Ad Hoc Committee, Cleveland State University, 1986.
12. Chemical Engineering Chairman, Search Committee, Cleveland State University, 1985-86.
11. University Academic Steering Committee, Cleveland State, University, 1982-1983 and 1988-1989.
10. College of Engineering Undergraduate Affairs Committee, Cleveland State University, 1988-1990.
9. College of Engineering, Faculty Affairs Committee, CSU, 1979-1981, 1985-1987, 1998-2000.
8. Chemical Engineering Department, Personnel Screening, Committee, Cleveland State University, 1985-1986.
7. College of Engineering, Personnel Action Committee, Cleveland State University, 1985-1986.
6. Technical Program Advisory Committee, Advanced Manufacturing Center, Cleveland State University, 1985.
5. Chemical Engineering Personnel Action, Committee, Cleveland State University, 1979-1980 and 1983-2005.
4. Graduate College Research and Creative Activities committee, Cleveland State University, 1982-1984.
3. University Financial Aid Committee, Cleveland State, University, 1979-1981 and 1982-1983.
2. Chemical Engineering Department, Curriculum Committee, Cleveland State University, 1981-1983.
1. Graduate College Admissions and Standards Committee to Represent the Areas within the Engineering, CSU, 1980-1983.

**Other University Service Positions**

- Faculty Senator, Cleveland State University Senate, 1995-1998.
- Representative to the University Faculty Council from the Engineering College, CSU, 1981-1983 and 1985-1988.
- CSU Representative to the Cleveland Section of the American Institute of Chemical Engineers, 1980-1984.
- Counselor to the Dept. of Chemical Engineering Student Body Representatives, Cleveland State University, 79-81.
- Faculty Advisor, Student Chapter of the American Institute of Chemical Engineers, Cleveland State University, 79-82.
- Coordinator of Research Seminars, Chemical Engineering Dept., Cleveland State University, 1980-1981.
- Engineer's Week Advisor, Chemical Engineering Dept., CSU, 1979-1982, 1999-2000 (during this period the design project by chemical engineering students won first prize in two different competitions, namely the CSU contest and the regional contest against Case Western Reserve University).
- College of Engineering Faculty Secretary, Cleveland State University, 1979-1980.

**PROFESSIONAL DEVELOPMENT****Partial List of Professional Development Seminars and Workshops Attended**

- TQM (Total Quality Management), OAI, October, 1992.
- Lean Manufacturing, CAMP, November 1999.
- Kaizen, CAMP, November 1999.
- Fuel Cell Technology, 2002.
- Development of on-line web-based courses, December 2002.
- Web C T, Web-Based Course Development, January 2003.
- Cleveland Clinic Foundation – CSU Research Cooperation, 2003.
- Lectora software, web-based course development, March 2003.
- Crisis Leadership & Decision Making for Elected Officials, Texas A&M Engineering Extension Service, National Emergency Response and Rescue Training Center in cooperation with the Department of Homeland Security Federal Emergency Management, January 11, 2016.

**STRATEGIC PLANNING EXPERIENCE**

- Development of an online education strategy for Tennessee Tech University, 2014-present.
- As Dean of Engineering, started a strategic planning process in summer of 2008, with two days of retreat in August that resulted in the formation of six affinity groups who worked diligently and met regularly to construct a five-year plan. Met with group leaders (conveners) periodically and met with various constituencies with the goal of completing the final draft by April of 2009. This was a comprehensive strategic planning process that involved participation of all faculty as well as representatives from staff, students and other stakeholders. In doing so, we endeavored to align our mission with that of the University and the needs of the region in accordance to the Chancellor's Strategic Plan for Higher Education 2008-2017. The goal was to develop a shared vision and implement it.
- Strategic Planning University review (SPUR) – Dean Participant, 2008.
- Constructed the Strategic Plan and Business Model for the establishment of Fenn Academy, 2005.
- Participated in the CSU's University Strategic Planning Committee retreat as Engineering Dean. March 2008.
- Facilitated a retreat for Chemical and Biomedical Engineering dept. to develop their strategic plan, Fall 2005.
- Member of the Cleveland State University Budget and Planning Committee, 2004-2005.
- Planning and Budget Advisory Committee member, CSU. The committee recommended planning priorities, developed budget assumptions and linked planning enrollment and budgeting.
- Facilitator, CSU Planning Conference Retreat to review the progress made on the functional mission goals and objectives and to explore opportunities for growth and change at CSU, 1996.
- Ohio Aerospace Institute, Strategic Planning Team, University Sub-Group, 1991-1992.
- Ohio Aerospace Institute, Research Advisory Committee, 1993-1996.
- Chemical Engineering Dept., CSU, participated in Assessing How Central the ChE Program was to the Mission, Goals and Objectives of the University, 1991.
- Diagnostics, Imaging and Visualization Focus Group, OAI -- to determine the mission and purpose of the group, goals and objectives and the required resources, 1991-1993.