



LSU COLLEGE OF
ENGINEERING

Office for Diversity Programs



Annual Report
Fiscal Year 2008-2009

Diversity Programs

COLLEGE OF ENGINEERING

Message from the Associate Dean

With pleasure, we present to you the College of Engineering Diversity Programs Annual Report for 2008-09. We hope it conveys all of the wonderful and important initiatives we have embarked upon over the past year. The programs presented in this document would not have been achievable without the support of our donors and the hard work of the Diversity staff.



While the College of Engineering has had a long-standing Minority Engineering Program (MEP), it was not until early 2007 that an official Diversity Programs Office was created to continue the activities of MEP, and to develop and implement a new Women in Engineering Program (WEP), a faculty recruitment and retention program and a fundraising effort. This report highlights several of our successes, thus far. The report also illustrates a reclassification of the programs into Pre-College, College and Faculty categories to better align with the strengths and activities of our staff.

Diversity is fundamental to the success of any organization, and the College of Engineering has put forth an aggressive goal of diversifying its students, staff and faculty to levels representing national averages. To reach this goal requires the development of focused and targeted support programs/activities, which are implemented largely through generous gifts from our donors.

Please join us in celebrating the great accomplishments of this past year, with goals of even greater success in the upcoming year.

A handwritten signature in black ink, appearing to read 'Kelly A. Rusch'.

Kelly A. Rusch, PhD, PE
Associate Dean for
Research & Diversity
Programs

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Mission/Vision Statement

Mission: Facilitate and enhance the College of Engineering's efforts to increase participation and graduation rates of women and underrepresented minority students (undergraduate and graduate) and recruit and retain high quality women and underrepresented minority faculty.

Vision: The College of Engineering will be recognized as providing the best educational experience for women and underrepresented minorities in Louisiana and the region. LSU's Diversity Programs will be nationally recognized for providing quality programs and support at the K-16 and faculty levels.

Goals:

- Increase the pool of women and underrepresented minority students enrolling in the College of Engineering.
- Increase the retention and graduation rates of women and underrepresented minority students in the College of Engineering.
- Enrich the educational experience of all students through recruiting and retaining top women and underrepresented minority faculty.
- Cultivate an environment in the College of Engineering based on inclusiveness and respect, thus, allowing women and underrepresented minorities to achieve their full potential.
- Establish open communication with alumni and friends of the Women in Engineering Program and Minority Engineering Program and corporate partners to encourage the full participation in and support of the Women in Engineering Program and Minority Engineering Program.

Diversity Advisory Board



Diversity Advisory Board: (Seated, l to r): Eyassu Woldeesenbet, LSU; Esteban Herrera, Kean Miller; Dorysa Moore, Marathon Oil; Armando Corripio, LSU; Don Howard (Chairman), Louisiana Workforce Commission. (Standing, l to r) Tricia Thibodeaux, Fluor; Sean Odom, Shell Chemical; Del Dugas, ExxonMobil; Carroll Suggs (retired), Petroleum Helicopters, Inc., Sharon Cole, Dow Chemical; Maria Talavera, DuPont; Andrea Benjamin, Shaw Group. (not pictured; Claire Cagnolatti, Solomon & Assoc.; Eugene Priestley, Chevron)

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Pre-College Engineering Programs (PrEP) and Initiatives

PrEP's ultimate goal is to increase the pool of qualified underrepresented students who enter college engineering programs by providing academic preparation and exposure to career possibilities in engineering at the high school level, as well as introduce teachers and students to the LSU Engineering Program.

XCITE 2008

Sponsored By:

FLUOR®

The first annual XCITE camp was held July 7 – 11, 2008. XCITE 2008 was a one-week, non-residential day program for high school girls who have completed the 9th grade. The purpose of XCITE was to introduce the participants to the world of engineering including science, technology and mathematics through hands-on activities, engineering design projects and an introduction to professional engineers and their work environments. XCITE toured several industrial sites to learn about hurricane protection and chemical and oil production and worked in groups to solve problems and discover engineering.



XCITE 2008 Participants and Staff



The students were introduced to components of mechanical and electrical engineering by constructing NASA-like "edible rovers".

XCITE 2008 had nine female participants. Participants were from Baton Rouge, Hattiesburg, Mississippi and Plymouth, Wisconsin.

The XCITE schedule of activities and events included an engineering design component, aligned with "Engineering 101" sessions that introduced several engineering disciplines offered at LSU. The students were introduced to environmental, chemical, civil, petroleum, mechanical, electrical and biological e

ngineering.

The Women in Engineering Professional Panel, held on Wednesday, July 9, 2008, introduced the XCITE participants to women in engineering and their success stories. LSU female alumnae, Claire Cagnolatti (Solomon & Associates), Tricia Thibodeaux (Fluor Corporation) and Sparkle Noble (Montgomery Watson Global) were panelists for the Women in Engineering Professional Panel.

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Marathon Exploration Camp Inspiring Tomorrow's Engineers (XCITE) 2009



Marathon XCITE will be held July 6-17, 2009. XCITE is a two-week residential summer program in which female participants will study various engineering disciplines offered at LSU, complete team and leadership building exercises, and take an ACT Prep course. We are welcoming young women who are entering the 9th and 10th grades in the fall of 2009. Twenty-seven eligible participants applied and were selected to participate in the program. XCITE is sponsored by Marathon Oil Corporation and Fluor Corporation.

Recruitment into Engineering High Ability Multi-cultural Students (REHAMS) 2009

Sponsored By:



REHAMS 2009 Participants

In an effort to increase the number of students prepared for college, Recruitment into Engineering of High Ability Multi-Cultural Students (REHAMS) pre-college program was born in 1977. The rich history of REHAMS was continued June 8–19, 2009. The REHAMS program offers academically talented multi-cultural students the opportunity to examine first-hand the activities and thought processes of engineering. While housed at LSU, participants were introduced to the various fields of engineering through activities, classes, and industry tours.

REHAMS 2009 had 23 participants. Of the cohort, 13 were males and 10 were females. Participants were from Louisiana, Texas, Illinois, and Georgia.

REHAMS students also participated in an Environmental Engineering Design Project, an Introduction to Calculus and Physics course, an ACT Prep course, and a host of other engineering courses.

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(continued from page 4)



Dr. Heather Smith of the Civil and Environmental Engineering Department introduced the participants to civil and coastal engineering through the building of "Lego Structures" that were tested in a fluid wave apparatus for strength and durability.

The Marathon Oil Corporation and Fluor Corporation hosted the students for an overview of Marathon and Fluor, a tour and lunch at the Marathon-Garyville Refinery Plant.

The Shell Oil Company hosted the students to an Industry Lunch. The campers were presented an overview of the Shell Oil Company by Shell employees, Delwyn Mitchell and Kai Peterson.

REHAMS 2009 ended with a banquet at the LSU Faculty Club. The students displayed their Environmental Engineering Design Posters. The speakers for the banquet were three Dow Company Representatives: Jeremy Jenkins, Christopher Otunoye, and Christy Taylor. They gave a detailed overview of Dow and how to have a successful college career.

Engineering Extravaganza

In anticipation of an upcoming shortage in professionals within STEM – science, technology, engineering and mathematics, the College of Engineering in partnership with the Office for Diversity Programs hosted the Engineering Extravaganza, March 7, 2009, in Patrick F. Taylor Hall. More than 300 parents and students, in grades 6 through 12, attended this free public event.

Students participated in fun hands-on activities designed to teach basic engineering principles with various student professional engineering organizations. Informational sessions were available for parents and students, including a discipline chat and panel discussion with faculty and student organization leaders. Attendees also had the opportunity to join in three nanotechnology



Engineering Extravaganza participants at the civil engineering booth

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demonstration sessions given by Dr. Sunggook Park, Assistant Professor in Mechanical Engineering.

Marathon High School Teachers Engineering Awareness Program 2009



The Marathon High School Teachers Engineering Awareness Program was held June 8-12, 2009. The Program was designed to build an infrastructure of knowledge and understanding so that high school teachers in Baton Rouge and the surrounding area may gain the expertise and strategies in promoting and strengthening STEM education practices with an emphasis in engineering. The expectation is that once teachers have been exposed to engineering concepts, they will be better prepared to incorporate engineering-based applications in their math and science courses.



Marathon High School Teachers Engineering Awareness Program Participants

Ten high school mathematics and science teacher pairs were chosen to participate in the 2009 program based on experience, certification and responses to essay questions. Eleven Louisiana Research Experience for Teachers (NSF-RET) also participated.

The development workshop was lead by Dr. John Hansen of the University of Texas at Tyler and Ms. Shelly Tornquist of Memorial High School in Houston, Texas. Dr. John Hansen is a Professor of Technology and Executive Director of the Ingenuity Center at UT-Tyler. He is the Affiliate Director of Project Lead The Way in Texas. Shelly Tornquist is currently teaching engineering design and computer-integrated manufacturing. She is also a Master Teacher for Introduction to Engineering Design for Project Lead The Way.



Dennis Breland talking to REHAMS students and demonstrating the Fischertechnik Machine

The program topics included:

- Using Engineering Notebooks in the Classroom
- Sketching and Visualizing
- Environmental Engineering – Rainwater Harvesting
- Mechanisms Used in Simple Machines – Fischertechnik Mechanisms

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- Bioengineering – Rehabilitation Engineering
- Advising Students – Encouraging Females and Minorities to Consider Engineering

College Programs and Initiatives

Office for Diversity Programs Open House

On February 5th, 2009, the College of Engineering Office for Diversity Programs hosted its first Open House. The event introduced students, faculty, staff and community partners to the diversity office staff, programs and initiatives. Representatives from student organizations such as the National Society for Black Engineers, Society of Hispanic Engineers, and Society of Women Engineers were present and visited both the Minority Engineering (MEP) and the Women in Engineering Program (WEP) Offices in 3203 and 3202 Patrick F. Taylor Hall. Community partner, INROADS, also participated in the day's event.



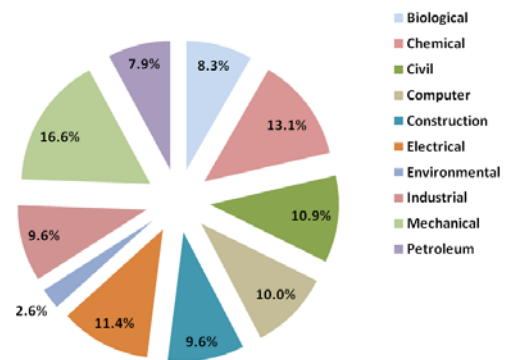
Open House student attendees (l to r): Mary Hodgkins, Jordyn Ponthieux, Katrina Rickels, Charisma Edwards, and Jeremy Jenkins.

By the Numbers

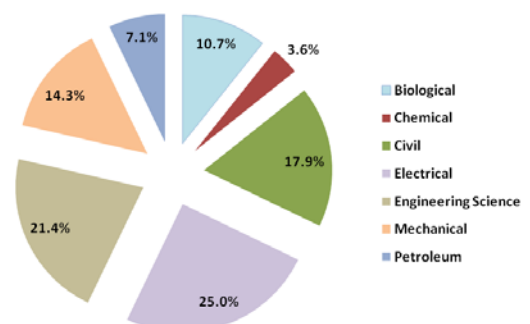
For the past six years (2004-2009), the College of Engineering's fall undergraduate enrollment averaged 3.0% Hispanics, 0.35% Native Americans and 6.8% African Americans. At the graduate level, the enrollment for minorities over the past six years averaged 1.42% Hispanics, 0.20% Native Americans and 2.84% African Americans.

The distribution of majors among the minority student population is shown in the graphs for both the undergraduates and graduates. With respect to monetary support, minorities make up 74% of the students receiving scholarships through the Office for Diversity Programs.

2009 Spring Undergraduate Minority Distribution by Engineering Discipline (n=229)



2009 Spring Graduate Minority Distribution by Engineering Discipline (n=28)

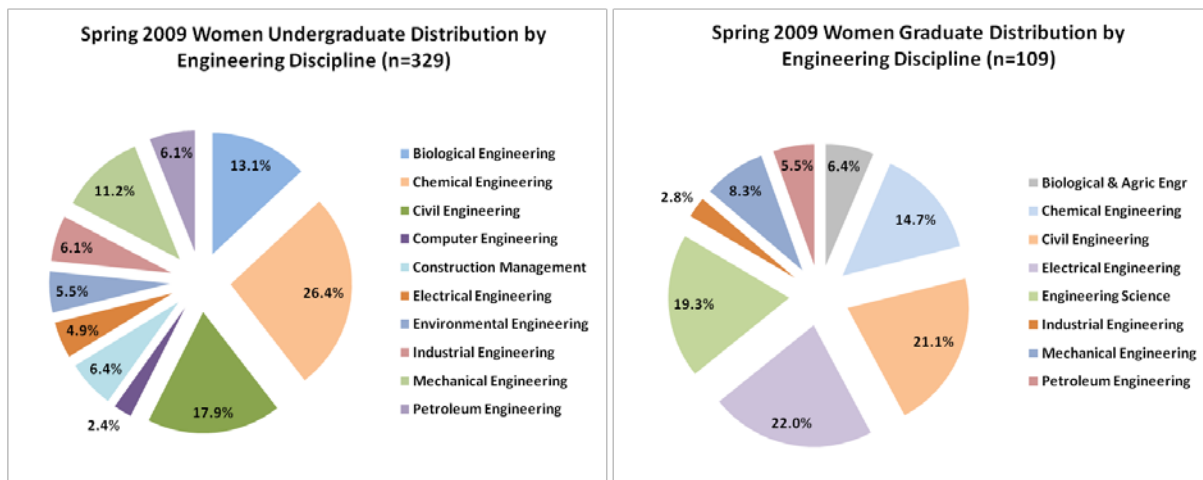


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By the Numbers *continued*

For the past six years (2004-2009), LSU College of Engineering fall enrollment averaged 15.5% of women at the undergraduate level and 21.3% at the graduate level. The distribution of majors among the female student population is shown in the graphs for both the undergraduates and graduates. With respect to monetary support, women make up 45% of the Diversity Scholars.



Student Organizations



National Society for Black Engineers (NSBE) at LSU promotes the recruitment, retention, and graduation of black and multicultural students in engineering. The 2008-2009 convention was held in Las Vegas, NV and was well attended by NSBE-LSU.



Society of Hispanic Engineers (SHPE) is a national Hispanic engineering society of students and professional engineers whose goal is to recruit Hispanic students into leadership in engineering and serve as a link to the corporate world for its members. This year the chapter traveled to Phoenix, AZ to participate in the national convention and Houston, TX to participate in the leadership conference.



Society of Women Engineers (SWE) at LSU was established to promote engineering as a highly desirable career aspiration for women and to create a supportive environment for

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women who are currently seeking engineering degrees. The LSU Section participated in 2008 National SWE Conference held in Boston, MA.

Diversity Undergraduate Scholarships

A major goal for the Office for Diversity Programs is to pursue and develop scholarship programs that help facilitate the success of underrepresented engineering students. For 2008-2009, the Diversity Programs provided 60 scholarships to 46 students with two students graduating in December 2008, and a total of \$158,950 in scholarships was awarded. At the end of the spring 2009 semester, a total of 42 students remained, and their aggregate cumulative GPA was 3.147.

Taylor Energy Scholars

This is the third year of the Patrick F. Taylor Scholars in Engineering Program following the refocus of the scholarships towards former REHAMS participants. For 2008-2009, two upper level students continued as scholars, and four freshmen received the award in spring 2009. The amount of scholarship funds awarded for the year totaled \$12,500. The highlight of the spring semester was the scholars' dinner with Mrs. Phyllis M. Taylor.



Mrs. Phyllis M. Taylor (center) with the 2009 Freshman Taylor Energy Scholars

ExxonMobil Scholars

ExxonMobil (EM) renewed its commitment to the Scholars program at Louisiana State University by donating another \$250,000 over five years. The new cohort of students was introduced to ExxonMobil on February 16, 2009, and the group included three junior level students and seven freshmen.



Additionally, each student benefits from being matched with an EM mentor who provides valuable support to the protégé through regular communication and group activities that build relationships. Of the original 19 scholars, 14 have graduated, while two students are still participants in the EM program and are on track to graduate within a year. The 2008-2009 EM awards totaled \$24,400.

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ExxonMobil spring 2009 reception for new scholars

STEM –ENG^2 Scholars for Success

The S-STEM scholarship project has completed the first year of full implementation with the goal to provide financial resources and academic success support for women and minorities who have unmet financial needs. Out of a competitive pool of applicants, 20 students were selected for the freshman cohort and 4 junior level students were awarded the upperclassman scholarship.

The project encompasses three major components: recruitment, retention and placement. This program in combination with complementary scholarships has attracted and allowed talented students to pursue their engineering degree at LSU.

S-STEM retention efforts are leveraging components of the college-wide NSF grant STEP Project-ENG^2: Engineering Engagement for Student Success (NSF STEP 06-502). New retention activities designed specifically for the S-STEM scholars program include a professional development seminar series and a summer jobs program. End of semester surveys indicate that the S-STEM freshman are utilizing resources that were presented in the seminars, e.g. academic and career resources, and becoming engaged with student organizations.

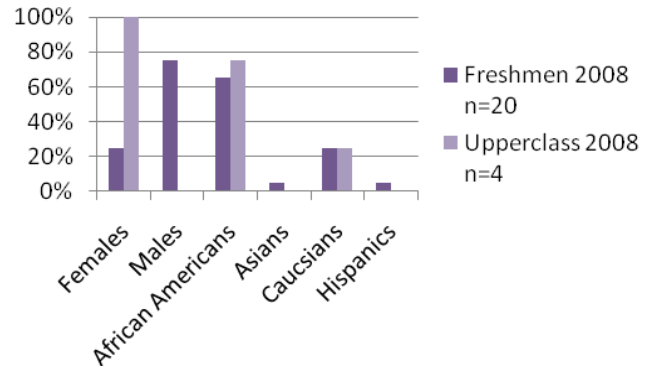
The engineering S-STEM scholar freshman retention rate was 86.4%. This compares favorably to the 11 year historical College of Engineering retention rate of 73%. Of the fall cohort, 90% remain in a STEM discipline and 95% were enrolled in LSU at the end of the spring 2009 semester.



The 2008-2009 Freshman S-STEM

scholars will be receiving an increase in funding of approximately \$1000 per academic year. For the 2009-2010 academic year, five scholarships will be available for upper level engineering students (four juniors and one

2008-2009 S-STEM Demographics



Academically, the S-STEM 2008 freshman cohort had a mean cumulative GPA of 2.912 for 2008-2009. This compares well with the 2007-2008 academic year GPA of 2.798 for all freshman engineering majors. The upperclassman S-STEM scholars have a cumulative GPA of 3.383 at the end of the spring 2009 semester.

The total funding from NSF S-STEM is \$600,000 for five years, and the 2008-2009 S-STEM scholarships totaled \$87,500. Returning

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senior), and seven scholarships will be available for engineering students who will be entering the university as freshman in the fall of 2009.

Marathon Diversity Undergraduate Scholarships

The scholarship was awarded to five talented, underrepresented freshmen whose engineering majors are consistent with Marathon's downstream and upstream recruiting needs. The scholarship will provide financial assistance to each recipient with an average award of \$5,000 per year for four years. Applicants were evaluated holistically, giving consideration to all academic and non-academics strengths and achievements. Preference was given to applicants who are first-generation college students and/or demonstrated financial need.



Marathon Diversity Undergraduate Diversity Scholars

Additional scholarship programs have played an important role in the overall program by providing students stable financial support.

- The *Shell Incentive Fund* supported two students with \$8,000.
- The *REHAMS Fund* provided \$1,250 to former camp participants.
- The *Marathon Oil Diversity Scholarship, Ashland LLC* funded three students with \$3,750.

New Undergraduate Scholarship Contributors and Sponsors

Keith and Karen Evans provided the Women in Engineering Program a \$100,000 endowment in honor of their parents. The first ***Earl and Maryanne Evans Scholarship for Engineering Excellence*** was awarded in 2008-2009 to a full-time, female undergraduate student majoring in petroleum engineering. The criteria for the scholarship included demonstrating a financial need and academic excellence. Preference was given to Louisiana residents and petroleum engineering majors.

The Shaw Group started a scholarship fund in May 2009, and it will fund two new engineering scholarships for underrepresented multi-cultural students for the 2009-2010 academic year.

Northrop-Grumman committed \$2,000 in May 2009 to establish a Diversity Scholarship Fund. This scholarship will support underrepresented engineering students within the engineering disciplines of electrical, computer, industrial, mechanical and construction management.

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Mineral Management Service (MMS) has donated \$5,000 to benefit MEP and disseminate information about the role of engineers at the federal government level. MMS is part of the U.S. Department of Interior, and it administers and manages energy and mineral resources located on the nation's outer continental waters.

Marathon Diversity Graduate Fellowship

The Marathon Diversity Graduate Fellowship was established to recruit and support underrepresented multi-cultural prospective Ph.D. candidates seeking degrees in fields of interest to Marathon. The Fellowship award is \$20,000 annually for four years, along with an additional \$15,000 annual match by the home department.

In 2009, the Marathon Diversity Graduate Fellowship was awarded to Heather Dylla, Ph.D. candidate in engineering science-construction management. Heather earned a Bachelors of Science degree in civil engineering from Bradley University in Illinois.

Programs

Marathon Diversity Awareness in Engineering Education Seminar Series

The Marathon Diversity Awareness in Engineering Education Seminar series was instituted in the fall of 2008 with the purpose of helping women and minority doctoral students and post-doctoral researchers develop the appropriate skills and access the appropriate information in regards to becoming a professor and mentor well-versed in diversity issues in the classroom, cultural competence, leadership and active teaching and learning strategies.

Fall 2008 Series Topics and Speakers

"Exploring Academic Possibilities: Understanding Various Pathways to Becoming a Professor"

Dr. Rosemarie D. Wesson, NSF Program Director

"Constructing a Competitive CV" and "The Teaching and Research Statement"

Dr. Kelly A. Rusch, Associate Dean of Research and Diversity

Formosa Plastics Endowed Professor Department of Civil and Environmental Engineering

"The Hiring Process"

Dr. Marwa Hassan, Assistant Professor, LSU Construction Management and Industrial Engineering Department

Dr. Theda Daniels-Race, Associate Professor, Electrical and Computer Engineering Department

Dr. Marcia E. Newcomer, Professor, LSU Department of Biological Sciences



Dr. Rosemarie Wesson

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Dr. Kelly A. Rusch, Associate Dean of Research and Diversity, Formosa Plastics Endowed Professor
Department of Civil and Environmental Engineering

Spring 2009 Series Topics and Speakers

“ABET... Everything you need to know”

Dr. Kelly A. Rusch, Associate Dean of Research and Diversity, Formosa Plastics Endowed Professor
Department of Civil and Environmental Engineering

“Cultural Competency in the Engineering Classroom”

Dr. Cassandra Chaney, Assistant Professor, LSU School of Human Ecology

“Active Learning Strategies in the Engineering Classroom”

Dr. Rita Culross, Jo Ellen Yates Professor LSU Department of Educational Theory, Policy and Practice

“Intellectual Property”

Dr. Peter J. Kelleher, Associate Vice Chancellor for Intellectual Property, Commercialization & Development

WEP Success Workshops

In the Spring of 2009, the Women in Engineering Program established the WEP Success Workshop. The purpose of the workshop is to present academic and nonacademic topics of interest to the female engineering students. “Engineers Without Borders: Making a Global Impact” was presented by two LSU Civil and Environmental Engineering Alumni and Engineers Without Borders-Baton Rouge Chapter Founding Members, Andrea Turriciano, P. E., of CDM and Tracy Fazio, P. E., of CK & Associates.

Faculty Development

In 2008, the CoE increased its female faculty from ten to 13. Three female faculty members (tenure-track assistant professors) joined the college; Dr. Mileva Radonjic with Petroleum Engineering, Dr. Ying Wang with Mechanical Engineering and Dr. Emerald Roeder with Construction Management and Industrial Engineering.



Dow Professorship

In July 2008 the Louisiana Board of Regents of Higher Education supported the Office for Diversity with a \$120,000 match for Dow Chemical's Distinguished Professorship in Engineering Diversity. This match allows the professorship to provide a salary stipend and recruiting funds.

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Gender Equity in the Classroom Faculty Workshop

The first "Gender Equity in the Classroom Faculty Workshop" funded by EIF is scheduled to take place August 19, 2009, from 9:00 am until 4:00 pm. The workshop will focus on creating inclusiveness in the classroom, tools to assist faculty in recognizing conscious and unconscious biases and an interactive discussion to alter faculty pedagogy.

Fundraising Efforts 2008-2009

The Office for Diversity Programs recognizes corporations, foundations and individuals for their support.

INDIVIDUAL DONATIONS

Total Gift over \$100

Mrs. V. Del Dugas*
Keith and Karen Evans
Mr. Dynell Jones*
Mrs. Pamela Roche
Dr. Kelly A. Rusch

Total Gift up to \$100

Julie Harris
Paul Nguyen
Dr. Hugh V. McKnight
Dr. Mileva Radonjic
Akilah Taylor
Carolyn Taylor

CORPORATE DONATIONS

Total Gift up to \$9,999

Dow Chemical Co.
Kinder Morgan Foundation*
Marathon Oil Corporation
McDermott Inc.
Northrop Grumman
Shaw Group Inc.

Total Gift of \$10,000 - \$49,999

BP Foundation Inc.
Cajun Industries Inc.
Chevron Inc.
Conoco Phillips
Fluor Foundation
Minerals Management Services
Patrick Taylor Foundation
Shell Oil Company

Total Gift of \$50,000 - \$99,999

ExxonMobil Corporation*

Total Gift over \$100,000

Board of Regents (state match)

* employee match included

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College of Engineering

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Place
Stamp



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