

MOSFEQUR RAHMAN, Ph.D.

Associate Professor

Mechanical Engineering Department

Allen E. Paulson College of Engineering and Information Technology

Georgia Southern University

Statesboro, GA 30460-8045

Phone: (912) 478 5004

mrahman@georgiasouthern.edu

Education

Ph. D., University of Alabama, Tuscaloosa, **2005**, **Major:** Engineering Science and Mechanics Dissertation Title: A Finite Element Approach to Model and Analyze Photostrictive Optical Actuators, GPA: 3.92/4.00

MS, University of Alabama, Tuscaloosa, **2002**, **Major:** Engineering Science and Mechanics
Thesis Title: Numerical Study of Laminar Natural Convection in Rectangular Enclosures of Different Aspect Ratios at Various Inclinations, **GPA: 4.00/4.00**

MS, Bangladesh University of Engineering and Technology, Bangladesh, **1999**, Major: Mechanical Engineering
Thesis Title: Torque and Drag Characteristics of a Three Bladed Savonius Rotor, **GPA: 3.58/4.00**, Position: 1st

BS, Bangladesh University of Engineering and Technology, Bangladesh, **1997**, **Major:** Mechanical Engineering
Thesis Title: Solid Waste Collection System of Dhaka City Corporation, **GPA: 3.64/4.00** Position: 4th out of 120 students.

Appointments

Associate Professor, August 2012 – Present: Mechanical Engineering Department, Georgia Southern University, Statesboro, Georgia 30460-8045

Assistant Professor, August 2006 – July 2012: Mechanical and Electrical Engineering Department, Georgia Southern University, Statesboro, Georgia 30460-8045

Postdoctoral Research Fellow, December 2005 – June 2006: Aerospace Engineering and Mechanics Department, University of Alabama, Tuscaloosa, AL 35487

Graduate Teaching/Research Assistant, August 2000 – September 2005: Aerospace Engineering and Mechanics Department, University of Alabama, Tuscaloosa, AL 35487

Assistant Professor, January 2000 – January 2006: (Joint appointment while doing PhD in USA from June 2000 to January 2006), Mechanical Engineering Department, Bangladesh University of Engineering and Technology, Dhaka 1000, Bangladesh

Lecturer, September 1997 – December 1999: Mechanical Engineering Department, Bangladesh University of Engineering and Technology, Dhaka 1000, Bangladesh

Professional Membership

- American Society of Mechanical Engineers (ASME) – Member (since 2004)
- Bangladesh Society of Mechanical Engineers (BSME) – Member (since 1997)
- Society for the Advancement of Material and Process Engineering (SAMPE) – Member (since 2010)
- Affiliate Professor of Project Lead the Way (PLTW) of Georgia Southern University (since 2010)
- Member of Alumni, The University of Alabama, Tuscaloosa, Alabama, USA (since 2005)
- Member of Alumni, Mechanical Engineers, Bangladesh (since 1997)
- Bangladesh Student Association (BSA), , The University of Alabama, Tuscaloosa – President (July 2001 – July 2003)

Honors and Awards

- Received Tenure and promotion to Associate Professor Rank, Mechanical Engineering Department, Georgia Southern University, Statesboro, GA, USA, 2012.
- Received Tenure and promotion to Assistant Professor Rank, Mechanical Engineering Department, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, 2000.
- Graduate faculty of Georgia Southern University, since 2008
- Recipient as PI of Georgia Southern University Faculty Research Grant FY09 (grant amount \$9605.00), FY11 (grant amount \$10,000.00), and FY14 (grant amount \$8,600.00), and CEIT Seed grant FY2014 (grant amount \$9,820.00).
- Georgia Southern University 2009 COST Research Award with Dr. Gustavo Molina.

- Won 6 undergraduate research grants as a faculty mentor in the year of 2008, 2009, 2010, 2011, 2013 supported by five College of Undergraduate Research (COUR) grants of GSU and one summer 2009 ASPIRE (NSF) grant.
- Distinct honor award recipient of the Graduate Student Research Poster Competition held at the Structural Composites Conference, February 08 - 09, 2006, Birmingham, Alabama.
- Graduate Research/Teaching Assistantship, University of Alabama, Tuscaloosa, AL, August 2000 – September 2005.
- Graduate admission Scholarship, Fee Waiver, University of Alabama, USA, 2000.
- Undergraduate Merit scholarships, Bangladesh University of Engineering and Technology, Bangladesh, 1992-1997.

Courses Taught

- Fall 2012– Present** **Associate Professor, Department of Mechanical Engineering, Georgia Southern University**
MENG 5136 and MENG5136G – Introduction to FEA with Laboratory, Fall 2012, Spring 2013, Fall 2013, Spring 2014, Fall 2014, Spring 2015
MENG 4210 – Energy Science Laboratory, Fall 2013, Spring 2014, Fall 2014, Spring 2015
ENGR 3233 – Mechanics of Materials, Fall 2014
MENG 3233 – Heat Transfer, Summer 2014
TENS 2143 – Strength of Materials, with Laboratory, Spring 2013
TENS 2144 – Fluid Mechanics, with Laboratory, Fall 2012
TMET 3711 – MET Seminar I: Introduction to Engineering Mathematics, Spring 2013, Spring 2014
ENGR 3235 – Fluid Mechanics, Fall 2012, Summer 2013, Fall 2013
TMAE 7891 – Comp. study on wind energy, (Independent graduate level course)
TMAE 7999 – Thesis
- 2006 – 2012(Spring)** **Assistant Professor, Department of Mechanical and Electrical Engineering, Georgia Southern University**
TENS 2144 – Fluid Mechanics, with Laboratory, Fall 2006 – Spring 2012
ENGR 1133 – Engineering Graphics, with Laboratory, Fall 2006, Spring 2008
ENGR 2231 – Engineering Mechanics I: Statics, Fall 2006, Spring 2007, Fall 2007
TENS 2143 – Strength of Materials, with Laboratory, Spring 2007, Spring 2009, Spring 2010, Spring 2011
TENS 2141 – Statics, with Laboratory, Fall 2008, Fall 2009, Fall 2010, Summer 2010, Summer 2011
TMET 3711 – MET Seminar I: Introduction to Engineering Mathematics, Spring 2012
TMAE 7891 – Computational Fluid Dynamics, (Independent graduate level course), Fall 2009
TMAE 7891 – Comp. study on wind energy, (Independent graduate level course), Spring 2011, Fall 2011
FYE 1000 – Conversation with Prof./Eng., Fall 2010, Fall 2011
TMAE 7999 – Thesis, Spring 2009, Fall 2009, Spring 2010, Fall 2010, Spring 2011, Fall 2011
- 2000 – 2005** **Graduate Teaching/Research Assistant, Department of Aerospace Engineering and Mechanics, The University of Alabama**
Fluid Mechanics Laboratory course, 2 semesters
Mechanics of Materials Laboratory course, 3 semesters
- 2000** **Assistant Professor, Mechanical Engineering Department, Bangladesh University of Engineering and Technology**
Engineering Mechanics (Statics and Dynamics), Mechanics of Materials, Fluid Mechanics, Mechanical Engineering Drawing, Fluid Mechanics Laboratory, Instrumentation and Measurements with Laboratory.
- 1997 – 1999** **Lecturer, Mechanical Engineering Department, Bangladesh University of Engineering and Technology**
Engineering Mechanics (Statics and Dynamics), Thermodynamics, Machine Design Laboratory, Instrumentation and Measurements with Laboratory, Heat Engine Laboratory, Heat Transfer Laboratory, Strength of Materials, Fluid Mechanics Laboratory, Mechanical Engineering Drawing, Mechanism Design Laboratory.

Refereed Journal Articles

- **Rahman, M.**, Nawaz, M., Molina, G., and Rahman, A., “Experimental investigation of photostrictive materials for MEMS application,” submitted to the *Journal of Smart Materials and Structural* which is under review status, 2015.
- Molina, G.J., Aktaruzzaman, FNU, Stregles, W., Soloiu, V., and **Rahman, M.**, “Jet-impingement effects of alumina-nanofluid on aluminum and copper”, *Advances in Tribology*, Volume 2014, 2014, Article ID 476175, 8 pages, 2014.

- Morshed, K. N., **Rahman, M.**, Molina, G., Ahmed, M. (2013). "Wind tunnel testing and numerical simulation on aerodynamic performance of a three bladed Savonius wind turbine," *International Journal of Energy and Environmental Engineering (IJEEE)*, April 2013, 4:18, Springer-Verlag Publisher, ISSN: 2008-9163, <http://www.journal-ijeee.com/content/4/1/18>.
- **Rahman, M.**, and Jackson, J. E. (2013). "Finite Element Modeling of Photostrictive Optical Actuators," *Journal of Mechanics of Advanced Materials and Structures*, 20 (2), 114 – 121, Copyright ©Taylor & Francis Group, LLC, ISSN: 1537-6494 print/1537-6532 online, DOI: 10.1080/15376494.2011.584138, author version posted online: 30 Apr 2012.
- Molina, G., Hulett, M., Soloiu, V., **Rahman, M.** (2012). "Erosion effects of nanofluids on selected cooling-system materials," ASTM STP 1563, P. J. Blau, F. E. Schmidt, D. Drees, and J. –P. Celis, Eds., ASTM Intl, West Conshohocken, PA, 2012.
- Molina, G., Hulett, M., **Rahman, M.**, Soloiu, V., Walker, C. (2011). "Preliminary Experimental Study on Erosion and Tribological Effects of Selected Nanofluids," The Ann. of U. "Dunarea De Jos", Romania, Fasc.VIII (Tribology), Vol. 2011/2, ISSN: 1221-4590.
- **Rahman, M.**, Nawaz, M., (2011). "Finite element modeling analysis of photostrictively-driven optical actuators for excitation of microdevices," *Journal of Smart Materials and Structures*, 20 (2011) 115013 (12pp), Published 11 October 2011, Online at stacks.iop.org/SMS/20/115013.
- Akbar, M. K., **Rahman, M.**, and Ghiaasiaan, S.M. (2009). "Particle transport in a small square enclosure in laminar natural convection," *Journal of Aerosol Science*, 40, 747 – 761.
- **Rahman, M.** and Sharif, M. A. R. (2003). Numerical Study of Laminar Natural Convection In Inclined Rectangular Enclosures of Various Aspect Ratios. *Journal of Numerical Heat Transfer: Part A*, Taylor & Francis Publisher, 44(4), 355-373.

Peer Reviewed Conference and Proceedings Publication

- **Rahman, M.**, Iqbal, S., and Calamas, D., "Performance Analysis of Biologically Inspired Honeycomb Structured Heat Exchanger," abstract submitted and accepted for the full technical paper publication in the *proceedings of the ASME 2015 International Mechanical Engineering Congress and Exposition (IMECE 2015)*, Houston, Texas, USA, November 13 - 19, 2015.
- **Rahman, M.**, Bashir, M., Molina, Gustavo, Soloiu, V. and Salyers, T., "EXPERIMENTAL AND NUMERICAL INVESTIGATION ON VERTICAL AXIS WIND TURBINE IN SEARCH FOR AN EFFICIENT DESIGN," abstract submitted and accepted for the full technical paper publication in the *proceedings of the ASME 2015 International Mechanical Engineering Congress and Exposition (IMECE 2015)*, Houston, Texas, USA, November 13 - 19, 2015.
- **Rahman, M.**, Hines, P., Hedges, T., Kaht, K., Segarra, J., Brower, C., and Mitra, A., "Optimization of boom design for cubesat," abstract submitted and accepted for the technical presentation in *the ASME 2015 International Mechanical Engineering Congress and Exposition (IMECE 2015)*, Houston, Texas, USA, November 13 - 19, 2015.
- **Rahman, M.**, Chrysoferidis, S., Bell, D., Chevalier, A., Barlow, A., Jones, B., and Salekeen, S., "Finite Element Analysis of Various Design Projectiles as Bullet Models," abstract submitted and accepted for the technical presentation in *the ASME 2015 International Mechanical Engineering Congress and Exposition (IMECE 2015)*, Houston, Texas, USA, November 13 - 19, 2015.
- Calamas, D. and **Rahman, M.**, "Flow Behavior at Bifurcations in Branching Channel Networks," abstract submitted and accepted for the full technical paper publication in the proceedings of *the ASME 2015 International Mechanical Engineering Congress and Exposition (IMECE 2015)*, Houston, Texas, USA, November 13 - 19, 2015.

- Zhang, C., Schultheiss, K., Mitra, A., and **Rahman, M.**, “Parametric studies of Coal Gasification in an Entrained-flow Gasifier,” abstract submitted and accepted for the full technical paper publication in the proceedings of **the ASME 2015 International Mechanical Engineering Congress and Exposition (IMECE 2015)**, Houston, Texas, USA, November 13 - 19, 2015.
- **Rahman, M.**, Cashwell, S., Dockery, M., Chevalier, A., Barlow, A., Jones, B., and Salekeen, S., “Analysis of the effectiveness of modern ballistic resistant materials using finite element techniques,” abstract submitted and accepted for technical publication in **the Composites and Advanced Materials Expo (CMAX 2015)** Conference, Dallas, Texas, USA, October 26 - 29, 2015.
- **Rahman, M.**, Shaw, J., Roesel, M., Williams, B., Willies, J., Jones, B., Ahmed, M., and Salekeen, S., “Finite Element Analysis IN implementing silica aerogel in high-temperature reusable insulation tiles for space shuttle,” abstract submitted and accepted for technical publication in **the Composites and Advanced Materials Expo (CMAX 2015)** Conference, Dallas, Texas, USA, October 26 - 29, 2015.
- **Rahman, M.**, Giddens, C., Salyers, T., Herrington, C., Smith, C., and Calamas, D., “The Effects of Fin Geometry and Surface Area on the Overall Heat Flux of a Heat Sink while experiencing Natural and Forced Convection,” abstract submitted and accepted for technical publication in **the Composites and Advanced Materials Expo (CMAX 2015)** Conference, Dallas, Texas, USA, October 26 - 29, 2015.
- Aktaruzzaman, FNU, Molina, G.J., Soloiu, V., and **Rahman, M.**, “On adhesion mechanisms and erosions effects of nanoparticle-suspensions (nanofluids) on cooling system materials” extended abstract published to the Adhesion Society Annual Meeting and Conf., Savannah GA, Feb. 2015.
- Aktaruzzaman, FNU, Molina, G.J., Soloiu, V., and **Rahman, M.**, “Assessment of the wear effects of low- and high-speed jet impingement of alumina nanofluids on heat-exchanger materials”, extended abstract submitted and accepted for the ATEMA Conference, Montreal, Canada, June 2015.
- **Rahman, M.**, Calloway, B., Sullivan, E., Darley, M., Hanson, A., Hare, C., and Mian, A., “Finite Element Analysis of a Hobie 16 Mast and Possible Alternatives for Improvement ,” **proceedings of the ASME 2014 International Mechanical Engineering Congress and Exposition (IMECE 2014)**, Montreal, Quebec, Canada, November 14 - 20, 2014.
- **Rahman, M.**, Absar, S., Aktaruzzaman, F., Rahman, A., and Hossain, A., “Effect of Ply Stacking Sequence on Structural Response of Symmetric Composite Laminates,” **proceedings of the ASME 2014 International Mechanical Engineering Congress and Exposition (IMECE 2014)**, Montreal, Quebec, Canada, November 14 - 20, 2014.
- **Rahman, M.**, Bennett, T., Gilsson, D., Beckely, D., and Khan, J., “Finite Element Analysis of Prosthetic Running Blades using Different Composite Materials to Optimize Performance,” **proceedings of the ASME 2014 International Mechanical Engineering Congress and Exposition (IMECE 2014)**, Montreal, Quebec, Canada, November 14 - 20, 2014.
- **Rahman, M.**, Aktaruzzaman, F., Absar, S., Mitra, A., and Hossain, A., “Finite Element Analysis of Polyurethane Based Composite Shafts under Different Boundary Conditions,” **proceedings of the ASME 2014 International Mechanical Engineering Congress and Exposition (IMECE 2014)**, Montreal, Quebec, Canada, November 14 - 20, 2014.
- Khan, J. R., and **Rahman, M.**, “Stress Analysis of Various Shaped Blade of Savonius Wind Turbine,” **proceedings of the ASME 2014 International Mechanical Engineering Congress and Exposition (IMECE 2014)**, Montreal, Quebec, Canada, November 14 - 20, 2014.
- **Rahman, M.**, Smith, A., Freeman, A., Denham, J., Christopher, L., Huggins, W., Johnson, Z., and Ragland, J., “Finite Element Modeling of Structural Design Optimization of Various Vertical Axis Wind Turbine Models,” 10th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics (HEFAT2014), Orlando, Florida, USA, July 14 – 16, 2014.

- **Rahman, M.**, Houdson, A., Molina, G., and Soloiu, V., “Computational analysis of laminar forced convection in rectangular enclosures of different aspect ratios,” 10th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics (HEFAT2014), Orlando, Florida, USA, July 14 – 16, 2014.
- Molina, G.J., Aktaruzzaman, FNU, Stregles, W., Soloiu, V., and **Rahman, M.**, “Tribological Effects of Nanofluids on Aluminum and Copper,” extended abstract accepted and presented to the STLE Annual Meeting and Conference, Orlando, FL, May 2014.
- Molina, G. J., Soloiu, V., **Rahman, M.**, Shanta, S.M., Powell, W., Watson, C., and Aktaruzzaman, FNU, “Wear Effects of Mineral-Oil Lubricant Dilution with Biofuels,” extended abstract accepted and presented to the STLE Annual Meeting and Conference, Orlando, FL, May 2014.
- **Rahman, M.**, Hudson, A., Molina, G., and Soloiu, V., “Numerical Analysis of Laminar Natural Convection in Rectangular Enclosures of Different Aspect Ratios with and Without Aerosol Nanofluid,” **proceedings of the ASME 2013 International Mechanical Engineering Congress and Exposition (IMECE 2013)**, San Diego, California, USA, November 15 - 21, 2013.
- Khan, J. R., Bashar, M.M., and **Rahman, M.**, “Computational Studies on the Flow Field of Various Shapes-Bladed Vertical Axis Savonius Turbine in Static Condition,” **proceedings of the ASME 2013 International Mechanical Engineering Congress and Exposition (IMECE 2013)**, San Diego, California, USA, November 15 - 21, 2013.
- Molina, G. J., Soloiu, V., and **Rahman, M.**, “Studies on surface effects of nano-power suspensions in cooling-system materials, Proc. of the 36th Annual Meeting of The Adhesion Society, Daytona Beach, FL, March 3-6, 2013.
- Molina, G. J., Soloiu, V., and **Rahman, M.**, “On the Surface Effects of Nanofluids in Cooling-system Materials,” Materials Research Society Spring Meeting, San Francisco, CA, April 1-5, 2013.
- **Rahman, M.**, Walker, C., Molina, G., and Soloiu, V., “Computational Analysis of Laminar Natural Convection in Rectangular Enclosures of Different Aspect Ratios with Different Heating Conditions,” **proceedings of the ASME 2012 International Mechanical Engineering Congress and Exposition (IMECE2012)**, Houston, Texas, USA, November 9 - 15, 2012.
- **Rahman, M.**, Nawaz, M., Mitra, A., Gharb, N., and Jackson, J., “Experimental Investigation and Finite Element Modeling Analysis of Photostrictive Optical Actuators,” **proceedings of the ASME 2012 International Mechanical Engineering Congress and Exposition (IMECE2012)**, Houston, Texas, USA, November 9 - 15, 2012.
- Mitra, A., Salekeen, S., and **Rahman, M.**, “Fabrication of polyurethane based fabric composite shaft and its experimental study under triple point bending,” **proceedings of the ASME 2012 International Mechanical Engineering Congress and Exposition (IMECE2012)**, Houston, Texas, USA, November 9 - 15, 2012.
- Ahmed, M. Zhang, C., Shirsat, V. and **Rahman, M.**, “The Numerical Simulations of Methane Combustion in a Meso-Scale Rectangular Channel,” Technical Presentation, **ASME 2012 International Mechanical Engineering Congress and Exposition (IMECE2012)**, Houston, Texas, USA, November 9 - 15, 2012.
- **Rahman, M.**, Nawaz, M., Mitra, A., Ghard, N., and Bhuiyan, M., “Experimental Investigation on Photostrictively Driven Optical Actuators,” **proceedings of 2012 Joint Conference of the Engineering Mechanics Institute and 11th ASCE Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability (EMI/PMC 2012)**, University of Notre Dame, June 17 -20, 2012.
- **Rahman, M.**, Walker, C., Molina, G., Soloiu, V., and Bhuiyan, M., “Numerical Study of Laminar Natural Convection in Square to Shallow Enclosures: Effects of Temperature Gradient and Heat Source,” **proceedings of 2012 Joint Conference of the Engineering Mechanics Institute and 11th ASCE Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability (EMI/PMC 2012)**, University of Notre Dame, June 17 - 20, 2012.

- Ahmed, M., Choudhuri, A., **Rahman, M.**, “Behavior of methane flame in the channel type meso-combustors,” published in the proceedings of **50th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition**, Nashville, TN, Jan. 9 -12, 2012.
- Molina, G., Hulett, M., Soloiu, V., **Rahman, M.**, “Erosion effects of nanofluids on selected cooling-system materials,” Submitted to the **3rd Int’l Conference in TriboCorrosion**, Atlanta, GA, 19-20 April, 2012.
- Molina, G., Hulett, M., **Rahman, M.**, Soloiu, V., “Exploratory Research in Erosion Effects of Nanofluids on Metallic Materials,” **2012 TMS Annual Meeting & Exhibition, Fatigue and Corrosion Damage in Metallic Materials: Fundamentals, Modeling and Prevention Symposium**, Orlando, FL, March 11-15, 2012.
- **Rahman, M.**, Nawaz, M., and Jackson, J. E., “Experimental investigation on the use of photostrictive optical actuator for MEMS devices and verification with the FEA modeling results,” **Proceedings of the 2011 ASME International Mechanical Engineering Congress and Exposition (IMECE2011)**, Denver, Colorado, USA, November 11 - 17, 2011.
- Molina, G., **Rahman, M.**, Soloiu, V., Walker, C., and Hulett, M., “Exploratory research work on tribological effects of nanofluids,” **2011 STLE Annual meeting and Conference**, Atlanta, GA, May, 2011.
- Ahmed, M., Choudhuri, A., Shirsat, V. **Rahman, M.** “An Investigation of Lean Limits of Hydrogen Flame at Meso-Scale,” **49th AIAA Aerospace Sciences Meeting including the New Horizons Forum and Aerospace Exposition**, Orlando, FL, Jan. 2011.
- **Rahman, M.**, Morshed, K. N. and Ahmed, M., “Numerical and Wind Tunnel Investigation on Aerodynamic Coefficients of a Three Bladed Savonius Wind Turbine with and without Overlap between Blades,” **2010 SAMPE Fall Technical Conference Proceedings**, Salt Lake City, UT, USA, 11-14 October , 2010.
- **Rahman, M.** “Finite Element Modeling Analysis of Photostrictive Materials use in Optical Actuator for Microdevices,” **2010 SAMPE Fall Technical Conference Proceedings**, Salt Lake City, UT, USA, 11-14 October, 2010.
- **Rahman M.**, and Morshed, K., “Numerical Analysis of Laminar Natural Convection and Particle Transport in Rectangular Enclosures of Various Aspect Ratios,” extended abstract published in the **proceedings of EMI 2010 Engineering Mechanics Conference** at University of Southern California, Los Angeles, California, USA, August 8-11, 2010.
- **Rahman, M.**, Morshed, K. N., and Mian, A., “Aerodynamic Performance Analysis of Three Bladed Savonius Wind Turbine with Different Overlap Ratios and at various Reynolds Number,” **Proceedings of the ASME 2010 International Mechanical Engineering Congress & Exposition (IMECE2010)**, Vancouver, British Columbia, Canada, November 12-18, 2010.
- Hossain, N.M. A., Woo, K., Jenkins, C. H, **Rahman, M.**, “A Proper Constitutive Model for Numerical Analysis of Lightweight Membrane Structures,” **2010 SAMPE Fall Technical Conference Proceedings**, Salt Lake City, UT USA, 11-14 October 2010.
- Molina, G. J., and **Rahman, M.**, “Development of a testing rig for erosion with nanofluids,” **2010 STLE Annual meeting**, Las Vegas, Nevada, May 16 -20, 2010.
- **Rahman, M.**, and Jackson, J. E., “Finite element approach to model displacement control of smart beams using photostrictive optical actuators,” **Proceedings of 2009 ASME International Mechanical Engineering Congress and Exposition (IMECE2009)**, Lake Bona Vista, Orlando, Florida, USA, November 13 - 19, 2009.
- **Rahman, M.**, Morshed, K. N., Lewis, J., and Fullar, M., “Experimental and numerical investigations on drag and torque characteristics of three-bladed Savonius wind turbine,” **Proceedings of 2009 ASME International Mechanical Engineering Congress and Exposition (IMECE2009)**, Lake Bona Vista, Orlando, Florida, USA, November 13 - 19, 2009.

- **Rahman, M.**, and Jackson, J. E., “Parametric study on beam deflection using photostrictive optical actuators: a finite element modeling approach,” *Proceedings of 2008 ASME International Mechanical Engineering Congress and Exposition (IMECE 2008)*, October 31 – November 6, Boston, Massachusetts, USA, 2008.
- **Rahman, M.**, and Akbar, M. K., “Particle Transport In a Small Square Enclosure Under Natural Convection Induced By High Temperature Gradient,” *Inaugural International Conference of the Engineering Mechanics Institute (EM08)*, University of Minnesota, Minneapolis, Minnesota May 18-21, 2008.
- **Rahman, M.**, and Jackson, J. E., “Modeling of Photostrictive Optical Actuators: A Finite Element Approach, abstract published,” *ASME Applied Mechanics and Materials Conference (McMAT 2007)*, June 3-7, University of Texas at Austin, 2007.
- Roy, S., Shimpi, N., Katti, A., Lu, H., and **Rahman, M.**, “Mechanical Characterization and Modeling of Isocyanate-crosslinked Nanostructured Silica Aerogels,” 47th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials Conference, 14th AIAA/ASME/AHS Adaptive Structures Conference, 7th AIAA Gossamer Spacecraft Forum, 2nd AIAA Multidisciplinary Design Optimization Specialist Conference, 8th AIAA Non-Deterministic Approaches Conference, 1 - 4 May, Hyatt Regency Newport, Newport, Rhode Island, USA, 2006.
- **Rahman, M.**, and Sharif, M. A. R., “Numerical Study of Natural Convection in Rectangular Boxes of Various Aspect Ratios,” *XXI Southeastern Conference on Theoretical and Applied Mechanics*, May 19-21, Orlando, Florida, USA, 2002.
- **Rahman, M.**, and Sharif, M. A. R., “Computational Analysis of Natural Convection in Inclined Rectangular Enclosures of Different Aspect Ratios,” *ASME International Mechanical Engineering Congress and Exposition*, November 17-22, New Orleans, Louisiana, USA, 2002.
- **Rahman, M.**, Islam, M. Q., and Islam, A.K.M.S., “Prediction of Dynamic Characteristics of a Three Bladed Savonius Rotor,” *Proceeding of The Third International Conference on Fluid Mechanics and Heat Transfer*, December 15-16, pp. 374-382, Dhaka, Bangladesh, 1999.
- **Rahman, M.**, Islam, M. Q., and Islam, A.K.M.S., “Aerodynamic Characteristics of a Three Bladed Savonius Rotor,” *Proceeding of The Second International Seminar on Renewable Energy for Poverty Alleviation, Institute of Engineers Bangladesh*, November 26 – 27, pp. 322 – 334, Dhaka, Bangladesh, 1999.
- Mahmud, S., **Rahman, M.**, and Sarker, A. R., “Simplified-Assumption Method for Solar Air Conditioning (Heating) Inside a Room,” *Proceeding of the Second International Seminar on Renewable Energy for Poverty Alleviation*, Institute of Engineers Bangladesh, November 26 – 27, pp. 166 – 170, Dhaka, Bangladesh, 1999.
- **Rahman, M.**, Islam, M. Q., and Islam, A. K. M. S., “Feasibility of Horizontal Axis Sailing Rotor for Lifting Water in Bangladesh,” *Proceeding of The Fifth Annual Paper meet, Institute of Engineers Bangladesh*, Mechanical Engineering Division, November 5 – 7, pp. 129 – 136, Chattagong, Bangladesh, 1998.
- **Rahman, M.**, and Haque, A. F. M. A., “Optimization of Solid Waste Collection System of Dhaka City Corporation,” *Proceeding of The Fifth Annual Paper meet, Institute of Engineers Bangladesh*, Mechanical Engineering Division, November 5 – 7, pp. 137 – 146, Chattagong, Bangladesh, 1998.

Conference Paper Presentation

- 2014 **2 paper** presented at the 10th International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics (HEFAT2014), Orlando, Florida, USA, July 14 – 16, 2014.
- 2013 **2 paper** presented at the ASME 2013 International Mechanical Engineering Congress and Exposition (IMECE2013), San Diego, California, USA, November 15 - 21, 2013.
- 2012 **4 paper** presented at the ASME 2012 International Mechanical Engineering Congress and Exposition (IMECE2012), Houston, Texas, USA, November 9 - 15, 2012.

- 2011 **1 Paper** presented at the *2011 ASME International Mechanical Engineering Congress and Exposition (IMECE2011)*, Denver, Colorado, USA, November 11 - 17, 2011.
- 2010 **3 Paper** presented at the SAMPE Fall Technical Conference Proceedings, 11-14 October, Salt Lake City, UT, USA.
- 2010 **1 paper** presented at the EMI 2010 Engineering Mechanics Conference at University of Southern California, August 8-11, Los Angeles, California, USA.
- 2009 **2 paper** presented at the ASME International Mechanical Engineering Congress and Exposition (IMECE2009), November 13 - 19, Lake Bona Vista, Orlando, Florida, USA, 2009.
- 2008 **1 paper** presented at the ASME International Mechanical Engineering Congress and Exposition (IMECE2008), October 31-November 6, Boston, Massachusetts, USA, 2008.
- 2008 **1 paper** presented at the Inaugural International Conference of the Engineering Mechanics Institute (EM08), University of Minnesota, Minneapolis, Minnesota May 18-21.
- 2007 **1 paper** presented at the ASME Applied Mechanics and Materials Conference (McMAT 2007), June 3-7, 2007 at the University of Texas at Austin.
- 2002 **1 paper** presented at the XXI Southeastern Conference on Theoretical and Applied Mechanics (SECTAM), May 19 - 21, Orlando, Florida, USA.
- 2002 **1 paper** presented at the ASME International Mechanical Engineering Congress and Exposition, November 17-22, New Orleans, Louisiana, USA.
- 1999 **1 paper** presented at the Third International Conference on Fluid Mechanics and Heat Transfer, BUET, Dhaka, Bangladesh.
- 1999 **2 paper** presented at the Second International Seminar on Renewable Energy for Poverty Alleviation, Institute of Engineers Bangladesh, Dhaka, Bangladesh.
- 1998 **2 paper** presented at the Fifth Annual Paper meet, Institute of Engineers Bangladesh, Mechanical Engineering Division, Chattagong, Bangladesh.

Research Poster Presentation

- 2012 Undergraduate research poster, "**Design, Fabricate and Testing of a small scale aerodynamically efficient Solar-Wind hybrid energy extraction system**", Odari Whyte and M. Rahman, The seventh Annual COUR Undergraduate Research Symposium, organized by COUR committee of GSU, April 2012.
- 2011 Undergraduate research poster, "**Design and Fabrication of a Prototype Savonius Vertical Axis Wind Energy Conversion System**", J. Turner and M. Rahman, The sixth Annual COUR Undergraduate Research Symposium, organized by COUR committee of GSU, 12th April 2011.
- 2011 Graduate research poster, "**FEA Modeling and Experimental Investigation on the use of Photostrictive Optical Actuator for MEMS Devices**", M. Nawaz and M. Rahman, The sixth Annual COUR Undergraduate Research Symposium, organized by COUR committee of GSU, 12th April 2011.
- 2010 ASPIRE NSF-Step summer 2009 undergraduate student Research poster, "**Design, Fabrication, and Performance testing of a prototype Flat-plate Solar Collector**", A. Ritchie and M. Rahman, 2010 COUR/ASPIRES/COST undergraduate Research Symposium, organized by COUR committee of GSU, 6th April 2010.
- 2010 Graduate research poster, "**Experimental Investigation on Aerodynamic Characteristics of Three Bladed Savonius Wind Turbine**", K. N. Morshed and M. Rahman, 2010 Graduate Research Symposium, organized by GSU, 31 March 2010.

- 2010 Undergraduate research poster, **“Design and Fabrication of a Savonius Type Wind Energy Conversion System”**, J. Turner and M. Rahman, 2010 COUR/ASPIRES/COST undergraduate Research Symposium, organized by COUR committee of GSU, 6th April 2010.
- 2009 Undergraduate research poster, **“Design and Fabrication of Wind Tunnel for Savonius Wind Turbine Model Testing”**, J. Lewis and M. Rahman, 2009 COUR/ASPIRES/COST undergraduate Research Symposium, organized by COUR committee of GSU, April 2009.
- 2009 Graduate research poster, **“Computational Fluid Dynamics Simulation on Aerodynamic Characteristics of a Three Bladed Savonius Wind Turbine”**, K. N. Morshed and M. Rahman, 2009 Graduate Research Symposium, organized by GSU, 31 March 2009.
- 2008 Research poster, **“Particle Transport In a Small Square Enclosure Under Natural Convection Induced By High Temperature Gradient”**, M. Rahman and M. K. Akbar, Georgia Tech Savannah Campus, 2nd Annual Research and Community Building Day, April 18, 2008.
- 2006 Post-graduate research poster, **“Mechanical Characterization and Computer Simulation of Structure-Property Relationship of Crosslinked Silica Aerogel”** Structural Composites Conference: Applications in Corrosion Prevention, Transportation, Defense and Infrastructure, February 8–9, University of Alabama Birmingham, AL, 2006.

Research Grants

Funded Grants for Scholarly Work

- 2014 Allen E. Paulson College of Engineering & Information Technology Faculty Research Seed Grant Proposal, FY 2014- 2015, “Numerical and experimental study of nano-structured, plasmonic enhanced efficient photovoltaic cell”, Total budget: \$ 10,000, Project Dates: November 2014 - May 2015, **Role: Co-Principal Investigator** with Dr. Abdur Rahman (PI) and Dr. Mohammad Ahad (Co-PI), **Status: funded.**
- 2014 GSU Faculty Research Seed Awards Application FY14, “Synergistic experimental research on critical operational properties of nanofluids”, Total budget: \$8633.26, Project Dates: August 2014 - May 2015, **Role: Co-Principal Investigator** with Dr. Gustavo Molina (PI), **Status: funded.**
- 2014 Georgia southern university FY 2013-14 faculty development summer award, for research in wind energy and develop a new course on “Wind Power” for the Mechanical Engineering undergraduate technical elective and also for graduate level (MS in Applied Engineering) energy science concentration, Total budget: \$2000, Project Dates: Summer 2014. **Role: Principal Investigator, Status: funded.**
- 2013 Allen E. Paulson College of Engineering & Information Technology Faculty Research Seed Grant Proposal, FY 2013- 2014, “Design and Development of an Aerodynamically Improved Innovative Vertical Axis Wind Turbine Model by Performing Wind Tunnel Testing and CFD Simulation”, Total budget: \$9870, Project Dates: December 2013- May 2014, **Role: Principal Investigator** with Dr. Mohammad Ahad (Co-PI), **Status: funded.**
- 2013 Allen E. Paulson College of Engineering & Information Technology Undergraduate Research (CEIT-UR) Award, “Study of River Current as the Sole Force for Operating Hydroelectric Turbines”, (Undergraduate Student: Matthew Faulk), Total Budget: \$2022, for the period November 2013 – May 2014, **Role: Faculty Mentor. Status: funded.**
- 2012 Georgia Southern University faculty development committee professional travel fund for 2012-2013 Fall travel to attend ASME 2012 (IMECE2012) conference and presented my four technical papers at Houston in November 2012. The fund amount was \$1150.00, **Role: Principal Investigator, Status: funded.**
- 2011 GSU College Office of Undergraduate Research (COUR) Award, **“Design, Fabricate and Testing of a small scale aerodynamically efficient Solar-Wind hybrid energy extraction system”**, (Undergraduate Student: Odari Whyte), **funded**, \$2,240, for the period July 2011 – May 2012, **Role: Faculty Mentor.**

- 2010 Georgia Southern University Faculty Research Committee 2010 Faculty Research Grant, ***“Experimental Investigation and Finite Element Modeling of Photostrictive Optical Actuators for MEMS Devices”***, funded, \$10,000, for the period July 2010 – May 2011, **Role: Principal Investigator.**
- 2010 GSU faculty development committee professional travel grant, for the project “SAMPE 2010 conference Presentation and Participation at Utah in October 2010”, **funded**, \$1295, for the period 6/2010 – 12/2010, **Role: Principal Investigator.**
- 2010 GSU Center for Excellence in Teaching, Faculty Development Grant, “to purchase a laboratory equipment to introduce a new experiment on cavitation in the fluid mechanics Laboratory of MEEE department”, **funded**, \$3695, with Dr. Mahbub Ahmed (PI), **Role: Co-Principal Investigator.**
- 2009 GSU College Office of Undergraduate Research (COUR) Award, ***“Design, Fabrication and Performance measurement of a prototype Savonius rotor vertical axis wind energy conversion system”***, (Undergraduate Student: Jonathan Turner), **funded**, \$2,500, for the period of July 2009 – May 2010, **Role: Faculty Mentor.**
- 2009 GSU Cost Research Award with Dr. Gustavo Molina, ***“Design and setup of an experimental research instrument for fundamental and applied studies of nanofluids erosion”***, **funded**, \$974, for the period 6/2009 – 05/2010, **Role: Co-Principal Investigator.**
- 2009 National Science Foundation **ASPIRE** NSF-Step summer 2009 undergraduate student Research Award of GSU, ***“Design, Fabrication, and Performance testing of a prototype Flat-plate Solar Collector”***, (Undergraduate Student: Alex Ritchie), **funded**, \$3,500, Duration: Summer 2009, **Role: Faculty Mentor.**
- 2008 Georgia Southern University Faculty Research Committee 2008 Faculty Research Grant, ***“Computational Fluid Dynamics (CFD) Simulation and Wind Tunnel Investigation for Optimum Design Configuration and Performance of Vertical Axis Savonius Rotor”***, **funded**, \$9,605, for the period of July 2008 – May 2009, **Role: Principal Investigator.**
- 2008 GSU College Office of Undergraduate Research (COUR) Award, ***“Study the Effect of Number of Blades on the Aerodynamic Characteristics of Savonius Rotors”***, (Undergraduate Student: Jeffery Lewis), **funded**, \$2,485, for the period of May 2008 – May 2009, **Role: Faculty Mentor.**
- 2008 GSU College Office of Undergraduate Research (COUR) Award, ***“Improvement in Design, Performance and Fabrication of a Formula SAE Race Car”***, (Undergraduate Student: Kyle D. Morse), **funded**, \$1,773.30, for the period of May 2008 – May 2009, **Role: Faculty Mentor.**
- 2008 GSU College Office of Undergraduate Research (COUR) Travel Award, (Undergraduate Student: Kyle D. Morse), **funded**, \$600, for the travel in 2008, **Role: Faculty Mentor.**

Not Funded Grants for Scholarly Work

- 2014 External grant proposal submitted to DOE (Number: DE-FOA-00009910E) FY 2014 VEHICLE TECHNOLOGIES PROGRAM WIDE FUNDING OPPORTUNITY ANNOUNCEMENT: Project title: Reactivity Controlled Compression Ignition Operation with PFI of n-Butanol and DI of Biodiesel Compared with DI of Binary Mixtures of n-Butanol and Biodiesel in Low Temperature Combustion., Total Budget requested: \$515,772.00, **Role: Co-Principal Investigator** with Dr. Valentin Soloiu (PI), Dr. David Calamas (SP) and Spencer Harp (SP), **Status: not funded.**
- 2014 External grant proposal submitted to GRAPE (GA Power) program: “Characterization of Material Erosion and Corrosion Effects of Biodiesels”, Total budget requested: \$97,926, **Role: Co-Principal Investigator** with Dr. Gustavo Molina (PI) and Dr. Valentin Soloiu (Co-PI), **Status: not funded.**
- 2014 External grant proposal for GRAPE (GA Power) program has been submitted to Allen E. Paulson College of Engineering & Information Technology for selection: “Evaluating the current state of waste to energy (WTE) technologies for future applications; and determination of the most potential WTE technology for competitively priced electricity generation in the Southeast”, Total budget requested: \$92,271, **Role: Principal Investigator** with Dr. Valentin Soloiu (Co-PI) and Dr. Gustavo Molina (Co-PI), **Status: not submitted to GP by the college.**

- 2014 Allen E. Paulson College of Engineering & Information Technology Faculty Research Seed Grant Proposal, FY 2013- 2014, "Experimental and Computational Investigation of the Current Challenges of Nanofluids Especially the Thermal one in Various Engineering Applications", Total budget: \$9900, Project Dates: December 2013- April 2014, **Role: Principal Investigator** with Dr. Gustavo Molina (Co-PI), **Status: not funded.**
- 2013 Allen E. Paulson College of Engineering & Information Technology of GSU, Faculty Research Seed Grants, "Wind Tunnel Investigation and CFD Simulation for Aerodynamic Performance Improvement of innovative Vertical Axis Wind Turbines", Total budget: \$16,380, **Role: Principal Investigator** with Dr. Jobaidur R. Khan (Co-PI) , **Status: not funded.**
- 2013 Allen E. Paulson College of Engineering & Information Technology Faculty Research Seed Grant Proposal, FY 2013- 2014, "Numerical and experimental study of nano-structured, plasmonic enhanced efficient photovoltaic cell", Total budget: \$ 11,000, Project Dates: December 2013- May 2014, **Role: Co-Principal Investigator** with Dr. Abdur Rahman (PI) and Dr. Mohammad Ahad (Co-PI), **Status: Not funded.**
- 2012 REU: Undergraduate Research in Applied Engineering (URAE), NSF REU, No. 7278492 , \$372,627.00, submitted in September 2012, **not funded**, **Role: Senior Personal**, with Rocio Alba-Flores (PI), Shonda Bernadin (Co-PI), Fernando Rios-Gutiérrez (Senior Personal).
- 2012 GSU Faculty Research Committee (FRC) grant proposal FY12, "**Dynamic Torque Measuring Test Set-up Development and CFD Simulation for Performance Improvement Investigation of Vertical Axis Wind Turbines**", Total budget: \$9,970, Project Dates: 07/01/12 – 05/31/13, **not funded**, **Role: Principal Investigator** with Dr. Mahbub Ahmed (Co-PI).
- 2012 GSU College Office of Undergraduate Research (COUR) Award, "**Design, Fabrication and testing of an innovative Vertical Axis Wind Turbine model: aerodynamically efficient at low speed wind conditions**", (Undergraduate Student: John Loftin Ragland), **not funded**, \$1988, for the period July 2012 – May 2013, **Role: Faculty Mentor.**
- 2012 Georgia southern university FY 2011-12 faculty development summer award, develop a new course on "Wind Power" for the Mechanical Engineering undergraduate technical elective and also for graduate level (MS in Applied Engineering) energy science concentration, Total budget: \$3000, Project Dates: Summer 2012, **not funded**, **Role: Principal Investigator.**
- 2011 Federal Funding, "**Characteristics of combustion and emissions of biofuels enhanced with selected fatty acids methyl esters**", Department of Energy [DOE], Total budget: \$500,277, Project Dates: 08/01/12 – 07/31/14, Not Funded, **Role: Co-Principal Investigator** with Dr. Valentin Soloiu (PI).
- 2011 Federal Funding, "**Research on design, operation and power management of hydraulic hybrid propulsion systems**", UPS, Total budget: \$81,882, Project Dates: 09/01/11 – 06/30/12. Not Funded, **Role: Co- Principal Investigator** with Dr. Valentin Soloiu (PI) and Dr. Frank Goforth (Co-PI),.
- 2011 Research Experience for Undergraduate (REU) Site: **Multiscale Structured Materials at Georgia Southern University**, \$ 259,950, National Science Foundation, for the period of 03/2012 – 02/2015, Not Funded, **Role: Co-Principal Investigator** with Dr. Shaowen Xu (PI).
- 2011 Research Experience for Undergraduate (REU) Site: **Undergraduate Research in Applied Mechatronics (URAM)**, \$ 355,407, National Science Foundation, for the period of 05/2012 – 08/2015, Not Funded, **Role: Senior Personnel**, with Dr. Frank Goforth (PI).
- 2011 Research Experience for Undergraduate (REU) Site: **Undergraduate Research in Non-invasive Instrumentation Design for Biomedical Applications**, \$ 252,144, National Science Foundation, for the period of 05/2012 – 08/2015, Not Funded, **Role: Senior Personnel**, with Dr. Mohammad Ahad (PI).

- 2011 National Science Foundation ASPIRES NSF-Step summer 2011 undergraduate student Research Proposal at GSU, ***“Design, installation and testing of an experimental test set-up of flow over a circular cylinder with the existing open circuit wind tunnel”***, (Undergraduate Student: John Willis), submitted February 2011, not funded, \$3500, **Role: Faculty Mentor.**
- 2010 National Science Foundation in the area of sustainable energy, ***“Development and Aerodynamic Analysis of Optimum Design Configuration and Performance of a Novel Vertical Axis Wind Turbine”***, \$263,255, submitted on March 2010 for the period of 08/10 – 8/13, not funded, **Role: Principal Investigator.**
- 2010 Research Experience for Undergraduate (REU) Site: ***Summer Research in Electrical and Mechanical Engineering for Clean Energy and other Practical Application at Georgia Southern University***, \$ 373,514, National Science Foundation, for the period of 05/2011 – 8/2013, not funded, **Role: Senior Personnel**, with Dr. Youakim Al-Kalaani (PI) and Dr. Shonda Bernadin (Co-PI).
- 2010 A pre-proposal to ORSSP for NSF-Major Research Instrumentation Program (MRI) proposal, my part: ***“Electrical properties investigation of photostrictive material and its application to various micro devices”*** for the period of 05/2011 – 8/2013, over \$ 100,000, not funded, **Role: key-personnel**, with Dr. Gustavo Molina (PI).
- 2010 GSU College Office of Undergraduate Research (COUR) Student Research Proposal, ***“Design, develop, and testing a small scale Pelton Wheel Water Turbine to study the effect of blade number and fluid velocity in performance improvement of the turbine”***, (Undergraduate Student: Richard Chad Gordon), submitted February 2010, not funded, \$2500, **Role: Faculty Mentor.**
- 2010 National Science Foundation ASPIRES NSF-Step summer 2010 undergraduate student Research Proposal at GSU, ***“Design, Fabrication, and Performance Testing of an Extended Surface (Fin) Experimental Setup”***, (Undergraduate Student: Vincent T. Owens), submitted February 2010, not funded, \$3500, **Role: Faculty Mentor.**
- 2008 Focused Research Program (FRP) proposal: ***“Wind Tunnel Tests and CFD Analysis of Aerodynamic Performance Improvement of Vertical Axis Savonius Rotor Wind Turbine”***, Research collaboration with Georgia Tech Savannah (GTS) and Georgia Southern University (GSU), with Dr. Muhammad Khalid, \$30,000, not funded, submitted on 23rd May 2008. **Role: Co-Principal Investigator.**
- 2008 Department of Energy [DOE], ***“Georgia Southern University – Energy Frontier Research Center, Multidisciplinary Energy Research in Environmentally Sustainable Biofuels”***, my Subtask: ***“Simulation of Fuel Injection and Spray Dynamics with Novel Biofuels for 21st Century Internal Combustion Engines”***, with Dr. Valentin Soloiu (PI) et al., total \$17,618,000, not funded, submitted on September 2008, My Portion of budget: \$520,000, **Role: Co-Principal Investigator.**
- 2007 National Science Foundation under the Mechanics and Structure of Materials category, ***“Modeling Photostrictive Optical Actuators to Improve Inertial MEMS Gyroscopes”***, \$134,420, submitted on 27th Sept. 2007 for the period of 06/2008 – 5/2010, not funded, **Role: Principal Investigator.**

Department-level Service at Georgia Southern University

- Faculty Search Committee, member:
 - Allen E. Paulson Eminent Chair of Renewable Energy position search, Fall 2007 – Spring 2008
 - Mechanical engineering faculty position search, Fall 2009 – Spring 2010
 - Three faculty positions search (Assistant Professor: Mechatronics, Assistant Professor: Material Science, and a Lecturer position), Fall 2010 – Spring 2011
 - Mechanical Engineering Lecturer Position, Fall 2012 – Spring 2013
- Chair, Advisement committee, Mechanical Engineering Department, Georgia Southern University, Fall 2012–present
- Chair, Curriculum committee, Mechanical Engineering Department, Georgia Southern University, Fall 2012–Spring 2013.
- Library Committee, member (Fall 2007– Spring 2009), Chair (Fall 2009 – present).
- Scholarship Committee, member, Fall 2010 – Fall 2013.

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- Assessment and Accreditation Committee, member, Fall 2010 – present
- Comprehensive Program Review Committee, member, Fall 2010 – Spring 2011.
- Academic Advisement Committee, member, Fall 2007 – Fall 2008
- Faculty mentor for three new faculties
- Laboratory coordinator for the Fluid Mechanics undergraduate Laboratory, Fall 2007 – present
- Laboratory coordinator for the Fluid dynamics graduate research Laboratory, Fall 2008 – present
- Faculty Advisor, ME, MET and Engineering Studies (GTREP/RETP/TOP) programs, Fall 2006 – present
- Engineering Mechanics Courses (Statics, Dynamics, and Mechanics of Materials) Coordinator, Spring 2011– present
- Chair, Graduate thesis defense committee, for four of graduate student's thesis defense, Spring 2010, Spring 2012, Spring 2013.
- Member, Graduate thesis defense committee, for two of graduate student's thesis defense, Spring 2013, Summer 2013.
- Attending the Mechanical Engineering Technology Industrial Advisory Committee meeting twice in every year, Spring 2007 – present
- Faculty mentor and research advisor to five MET undergraduate students:
 - *Jeffery Lewis and Mark Fular*, College Office of Undergraduate Research (COUR) project, May 2008 – May 2009
 - *Kyle D. Morse*, College Office of Undergraduate Research (COUR) project, May 2008 – May 2009
 - *Jonathan Turner*, College Office of Undergraduate Research (COUR) project, July 2009 – May 2010
 - *Alex Ritchie*, ASPIRE NSF-Step undergraduate student research project, Summer 2009
 - *Odari Whyte*, College Office of Undergraduate Research (COUR) project, July 2011 – May 2012
- Faculty mentor, research advisor, and thesis/project supervisor to seven graduate students:
 - *Khandakar Niaz Morshed*, MS in Applied Engineering (Mechatronics), Wind Energy research, Fall 2008 – Spring 2010, Graduated Spring 2010
 - *Charles Walker*, MS in Applied Engineering (Eng. Management), CFD research, Fall 2009 – Spring 2012, Graduated Spring 2012.
 - *Masud Nawaz*, MS in Applied Engineering (Mechatronics), experimental solid mechanics and smart materials (PLZT optical actuator) research, Fall 2010 – Spring 2012, Graduated Spring 2012.
 - *Rodolfo C Saavedra*, MS in Applied Engineering (Mechatronics), Wind Energy research, Spring 2011– present, expected graduation Spring 2013
 - *Michael D Boyett*, Project based MS, project on comprehensive study on Wind energy in Georgia, expected graduation Fall 2013.
 - *Andrew Hadson*, MS in Applied Engineering (Mechatronics), Computational Fluid Dynamics (CFD) research, Spring 2011– Spring 2013, graduated Spring 2013.
 - *Mohammad Bashar*, MS in Applied Engineering (Mechatronics), Wind Energy computational and experimental research, Fall 2012– present, expected graduation Spring 2014.

College and University level Service at Georgia Southern University

- Senator, Faculty Senate Committee of the Georgia Southern University, Fall 2012 – present
- Member, Faculty Welfare Committee (FWC) of the Georgia Southern University, Fall 2012 – present
- Member, Faculty Grievance Committee (FGC) of the Georgia Southern University, Fall 2012 – Fall 2014
- Two Associate Deans Search Committee, member:
 - Allen E. Paulson College of Engineering and Information Technology Associate Dean Search, Fall 2012 – Spring 2013.
- Tenure and Promotion Committee, member
 - Allen E. Paulson College of Engineering and Information Technology, Fall 2012 – Spring 2013.
- Tenure and Promotion Committee, member
 - Electrical Engineering Department, Fall 2012 – Spring 2013.
- Committee chair, Gulfstream Scholars program Scholar's interview Teams, Spring 2010, 2011, Fall 2012

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- Committee chair, President's Scholars program Scholar's interview Teams, Spring 2012
- Academic advisor in the COST advisement center, Fall 2007 – Fall 2011
- Participated the Scholar's Day event, Spring 2010 and Spring 2011
- Invited presentation on "Study Tips for Engineering Students", as an invited guest speaker for a workshop sponsored by the COST Advisement Center, Georgia Southern University, Fall 2010 and Spring 2011.
- Participated in the Project Lead the Way (PLTW) 2010 Summer Training Institute (STI) at the Georgia Southern University. Successfully completed 80 hours of instruction in Principles of Engineering (POE) and obtain the Affiliate Professor status for the PLTW.
- Affiliate Professor of the PLTW.
- Participated in PLTW STI 2011 Core Training Preparation Session Workshop, Las Vegas, Nevada, April 28 - 30, 2011
- Participated in GSU *Conversations With Professors (FYE 1000)*, August 2010, August 2011
- GSU Open House, December 2007 – present
- Participated in GSU graduation day march, May 2007, December 2007, December 2008, May 2009, May 2010, May 2011

Professional Development Activities

- Manuscript reviewer over 25 journal and technical conference papers
- Journal paper reviewer:
 - Journal of Engineering Materials and Technology (1 paper)
 - Journal of Smart Materials and Structures (2 paper)
- Conference paper reviewer
 - ASME 2011 (IMECE 2011) conference paper (3 paper)
 - ASME InterPACK2011 conference paper (2 paper)
 - ASME 2010 (IMECE 2010) conference paper (1 paper)
 - ASME 2009 (IMECE 2009) conference paper (1 paper)
 - AIAA 2009 conference paper (7 paper)
 - Sustainability Energy Conference 2009 paper (1 paper)
 - ASME 2008 (IMECE 2008) conference paper (4 paper)
- Session co-organizer and session co-chair of "Applied Mechanics and Materials" session of ASME 2012 International Mechanical Engineering Congress and Exposition, Houston Texas, November 9– 15, 2012
- Session co-organizer and session co-chair of "Applied Mechanics and Materials" session of ASME 2011 International Mechanical Engineering Congress and Exposition, Denver Colorado, November 11 – 17, 2011
- Session organizer and session chair of "Applied Mechanics and Materials" sessions of 2009 ASME International Mechanical Engineering Congress and Exposition (IMECE2009), November 13 - 19, Lake Buna Vista, Orlando, Florida, USA, 2009.
- Session co-organizer and session co-chair of "Applied Mechanics and Materials" session of 2008 ASME International Mechanical Engineering Congress and Exposition, Boston Massachusetts, October 31- November 6, 2008.
- Participated in department faculty workshop for *Program Assessment, Evaluation and Improvement*, conducted by Dr. David E. Hornbech, PE, at Mechanical and Electrical Engineering department, organized by Georgia Southern University, April 5 -6, 2007.
- Participated in college-wide Grant writing Workshop on *how to write winning grants* presented by Dr. Stephen Russell on October 26, 2007.
- **Graduate Thesis/Project Major Supervisor for**

K. N. Morshed	M. Appl. Engineering	(GSU, May. 2010)	Topic: Wind turbine research
Charles Walker	M. Appl. Engineering	(GSU, July 2012)	Topic: CFD simulation
Masud Newaz	M. Appl. Engineering	(GSU, May. 2012)	Topic: PLZT Optical Actuator
Andrew Hudson	M. Appl. Engineering	(GSU, July 2013)	Topic: Simulation of Nanofluids
Mohammad Bashar	M. Appl. Engineering	(GSU, Dec. 2014)	Topic: Wind turbine simulation

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Chris Berry	M. Appl. Engineering	(GSU, July 2014)	Topic: Simulation of Nanofluids
John Ragland	M. Appl. Engineering	(GSU, May 2014)	Topic: Wind turbine research
Brandon Byrnes	M. Appl. Engineering	(GSU, May 2014)	Topic: Wind turbine research
Travis Salyers	M. Appl. Engineering	(GSU, May 2016)	Topic: Wind turbine research
Emile Maroha	M. Appl. Engineering	(GSU, May 2017)	Topic: Wind turbine research
John Willis	M. Appl. Engineering	(GSU, May 2017)	Topic: Expt. /comp. Nanofluids

Experience while in Bangladesh University of Engineering and Technology (BUET)

- Consultant for several industries (such as Iodized-salt industries of Bangladesh, BSTI) through Bureau of Research, Testing and Consultation (BRTC), Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, January 2000 – May 2000.
- Flood research project: “Study of Damage and Productivity loss in Engineering / Manufacturing Industries during 1998 Flood”, worked as a co-advisor of the Flood Research Team of BUET.
- Industrial Training: Karnofuli Hydro-Electric Power Plant, Kaptai, Power Development Board of Bangladesh (PDB), Bangladesh, one month in 1996.