Curriculum Vita

NAEL BARAKAT, Ph.D. P.Eng. ASME-Fellow
Associate Dean for Research and Graduate Studies
Director of the Sustainable Energy Systems Engineering PhD Program (ESEN)
Professor of Mechanical Engineering
Frank H. Dotterweich College of Engineering
Texas A&M University – Kingsville

OVERVIEW

Nael Barakat is currently the Associate Dean for Research and Graduate Studies and Professor of Mechanical Engineering at Texas A&M University – Kingsville, USA. Dr. Barakat is a strategic leader, an effective manager, a passionate educator, and a dedicated professional, with a global network, who continues to be active in engineering education innovation, leadership, research, development, and engineering professional organizations. A professionally registered engineer, with an international background, and a fellow of the American Society of Mechanical Engineers (ASME), member of both the American and European Societies of Engineering Educators (ASEE & SEFI), as well as the International Society of Engineering Pedagogy (IGIP), he continues to advocate for the engineering profession and its societal dimension, in a global context.

Dr. Barakat is also a recognized mentor, who is capable of empowering colleagues and students with genuine enthusiasm and care, towards continuous growth and success. He provides a distinct leadership style characterized by consensus building and inclusiveness of diversity, where he acts as the catalyst to synthesize vision and strategy, as well as a motivator and supporter during implementation and assessment, resulting in mutually approved plans and operations, in an atmosphere of mutual trust and respect. As an engineering educator, Dr. Barakat continues to be an effective teacher and mentor emphasizing the practical side of engineering education through student-focused hands-on and project-based innovative learning techniques, backed by strong theoretical understanding and clear links to industry and business practices, in a global context.

EDUCATION

Ph.D.	Mechanical Engineering, McMaster University, Hamilton, ON. Canada,	2000
M.A.Sc.	Mechanical Engineering, Concordia University, Montreal, QC. Canada.	1996
B.Eng.	Mechanical Engineering, Kuwait University, Kuwait,	1989

ACADEMIC and RESEARCH EXPERIENCE

Texas A&M University – Kingsville (TAMUK), TX. USA (Sep '16 – Present)
Associate Dean for Research and Graduate Studies, Professor of Mechanical Engineering
Director of the Sustainable Energy Systems Engineering PhD Program
Grand Valley State University (GVSU), MI, USA (Aug '05 – Aug '16)
Professor of Engineering - Mechanical (Jan '13 – Aug '16)
Mechanical Engineering Program Chair (May '10 - Aug '16)
Tenured / Associate Professor (May '09 - Dec '12)
Assistant Professor - Tenure Track (Aug '05 - Apr '09)
The University of Waterloo, Waterloo, ON. Canada (Aug '09 - Jan '10)
Visiting Research Professor – Department of Systems Design Engineering - Sabbatical Leave

Lake Superior State University (LSSU), MI, USA (Aug '02 - Jul '05)
Assistant Professor – Mechanical Engineering - Tenure Track

Multiple Universities – Teaching and Research Assistant
Mechanical Engineering, McMaster University, Hamilton, On. Canada. (Jan '96 - Nov '99)
Mechanical Engineering, Concordia University, Montreal, Qc. Canada. (Sep '93 - Jan '96)
Mechanical Engineering, Kuwait University, Kuwait. (Dec '89 - Aug '90)

RESEARCH, SCHOLARLY, and CREATIVE ACTIVITIES

A. Mechatronics, Energy Harvesting, Robotics, and Nanotechnology

- Research and Development in the area of energy harvesting utilizing electromagnetic devices combined with super-capacitors. Collaborated with the University of Waterloo and Virginia Tech.
- Design and development of robotic applications for rehabilitation, experiential education, and service/outreach.
- Development and establishment of a sustainable robotics lab for experiential learning, based on extramural funding and collaborative undergraduate and graduate courses' projects to support the education infrastructure at GVSU school of engineering.
- Supervision and support of graduate students' projects and theses to design and build innovative mechatronics based robotic devices.
- Development of a collaborative program (with EE) for nanotechnology integration into undergraduate education, including courses, project and co-op education opportunities, as well as outreach programs, funded by NSF grant.

B. Engineering Innovation, Leadership, Ethics, Professionalism, and Education

- Research and development in the areas of Engineering leadership, ethical, societal, and global context, with focus on education and assessment methods for implementation by instructors and practicing engineers.
- Development and application of comprehensive plans to support quality performance through assessment, evaluation, and dissemination of engineering large-size research and development projects.
- Development, organization, and delivery of numerous national and international activities (publications, conference tracks, invited seminars, workshops, etc.) focusing on engineering leadership, professionalism, and social responsibility, as well as methods to integrate these dimensions in engineering education.
- Development and delivery of a living, unique, graduate course in professional aspects of engineering covering life-long and professional skills (ethics, research methods, leadership, sustainability, public policy, communication, etc.).
- Serving in leadership and advisory roles on multiple professional engineering ethics, leadership, and steering committees, as well as community based organizations: (ASME chair of Technology and Society division, ASEE chair of the Ethics division, WFEO Anti-corruption committee representing US engineers, executive board member with the National Institute for Engineering Ethics (NIEE), Science and Technology advisory committee of the local school district, etc.).
- Development and implementation of an innovative STEM (K-12) outreach collaborative program at GVSU since 2011 that continued to expand.

INDUSTRIAL and PROFESSIONAL EXPERIENCE

A. Professional Consulting - Independent (Jun '01 - Present)

Active technical consulting for industrial and professional partners to develop innovative products and solutions. Examples:

1. Leadership, professional, and educators training, as well as reviewer of promotion and funding applications. On-going (various organizations).

2. Thermal analysis and improvement of heavy duty welding transformers 2012 – 2016, (Confidential Industrial partner).
3. Machined lifter-rods failure investigation – Completed 2012 (Industrial partner, MI. USA).
4. Sheet metal handling automation – Completed 2010 (Industrial partner, MI. USA).
5. Thermal management of electronics in rear-view mirrors – Completed 2007 (Magna, MI. USA)
6. Automation feasibility study and prototype of brake-cores production. Completed 2004 (Dana, Canada).
7. Characterization and automation of electronic wafer testing – Completed 2001 (Industrial partner, PA. USA)

B. *Agere Systems – Formerly Lucent Technologies, PA. USA* (Jan '01-Jun '01)
Automation and Control Development Engineer

C. *Brown and Sharpe Manufacturing Co. RI. USA* (Nov '99 – Dec '00)
Research Metrologist

D. *Volvo & Bosch Dealership, Kuwait* (Aug '91 – Nov '92)
Mechanical and Service Engineer

ADMINISTRATIVE and MANAGEMENT EXPERIENCE

A. *Associate Dean for Research and Graduate Studies*
College of Engineering, Texas A&M University – Kingsville (TAMUK) (Sep '16 – Present)
Provided effective leadership in establishing and managing a strategic vision, a sustainable structure, and all relevant policies and procedures, towards sustainable growth of the research and graduate studies' sectors, at the College of Engineering (CoE). Also, managed the facilities for the entire CoE.

1. *Vision and strategy*
   - Led and guided strategic growth directions (innovative and evolving areas, clustered transdisciplinary research groups, conducted recruiting activities and trips for students and projects, etc.).
   - Provided opportunities and invited junior faculty to participate in large scale collaborative, multi-institutional research through my own network. Led the identification of innovative funding resources and mechanisms, in addition to classic areas. Supported existing research centers (three different centers) and the initiation of a new center for transportation research, led by a junior faculty who is currently my mentee.
   - Advised on hiring, supported, and mentored all faculty members in research priority areas, with focus on junior faculty preparation for leadership.
   - Facilitated clustering researchers and external collaboration to target maximum possible funding opportunities.
   - Organized existing graduate programs and wrote proposals for new programs. Currently leading the proposal for an interdisciplinary PhD program in Engineering with concentration in ME, EE, CE, ChE, and IE.
   - Diversified the PhD in Sustainable Energy Systems Engineering student body and funding sources.
2. *Operations and relations*
   - Established and led a new and flexible management and operation structure accommodating different research and graduate studies' needs and directions.
   - Represented, and advocated for, TAMUK CoE at the different funding agencies and decision making entities. Involved junior faculty related to each agency to participate and take an active role.
   - Directed, organized and revitalized the PhD in Sustainable Energy systems Engineering (ESEN) program. Established the policies and procedures, managed courses and academics, chaired the governing committee, and secured all resources for students and faculty. Also, recruited quality students to double the existing student contingent within one year.
   - Arranged and led national and international presentations for outreach and recruiting graduate students.

Doubled the PhD in Sustainable Energy Systems Engineering students in one year from 14 to 28 with a higher GPA and GRE average and diversified funding and scholarship base.
- Planned and chaired committees to foster inclusiveness, consensus, and active participation from faculty.
- Established and streamlined all policies and procedures to allow flexible and effective management.

3. *Personnel and Resources*
   - Planned and justified budgets and needs for resources. Managed different accounts such as faculty travel funds, junior faculty training and workshops support, startup funds, PhD program funds, among other funds. Total accounts managed for research and graduate studies over $1.25 M.
   - Budgeted and established a system for startup funding management with different funding types and made the case to request funds. Funds are slowly extracted and are currently managed and allocated.
   - Mentored junior faculty through all internal and external processes for funding acquisition and graduate supervision. Invited and involved multiple junior faculty in my larger collaborative proposals.
4. *Leading by exemplary performance*
   - Initiated and led collaborative own research funding proposals and programs, inviting junior faculty to participate and get a head start.
   - Initiated and collaborated on extraction and execution of external funding for research, development, and institutional support purposes.
   - Supported the expansions of three existing research centers.

B. Chair of Mechanical Engineering (ME)

Engineering (SOE), Grand Valley State University (GVSU), MI. USA. (May '10 - Aug '16)

Provided effective leadership, administration, and management to establish a strategic vision for sustainable growth of the ME program that is inclusive of diversity in all aspects, fostering consensus of ME faculty and administration, as well as efficient utilization and planning of resources. Results span the following 5 areas:

1. *Vision and strategy*
   - Facilitated and led the identification of strategic growth directions (innovative and evolving areas).
   - Managed and executed the hiring and mentoring of faculty in priority areas, resulting in significant growth and stability. ME faculty has doubled with 65% female since I started serving as chair.
   - Introduced and organized the annual ME retreat, sometimes hosted by one of our industrial partners, to spend an entire day for evaluation of curriculum assessment and strategic planning.
2. *Operations and relations*
   - Established and led a new management and operation structure of ME, with collegial consensus, for collaborative delegation of tasks.
   - Represented, and advocated for, ME at the different university levels, as well as nationally and internationally.
   - Planned and chaired meetings, reported and followed up on decisions and action items for implementation.
   - Established and activated an industrial advisory board (IAB) for the ME Program.
3. *Personnel and Resources*
   - Mentored and supported junior faculty through guidance and performance assessment for teaching and scholarship, as well as through the tenure process.
   - Planned and justified program budget, program needs for resources, and faculty-lines requests, in alignment with program strategy, curricular needs, and college plans.
   - Developed schedules and managed pedagogical resources, then led the process to approve them with consensus from the ME and administration.
   - Ensured nominating ME faculty for possible awards annually to reward achievements and remarkable work.
4. *Curriculum, students, and quality*
   - Led the development and implementation of students' outreach and recruiting plans to ME. ME enrolment increased by 35% from 2010 to 2015. ME in 2016 is more than 55% of the School of Engineering.
   - Continued advising and mentoring graduate and undergraduate students academically and professionally.
   - Coordinated and authored documentation of ABET self-study for 2016 accreditation. The ME program was

successfully accredited.

- Streamlined and implemented sustainable plans for assessment-based continuous improvement of the curriculum, at both graduate and undergraduate levels.
- Review, realignment, and repackaging of elective courses in specialized tracks, as well as the identification of needed electives to balance and update the curriculum.
- Leading and supporting the establishment of the ME-MS articulated/integrated program allowing students to graduate with a Masters' degree. First students out of this program in SOE were ME students.
- Initiated and led the establishment of the ME minor for non-ME students and a plan for a certification program based on repackaging tracks of focused electives.

5. *Leading by exemplary performance*
   - Initiated, collaborated on , and supported many improvements and innovations at the school including: 1) Development and launching of the biomedical engineering minor, 2) Revamp and renovation of the academic content in the Co-op courses, 3) Revamp and restructuring of the senior projects course sequence.
   - Initiating and collaborated on extraction and execution of external funding for research, development, and institutional support purposes.
   - Continued to develop and teach threads, courses, and labs in Engineering supported by extramural funding.

C. ***ASME - district B leader*** *(Oct '11 – Sep* '14)

The American Society of Mechanical Engineers (ASME) divides the world into 10 districts for serving its members. District B contained all senior and student sections in the rust-belt states of: MI, OH, WV, West PA, and Ontario, totaling over 10,000 members [17 senior sections and 56 student sections]. The district leader (DL) reports directly to the VP Global Communities of the ASME. After being elected to this position, I provided leadership achieving the following:

- Initiated and led the strategic restructuring of the district operating board (DOB) and the identification of leaders of various groups handling tasks of the DOB, focusing on diversity and early career members.
- Initiated, supported, and managed the organization of the combined annual ASME - Student Professional Development Conference (SPDC), the annual Student Leadership Seminar (SLS), and the Leaders Conference (LC) for the senior sections' leaders, in the district, annually. This model was later adopted by other districts.
- Projected and managed the district budget in addition to supporting the sections in pursuing merit-based funding.
- Initiated and established a timely communication structure for leaders of sections and members of the District B Operating Board (DBOB) for enhanced management and support of members.
- Initiated and implemented plans to activate and revive dormant sections.
- Nominated and supported active volunteers for all possible awards and recognitions.
- Represented the district in all national meetings and conferences of ASME.
- Served as a member of the board for ASME global communities sector.

D. ***ASME - Chair of the Technology and Society (T&S) Division*** (Oct. '12 – Present)

Elected chair to revitalize the T&S technical division. Established and implemented a strategic plan to bring the division back to life within one year, including building a leadership team of volunteers, resulting in the division becoming fully functional within 12 months.

E. ***ASME – Member and Chair elect for CESR*** (Jun '08 – Nov '11)

Elected chair for the Committee on Ethical Standards and Review (CESR) of the ASME after serving as a member.

F. ***ASME – Leadership Prime Trainer and Consultant*** (2007 - 2016)

Invited trainer and organizer for leadership training programs to train future ASME leaders. Examples:

1. Leadership training Conferences (LTC) (2007 – 20012).
2. Mentoring Leaders – Society-wide workshop – IMECE, Montreal, Nov. 2014.

3. District H (Europe) Leadership training – Istanbul, Turkey – May 2013.
4. District J (Middle East and Africa) Leadership training – Abu Dhabi, UAE – Dec 2013.

G. ***ASEE – Engineering Ethics Division Executive Member/Chair*** (Jun '013 – Jun '17)

Elected to serve on the executive board of the Ethics Division within The American Society for Engineering Educators (ASEE). Served as a secretary and treasurer for one year, then as program chair for one year, then as chair of the division for one year. Currently serving as the immediate past chair.

H. ***Conferences' organizer/advisor*** (Nov '08 – 2016)

Served as conference general manager, topic organizer, chaired sessions, and reviewed papers as well as coordinated paper reviewers, for multiple conference annually. Examples:

1. ASME-IMECE track on ethics and emerging technologies (Nov '08, Dec '14)
2. ASEE Ethics division program chair (2015)
3. Advisory committees of IEEE-EDUCON, international conference on interactive and collaborative learning (IEEE-ICL), and International Conference on new Trends in Computing Sciences – Jordan (2017).

GRANTS and EXTRAMURAL FUNDING

Pending

1. *U$ 1M (PI) NSF PFI:BIC grant* - Mobile App based Health Monitoring Systems (MAHMS), in collaboration with V-Tech and industrial partners, 2017 - 2019.
2. *U$ 488,823 (Co-PI)* NSF IIS grant - Robust Intelligence: Towards robust collaborative sensemaking analytics, 2017 – 2019.
3. U$ 5M (Co-PI), NSF CREST grant - Centers for Research Excellence in Science and Technology (CREST), 2017 - 2022.
4. U$ 4M (PI), NSF PIRE grant - Sonomechatronic Technology for Water Reuse through Treatment of Biological and Chemical Contamination, in collaboration with LUH Germany and Virginia Tech, 2017 – 2022.
5. U$ 75K (PI) NIST – "Fusion of Codes and Standards in ME education," multiple schools collaboration, 2017 – 2019.

Granted and In Progress:

1. U$ 500,000 (Co-PI) NSF grant: CASCaded Mentoring and Design Experience (CASCADE), (2017 – 2018)

Completed:

2. U$ 600,000 (Co-PI) NSF grant to support talented STEM students in financial need (2011 – 2016)
3. U$ 200,000 (Co-PI) NSF grant for nanotechnology integration into undergraduate education, NUE 09-533.
4. U$ 42,000 GVSU-FTLC/CSCE internal Research, and dissemination grants (Sep '05 – Dec '15)
5. U$ 16,046 GVSU – College of Graduate Studies - special research projects grant (Aug '11 – Apr '12).
6. U$ 10,000 Robotic equipment through donation to GVSU from Gentex Corporation (2010)
7. U$ 5500 Michigan Space Grant Consortium, (MSGC) advising students to build a robot (2009)
8. U$ 5000 MSPE grants for building robots by students (2007 - 2008)
9. U$ 20,000 robotics equipment donation from DANA Brake parts Canada (03-04) to LSSU.
10. U$ 3,000 Diversity Action Grant, (ASME $1,200) and matching funds from LSSU (2004).

TEACHING

A. ***Courses:*** Developed and taught many courses, modules, and labs including: Robotics, Control systems, Mechatronics, System dynamics, Introduction to Nanotechnology, Senior-capstone projects, Technical communications, Mechanics, Machine Design, Dynamics, Kinematics and Dynamics of Machinery, and Ethics & Professionalism.

B. ***Graduate Theses Advisor***

1. William Lee DeVree, “Optimization of Glass Filters Assembly Operations,” M.Sc. E. thesis - 2016.
2. Michael Kalsbeek “Characterization and improvement of an industrial edge folding process for the automotive industry,” M.Sc. E. thesis, 2016.
3. Rodrigo B. de Juan, “Investigation of a nonlinear electromagnetic vibration energy harvester performance in combination with a super capacitor,” M.Sc. E. thesis, 2016.
4. Archana Pradeep: “Assistive remote controlled robotic-haptic arm,” M.Sc. E. thesis, Oct. 2015.
5. Bradley Peirson, “Haptic Feedback Arm for Muscular Rehabilitation,” M. Sc. E. thesis, Apr. 2012.

C. Graduate Theses Co-advisor

1. Srikanth Bashitty, “Off shore floating windmills clusters optimization,” Ph.D. thesis in Sustainable energy Systems Engineering, in progress.
2. Abhinav Mukherjee, “Drone optimal control,” M.Sc. E. thesis, in progress.
3. Jeffery Johnson, “Automated fabrication and testing of dye sensitized solar cells,” M.Sc. E. thesis, Apr. 2014.
4. John Witte, “Characterization of hygroscopic behavior in a polymer materials,“ M.Sc. E. thesis, Apr. 2014.
5. Ansar Mohammad, “Automated data management for industrial environment,” M. Sc. E. thesis, Apr. 2009.
6. Master’s thesis external reviewer: Mobile Robots Engineering, from Purdue University, Midwestern Association for Graduate Schools (MAGS), Apr. 2008.

D. Executive, professional development, and Invited seminars/courses/workshops:

Developed and delivered content in an executive or seminar style, lectures, and workshops, for professional training and development, including on-line courses. Examples include: Engineering Ethics and Professionalism, Engineering Globalization, Technical Communications (written and oral) – different length workshops.

E. Supervised and mentored achievements by undergraduates

1. GVSU – ASME student section advisor achieving continuous wins in national competitions (2006 – 2011).
2. LSSU – ASME student section advisor achieving continuous wins in national competitions (2002 – 2005).
3. Supervised multiple industry-based and externally sponsored senior-capstone and course, design/build projects.

LICENSES and PROFESSIONAL AFFILIATIONS

1. Licensed Professional Engineer in Ontario, Canada (PEO).	(2000 - present)
2. American Society of Mechanical Engineers (ASME).	(Fellow, Member since 1995)
3. American Society of Engineering Education (ASEE).	(Member since 2002)
4. European Society for Engineering Education (SEFI).	(Member since 2011)
5. International Society for Engineering Education (IGIP).	(Member since 2010)
6. International Association of Engineers (IAENG).	(Member since 2008)

HONORS and AWARDS

1. ASME McDonald Mentoring Award	(2014)
2. Elected member of the executive board of directors of the NIEE	(2014-2017)
3. ASME Dedicated Service Award	(2012)
4. ASME student section advisor award – District B (2nd time)	(2011)
5. Elected Fellow of the ASME	(2010)
6. GVSU Distinguished Early-Career Award	(2010)
7. Awarded Best Student Paper Award advisor and co-author, ASEE-NCS	(2009)
8. ASME student section advisor award for - District B.	(2007)

9. Outstanding advisor of the engineering societies, LSSU. (2005)
10. Elected graduate students rep to the McMaster University senate. (1997 - 1999)
11. FCAR (Province of Quebec scholarship) full scholarship for doctoral degree studies (1996 - 1999)

PUBLICATIONS and PRESENTATIONS

A. Refereed Journals

1. M. Kalsbeek, A. Al-Shalash, and N. Barakat, "A Case Study of a Thermally Assisted Manufacturing Tool and Process Modeling for Design Optimization," Journal of Applied Thermal Engineering, Vol. 123, P. 1 – 6, Aug, 2017. https://doi.org/10.1016/j.applthermaleng.2017.05.059.
2. Nael Barakat, "Engineering ethics and professionalism education for a global practice," QScience Proceedings: Vol. 2015, Engineering Leaders Conference 2014, 5. DOI: 10.5339/qproc.2015.elc2014.5 http://www.qscience.com/doi/full/10.5339/qproc.2015.elc2014.5.
3. Jiao, L. and N. Barakat, "Ion-Sensitive Field Effect Transistor as a PH Sensor." *Journal of Nanoscience and Nanotechnology*. Volume 13, Number 2, February 2013 , pp. 1194-1198(5), http://dx.doi.org/10.1166/jnn.2013.6065.
4. Jiao H. and N. Barakat, "Balanced Depth and Breadth in a New Interdisciplinary Nanotechnology Course," Journal of Educational Technology Systems, Vol 40(1), 75 - 87, Baywood Publishing Company, Inc. 2011 – 2012, doi.10.2190/ET.40.1.g, http://baywood.com.
5. Nael Barakat, "Engineering Ethics: A Critical Dimension of the Profession," International Journal of Engineering Pedagogy (iJEP), Vol. 1, issue 2, July, 2011, www.i-JEP.org, www.online-journals.org, DOI:10.3991/ijep.v1i2.1639, invited paper.
6. Nael Barakat "Balanced integration of theory and applications in teaching Robotics," The International Journal of Learning, Common Ground Publisher (CGP), Vol. 18, No. 1, pp. 245-258, http://www.Learning-Journal.com, ISSN 1447-9494, 2011.
7. Barakat N. and H. Jiao, "Proposed Strategies for Teaching ethics of Nanotechnology,"Nanoethics Journal, Springer, Netherlands, Sep. 2010. DOI 10.1007/s11569-010-0100-0.
8. N.A. Barakat, M.A. Elbestawi, and A.D. Spence, "Adaptive Compensation for Quasi-Static Errors in an Intrinsic Machine", Int. J. Mach. Tools and Manufacture. Sep. 2000. 40 (2000) pp. 2267-2291.
9. N.A. Barakat, M.A. Elbestawi, and A.D. Spence, "Kinematic and Geometric Error Compensation of a Coordinate Measuring Machine," Int. J. Machine Tools and Manufacture 40 (6) (2000) pp. 833-850.
10. Rajagopalan R. and N. Barakat, "Velocity Control of Wheeled Mobile Robots using Computed Torque Control and Its Performance for a Differentially Driven Robot," Journal of Robotic Systems, 325 - 340, Mar. 1997, John Wiley and Sons.

B. Refereed Conference Proceedings and Presentations

11. N. Barakat, A. Al-Shalash, and S. Ozcelik, "Cascaded Peer-Mentoring of Engineering Design Projects to Improve Minority Retention," 45th SEFI Conference, September 2017, Azores, Portugal, submitted.
12. N. Barakat, A. Al-Shalash, A. McCoy, S. Ozcelik, J. Choi, M. Mundy, and D. Ramirez, "The CASCADE Experience: A Cascaded Peer Mentoring Project," Proceedings of the ASEE Annual Conference and Exposition, Columbus, OH, June 2017.
13. R. de Juan, H. Barrera, and N. Barakat, "Social Responsibility in Engineering Based Commercial Organizations," Proceedings of the 2015 International Conference on Interactive collaborative Learning (ICL – IEEE) and the World Engineering Education Forum (WEEF), 20-24 Sep. 2015, Florence, Italy.
14. Nael Barakat "Engineering Ethics and Professionalism Education for a Global Practice," QScience. http://dx.doi.org/10.5339/qproc.2015.wcee2014.5. (Presentation).
15. Nael Barakat, "Integrating Real Industrial Experiences into The Curriculum Through Robotics Applications," ASME – IMECE, Nov. 2014, Montreal, Canada
16. N. Barakat, N. Sunny, and M. Hasan, "Ethics of Regulated Biomedical Device Design," Presented and published in the Proceedings of the ASEE Annual Conference and Exposition, Indianapolis, IN, June 2014.

17. Plouff C. and N. Barakat, “A Model for Engineering Ethics Education through a Co-op Program.” Presented and published in the Proceedings of the ASEE Annual Conference and Exposition, Indianapolis, IN, June 2014.
18. Barakat N. and C. Plouff, “A Model for On-Line Education of ABET-required Professional Aspects of Engineering,” IEEE - EDUCON, April 3-5, Istanbul, Turkey, 2014.
19. Barakat N. and H. Jiao, “Effective NEMS Education and training in an Undergraduate Course,” ASME – IMECE, Nov. 2012, Houston, TX.
20. Plouff C. and N. Barakat, “Infusion of ABET–specified Professional and Academic Content into Off-campus Work Experiences via Distance Learning Modules,” Frontiers in Education, Seattle, WA. Sep. 2012.
21. A. Plotkowski, H. Jiao, and N. Barakat, “Design and Computational Analysis of Diaphragm Based Piezoresistive Pressure Sensors for Integration into Undergraduate Curriculum,“ ASEE Annual Conference and Exposition, June 9 – 13, San Antonio, TX. 2012.
22. J. Johnson, N. Barakat, and H. Jiao, “Assessment and development of process procedures for the thermal evaporation of aluminum within an undergraduate context,” ASEE Annual Conference and Exposition, June 9 – 13, San Antonio, TX. 2012.
23. Plouff, C. Barakat, N. and Edwards, J. “Integration of Professional Skills and Academic Content during Co-op Semesters via Distance Learning Modules: Review of Results from a Pilot Study," ASEE CIEC Annual Conference, Orlando, Fl. Feb. 1-3, 2012.
24. Jiao H. and N. Barakat, “Incorporation of Hands-on Activities in Learning Nanomaterials,” ASME – IMECE, Nov. 2011, Denver, CO.
25. Filush A. and N. Barakat, “Levels of Ethics Education in University Graduate Programs,” ASME – IMECE, Nov. 2011, Denver, CO.
26. Barakat N. and H. Jiao, “Nanotechnology Integration to Enhance Undergraduate Engineering Education,” 1st World Engineering Education Flash Week (WEE2011), September 27-30, 2011, Lisbon, Portugal.
27. Jiao H. and N. Barakat, “Ion-Sensitive Field Effect Transistor as a PH Sensor,” ChinaNano, Beijing, China, Sep. 2011.
28. Barakat N. and H. Jiao, “Development and Implementation of a Comprehensive Nanotechnology Fundamentals Lab for Engineering Students,” ASEE Annual Conference and Exposition, June 26 – 29, Vancouver, BC, Canada, 2011.
29. Nael Barakat, “Engineering Ethics: A Critical Dimension of the Profession,” IEEE Engineering Education Global Conference (EDUCON-2011), April 4-6, Amman, Jordan, 2011.
30. Plouff C. and N. Barakat, “Integration of Professional Skills and Academic Content during Co-op Semesters via Distance Learning Modules: Review of Results from a Pilot Study,” FTLC annual conference, Aug. 2011, GVSU, Grand Rapids, MI. [Conference paper and presentation].
31. Plotkowski A. and N. Barakat, “A New Device to Quantify Human Trunk-Control Measurements,” ASME-IMECE10, Vancouver, BC. Canada, 2010.
32. Jiao H. and N. Barakat, “Integration of Nanotechnology into Undergraduate Engineering and Science Education,” ASME-IMECE Micro/Nano technology poster forum, Vancouver, BC. Canada, 2010.
33. Peirson B. and N. Barakat, ”Global Engineering Ethics: A Marketing Approach,” ASME-IMECE09, Nov. 2009, Orlando, FL.
34. Barakat N., “Merging Continuous Professional Development into Engineering Education and Practice,” ASEE-NCS Annual Conference, Grand Rapids, MI. 2009.
35. Puzzuoli A. and N. Barakat, “Sustainability in PDM,” ASEE-NCS, Grand Rapids, MI. 2009. [Best Student Paper Award Winner].
36. Wood N. and N. Barakat, “Inclusion of Bio-Engineering into Existing Codes of Ethics,” ASEE-NCS, Grand Rapids, MI. 2009.
37. Van Hal B. and N. Barakat, “Sustainability in Engineering Practices,” ASEE-NCS, Grand Rapids, MI. 2009.
38. Pierson P. and N. Barakat, “Engineering Ethics in a Flattening World,” ASEE-NCS, Grand Rapids, MI. 2009.
39. J. Farris, N. Barakat, C. Pung, S. Chourdhuri, and C. Plouff. “Incorporating Product Design, Development and Innovation into the Manufacturing Curriculum,” SME Manufacturing Education Transformation Summit, Austin, TX. June, 2009. [Conference paper and presentation].
40. Barakat N., “The Ultimate Experience in Learning Robotics: Building Robots in a Robotics Course,” ASME-

IMECE, Nov. 2008, Boston, MA.

41. Barakat N., "Managing And Optimizing Continuous Professional Development As Another Engineering Project," 11th IACEE World Conference on Continuing Engineering Education, May 2008, Atlanta, GA.
42. Barakat N., "Professional and Soft Skills for Engineering Graduate Students," ASME-IMECE Nov. 2007, Seattle, WA.
43. Barakat N, Mohammadzadeh A., and Haidar S., "Synthesis And Dynamic Analysis Of A Quick-Return Mechanism Using Matlab And Simulink," ASME-IMECE Nov. 2007, Seattle, WA.
44. Barakat N., "Upgrading Engineering Graduate for a World-Class Practice," ASEE NCS, Mar 2007, WV.
45. Barakat N., and H. Jack, "A Hands-On Approach in Teaching Dynamic Systems Modeling And Control," IMECE, ASME – WAM, Nov. 2006, Chicago, IL.
46. Jack H., and N. Barakat, "A Student Owned Microcontroller Board," Proceedings of the ASEE 2006 Annual Conference and Exposition, June 19 – 21, Chicago, IL.
47. Barakat N., and M. Carroll, "Globalization in Engineering Ethics Education," ASEE 2005 Annual Conference and Exposition, June 12 – 15 Portland, OR.
48. N. Barakat, A. Hande, W. He, and M. Carroll, "Product Dissection: An Important Tool a First Year Introduction to Engineering Course Project," Proceedings of the 2005 ASEE North Central Conference, April, 2005, Ohio.
49. Nael Barakat, "Issues and Challenges of Teaching Engineering Ethics", 2004 Canadian Society for Mechanical Engineers CSME forum, June 1-4, London, Ontario, Canada.
50. Barakat N. and M. Carroll, "Teaching Engineering Ethics with a Global Dimension", ASEE-NCS, Spring Conference, Kalamazoo, MI. April, 2004.
51. N. Barakat and H. Enshasy, "The Quality Imperative in Mass Production of Electronic Parts," Proc, of the 19th Canadian Congress of Applied Mechanics, CANCAM 2003, The University of Calgary, June 1 - 6, 2003.
52. N. Barakat and H. Enshasy, "A Statistical Approach to Improve Wafer Fabrication Yield," Proc, of the IMECE 2002, ASME – WAM, Nov. 2002, New Orleans, LA.
53. Enshasy H. and N. Barakat, "Yield Enhancement in Wafer Manufacturing Through Applying Statistical Process Control", CSME May 21-24, 2002, Kingston, Ontario, Canada.
54. AD Spence, RV Fleisig, NA Barakat, "A Multiple Sensor, Geometrically Corrected Co-ordinate Measuring Machine System," Proceedings of 33rd International MATADOR Conference, 2000.
55. Nael A. Barakat, Mohamed A. Elbestawi, Allan D. Spence, 2000, "Error Compensation for an Intrinsic Machine", CSME May.16-19, 2000, Montreal, Canada.
56. N. A. Barakat, and M.A. Elbestawi, "Detection, Modeling, and Compensation of Geometric Errors in Coordinate Measuring Machines," ASME - WAM Nov. 1998, Anaheim CA. MED-8: 597-603.
57. Spence A.D., Fleisig, R. V., and Barakat N. A., "Thermally Corrected Volumetric Error Compensation for Coordinate Measuring Machines," Proc. 33rd International MATADOR conference, University of Manchester Institute of Science and Technology, (UMIST), July 13-14, 2000.
58. Barakat N. and R. Rajagopalan, "Speed Control of a DC Motor using a Feed Forward Computed Torque Control Scheme," IEEE Inter. Symp. on Intelligent Control, [1996 CCA/ISIC/CACSD] Michigan, Sep. 1996.
59. R. Rajagopalan, G. Huard, K. Thanjevor, F. Perelli, N. Barakat, "Recent Development in Mechatronics Education to Mechanical Engineering Students at Concordia University," Proceedings of the ASME WAM, Nov. 1995.
60. Rajagopalan R. and N. Barakat, "Comparative Study of Velocity and Computed Torque Control Schemes for a Differentially Driven Automated Vehicle," IEEE International Conference on Robotics and Automation, ICRA96, Minnesota, April 1996.
61. Rajagopalan R. and N. Barakat, "Model Based Computed Torque Control of a Differentially Driven Automated Vehicle," Proc. Of the IASTED 3rd Int. Conference on Robotics and Manufacturing, June 1995, Cancun, Mexico. Pp. 213-6217.

C. Book Chapters, Manuals, and Theses

1. Nael Barakat, "Engineering Ethics," Chapter in Marks Handbook for Mechanical Engineers, McGraw Hill, 2017.
2. Nael Barakat, "Ethics for Mechanical Engineering," E-Library of the IEEE, module for professional development, Dec. 2012.
3. Nael Barakat, "Domain 8: Professional, Legal, and Ethical Responsibility," Guide to the Body of Knowledge for

the Engineering Management Certificate International (BOK-EMCI) of the ASME, 2008.
4. Hugh Jack and Nael Barakat, "Lab manual for EGR 345: Dynamic Systems Modeling and Control," GVSU, 2008.
5. Nael Barakat, "EGR 602: Professional Aspects of Engineering," lecture notes and class package for the graduate class.
6. Nael Barakat, "Computed Torque Control of a Differentially Driven Automated Guided Vehicle," Master Degree Thesis, Concordia University, Montreal, Jan. 1996. (Dissertation).
7. Nael Barakat, "Thermal Error Modelling and Compensation for a Coordinate Measuring Machine," Doctoral Degree Thesis, McMaster University, Hamilton, Aug. 2000. (Dissertation).

D. Editor/Reviewer Roles:

1. Book reviewer: Sorby, S. and Bulliet, W., "An Engineer's Guide to Technical Communications," Pearson/Prentice Hall, 2006, Upper Saddle River, NJ. USA. (2007).
2. Associate editor: International Journal of Learning, Vol. 18, Common Ground Publisher (CGP).
3. Reviewer: International Journal of Engineering Pedagogy iJEP.
4. Reviewer, International Journal of Service Learning in Engineering (2006 & 2012)
5. Reviewer: ASME – IMECE, ASEE Annual conference.

E. Invited Contributions and Professional Seminars/Workshops

1. Invited Speaker: "Ethical and Societal Impact of Emerging Technologies," American Society for Mechanical Engineers (ASME) Peru section annual convention, July 7-8, 2017.
2. Invited Keynote Speaker: "Energy Sustainability," Earth day symposium, Sustainability office at Texas A&M University – Kingsville (TAMUK), April 2017.
3. Invited Seminar: "Ethics of Emerging Technologies," Three colleges of Engineering in Amman, Jordan Mar. 26 – 29, 2017.
4. Invited Seminar: "Strategic Planning," Department of Mechanical and Industrial Engineering (MEIE), Texas A&M University – Kingsville, College of Engineering, January 2017.
5. Invited Workshop: "Mentoring Faculty," The Petroleum Institute, Abu-Dhabi, UAE, Dec. 2016.
6. Invited Workshop: "Teaching and Assessing Engineering Ethics in the Engineering Curriculum," The Petroleum Institute, Abu-Dhabi, UAE, May. 2016.
7. Workshop: "Ethics of Emerging Technologies," Michigan Society of Professional Engineers (MSPE), Feb. 2016.
8. Invited Workshop: "
9. Workshop: "Engineering Communications," Michigan Society of Professional Engineers (MSPE), Sep. 2015.
10. Invited Seminar: "Professional Ethics and Responsibility – An Engineering Perspective," GVSU Committee on Responsible Conduct in Research (CRC), Grand Rapids, MI. Jan. 2015.
11. Invited Workshop: "Teaching Engineering Ethics and Professional Responsibility – Techniques and Methods," The 2014 World Engineering Education Forum (WEEF2014), Dec. 2014, Dubai, UAE.
12. Invited Workshop: "Mentoring Leaders," ASME-IMECE, Montreal, CA. Nov. 2014.
13. Invited panel speaker, "Engineering Ethics Education in Workplace Environments," ASEE Annual Conference and Exposition, Indianapolis, IN. 2014.
14. Invited panel speaker, "Globalization of Engineering Ethics," 2014 IEEE International Symposium on Ethics in Engineering, Science, and Technology, *Ethics'2014,* 23-24 May, 2014, Chicago, IL, USA.
15. Invited Workshop: "Strategic Planning and Events Programming," ASME District H (Europe) Leadership training, Istanbul, Turkey, May 2013.
16. Invited Workshop: "Strategic Planning and Events Programming," ASME District J (Middle East and Africa) Leadership training, Abu Dhabi, UAE, Dec. 2013.
17. Invited K-12 Workshop: "Employing nanotechnology hands-on modules for a better STEM education at high school," ASEE annual conference and exposition, San Antonio, TX. June 2012.
18. Invited Seminar "Nanotechnology and Society," for:
    a. Singapore ASME senior section, Singapore, Sep. 2013.
    b. ASME Ontario Senior Section, University of Toronto, Ontario, Jun. 2012.
    c. Michigan Society for Professional Engineers (MSPE) - West Michigan, Grand Rapids, Feb. 2012.

19. Invited ME educational expert with a focus group to identify and evaluate Sustainable energy educational needs and appropriate content for a text book, organized by CENGAGE publishing, Denver, Co. Nov. 2011.
20. Invited seminar: "Nanotechnology meets the World," Central Michigan University – Engineering Graduate Students and faculty, Oct. 7, 2011.
21. Invited panel organizer and moderator on Ethics and Societal Impact integration in NSF proposals, for the ASME – IMECE, Nov. 2010.
22. Invited Workshop: "Ethics for Professionals' Leadership," ASME-Leadership Training Conferences (LTC), (Twice: Mar. 2008 Atlanta and Mar. 2010 Dallas).
23. Invited Keynote Speaker: World Conference on Engineering (IAENG-WCE), "Professional Issues Associated with Global Practice of Engineering," London, UK. Jul. 2008.
24. Invited Seminar: ASME-Ohio Northern Section, "Realities of Professional Engineering." Apr. 2008.

LEADERSHIP and SERVICES to the PROFESSION

A. *American Society of Mechanical Engineers (ASME)*

1. Elected and served as ASME - District B leader (Oct '11 – Sep '14)
2. Elected and serving as the Chair of the Technology and Society Division (Oct '12 – Present)
3. Elected and served as member of the executive committee of the ME department heads (Nov '11 – Nov '12)
4. Prime training and lead - ASME Leadership Training Conference (LTC) (2007 - 2012)
5. Served as a reviewer for peers' publications, IMECE different divisions (1996 - present)
6. Served as a member of the ASME Ethics Committee (previously CESR) (2007 - 2011)
7. Served as elected chair of the Ethics Committee in transition (2011)
8. Served as the chair of the West Michigan senior section (2007 - 2010)
9. Served as the chair of the Ethics and Technology committee, Technology and Society division (2009 - 2012)
10. Served as a member of the ASME nominating committee (2008 - 2012)
11. Served as member of the ASME district B operating board (DBOB) (2009 - 2011)
12. Served as Student Section Advisor at LSSU then GVSU. (2002 - 2011)
13. Conference Track/Topic/Session chair and organizer (2007 – 2012)

B. *American Society of Engineering Education (ASEE)*

1. Served as Secretary/Treasurer/Program-chair/Chair of the Engineering Ethics Division (2013 - 2016)
2. Continue to serve as a reviewer and session chair for the ASEE annual conferences (2002 - present)
3. Served as chair and moderator for multiple sessions during the ASEE- North Central Section meeting (2009)

C. *Other Professional entities and the community:*

1. Elected member of the executive board of the National Institute of Engineering Ethics (NIEE) (2014 – 2017).
2. Nominated by the American Association for Engineering Societies (AAES) and served on the Committee for Anti-Corruption (CAC) of the World Federation for Engineering Organizations (WFEO) as part of the USA delegate. (2012 – 2014)
3. STEM advisor for Forest Hills Public Schools District Science curriculum advisory committee, MI. (Aug '12 – Present).
4. Invited reviewer of Early Career faculty grant proposals from engineering for Central MI University (2011-2012)
5. Co-organized the engineering week (E-Week) at the Grand Rapids public museum, and to provide supporting machines, robots, and creative hands-on activities for mathcounts, recruiting activities, and summer camps. (2005 – 2011)

OTHER CREDENTIALS and TRAINING

1. Certified Diversity and Inclusion Advocate at GVSU since 2012.

2. Cultural & Social Skills, Languages: Good knowledge of French and Fluent in Arabic language (native speaker).
3. Other delivered and acquired training: ASME/ASEE essential teaching seminar (2006), ASME-Leadership Training Conference (LTC) (2007 - 2012), Denzo robotics, (Jun. 2008). ABB robotics (May 2009).