PROFESSIONAL VITAE

Yesh P. Singh, Ph.D., P.E.
Professor Emeritus, ASME Life Fellow

Personal Data

Mechanical Engineering
The University of Texas at San Antonio
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Citizenship: United States of America

Education

Doctor of Engineering (D. Eng.), Mechanical Engineering, University of Wisconsin-Milwaukee, Wisconsin, GPA: 3.93/4.0, 1984

Graduate Work, Engineering Science, State University of New York, Buffalo, New York, GPA: 4.0/4.0, 9/74-5/75

Master of Science (MS), Mechanical Engineering, Youngstown State University, Youngstown, Ohio, GPA: 3.8l/4.0, 1974

Bachelor of Engineering (BE), Mechanical Engineering, Indian Institute of Technology Roorkee (IITR), Roorkee, India, First Division, 1962

Diploma, Civil Engineering, IITR, Roorkee, India, 1959

Certification and Licensure

Professional Engineer - Texas, Certificate Number 59628, 1986
Professional Engineer - Wisconsin, Certificate Number E-15980, 1976

Professional Employment

9/2015	Professor Emeritus, Mechanical Engineering, University of Texas at San Antonio (UTSA)
1/2013-8/19	Professor of Mechanical Engineering, UTSA, Part-Time Appointment
9/2005-8/12	Professor of Mechanical Engineering, UTSA
9/2003-8/05	Professor of Mechanical Engineering & Biomechanics, UTSA
2/2003-8/16	Associated Faculty of Biomedical Engineering, a joint program with University of Texas Health Science Center San Antonio (UTHSCSA)
9/1993-12/96	Chair of Mechanical Engineering Program, UTSA

- *First successful ABET visit 10/95, no deficiencies were identified.*
- *Recognition plaque to ME Faculty at UTSA by ASME in appreciation of outstanding service, 1995. "It is quite an honor as only five universities in the country have been recognized with the award" until 1995.*

9/1988-8/03 Tenured Associate Professor of Mechanical Engineering, UTSA
9/1985-8/88 Associate Professor of Mechanical Engineering, UTSA
5/1984-8/85 Senior Engineer II, Advanced Technology Center, Allis-Chalmers Corporation, Milwaukee, Wisconsin
7/1982-4/84 Senior Engineer I, Advanced Technology Center, Allis-Chalmers Corporation, Milwaukee, Wisconsin
4/1977-6/82 Senior Engineer I, Mechanical Engineering Development Department, Allis-Chalmers Corporation, Milwaukee, Wisconsin
6/1975-3/77 Engineer, Metals Processing Equipment Department, Allis-Chalmers Corporation, Milwaukee, Wisconsin
9/1974-5/75 Teaching Assistant/Doctoral Student, Engineering Science Department, State University of New York, Buffalo, New York, GPA: 4.0/4.0
9/1973-8/74 Graduate Student, Mechanical Engineering Department, Youngstown State University, Youngstown, Ohio, GPA: 3.81/4.0
4/1973-12/73 Design Engineer, L.W. Nash Corporation, East Palestine, Ohio
5/1972-3/73 Design Engineer, Birdsboro Corporation, Birdsboro, Pennsylvania (PA)
1/1971-4/72 Mechanical Engineer, DES-ENG-CON Corporation, Reading, PA
5/1970-12/70 Design Engineer, Birdsboro Corporation, Birdsboro, PA
7/1965-3/70 Assistant Engineer, Heavy Machine Building Plant, HEC, Ltd., Ranchi, India
1/1964-6/65 Design Engineer, *YOUJURALMASHZAVOD,* Orsk, former USSR
8/1962-12/63 Assistant Engineer, Heavy Machine Building Plant, HEC, Ltd., Ranchi, India

Awards and Honors

- Inductee, **Albert Nelson Marquis Lifetime Achievement**, September 12, 2019
- Professor Emeritus, Mechanical Engineering Department, UTSA, September 2015, *the first faculty member in mechanical engineering department granted Professor Emeritus status.*
- **Chair**, Mechanical Engineering Program, UTSA, 9/1993-12/96
- ASME Life Fellow, September 2008, *the first faculty member in mechanical engineering department at UTSA elected to ASME Life Fellow grade.*
- Who's Who in Science and Engineering: 2008-09, 10th Edition (pub. 2007); 2006-07, 9th Edition (pub. 2006); 2005-06, 8th Edition (pub. 2004); 1998-99, 4h Edition (pub. 1997).
- Who's Who in American Education: 2007-2008, 8th Edition (pub. 2007)
- Who's Who in Finance and Industry: 2002-2003, 33rd Edition (pub. 2002); 2000-01, 31st Edition (pub. 1999).
- Who's Who in South and Southwest: 1999-2000, 26Th Edition (pub. 1998).
- Who's Who in America: 2009, 63rd Edition (pub. 2008); 2005, 59th Edition (pub. 2004); 2004, 58th Edition (pub. 2003); 2003, 57th Edition (pub. 2002); 2002, 56th Edition (pub.

2001); 2001, 55th Edition (pub. 2000); 2000, 54th Edition (pub. 1999); 1999, 53rd Edition (pub. 1998).

- Who's Who in the World: 2001, 18th Edition (pub. 2000); 1999, 16th Edition (pub. 1998).
- College of Engineering (CoE), UTSA, Teaching Award, short list, 2008.
- **Charles E. Balleisen Award,** ASME, May 20, 1999. *"This award recognizes the member who has contributed the most outstanding, meritorious service to the betterment of the section for the five-year period*, July 1994-July1999".
- **Clifford H. Schumaker Award**, ASME Region X, April 4, 1998. "*This award recognizes a member of the region, whose exemplary personal and professional conduct and whose outstanding service over a long period has resulted in significant advancement of the objectives of the region"*.
- **Outstanding Alumni Award**, Mechanical Engineering Department, University of Wisconsin-Milwaukee, 1996
- Certificate of Appreciation from ASME San Antonio Section for service and dedication to the promotion and development of mechanical engineering, January 1996
- **Chair,** ASME San Antonio Section, 1994-95: *The ASME San Antonio Section won the Region X's Thompson Traveling Trophy as the outstanding section of the region and outperformed the other sections in the region by the greatest margin ever since its inception in 1952*. The ASME San Antonio Section earned 2,525 points out of possible 2,700 points. No section in the ASME Region X ever received that many points.
  ASME**: Chair** of Programs (1999-00), **Chair** of Professional Development Committee (1998-99), **Chair** of Professional Practice Committee (1997-98), **Chair** of Nominations and National Agenda Committee (1995-96), **Section Chair** (1994-95), **Vice-Chair** (1993-94), **Secretary** (1992-93), **Treasurer** (1990-91), **Chair** of College Relation Committee (1989-90, and 96-97).
- **ASME Fellow,** 1992; *the first faculty member in mechanical engineering department at UTSA elected to ASME Fellow grade.*
- Certificate for exceptional contributions of resources, energy, and time; Junior Engineering Technical Society, 1991-92, and 1992-93.
- Chair**,** Student Paper Contest Committee, Applied mechanisms and Robotics Conference, 1991
- Certificate of Recognition, Western Design Engineering Conference, 1982
- **Mechanical Design Award**, YOUJURALMASHZAVOD, Orsk, USSR, 1965
- Ranked second out of 700 graduate engineers in a competitive examination conducted for specialized training in USSR, 1963
- **Medal in Mathematics**, University of Roorkee, 1959

Research/Scholarly/Creative Activities

Areas of Research Interest:

- Design of machines and machine elements
- Design of linkages and mechanisms
- Customized higher pair linkages
- Design of cam-follower systems and gears
- Computer-aided design (CAD)
- Design of large gears
- Design of input coupled split power transmissions
- Kinematics and dynamics of machines
- Stress analysis
- Finite element applications in design of mechanical and structural systems

Refereed Journal Papers:

1. Fussner, D., and Singh, Y. P., “Design of Input Coupled Split Power Transmissions, Arrangements and their Characteristics,” Transactions of the ASME, Journal of Mechanical Design, Vol. 126, pp 542-550, May 2004.

2. Singh, Y. P., Ball, J. H., and Rouch, K. E., "A Finite Elements Approach for Analysis and Design of Pumps," International Journal of Applied Finite Elements and Computer Aided Engineering, Finite Elements in Analysis and Design, Vol. 6, pp. 45-58, 1989.

3. Singh, Y. P., "Synthesis of Planar Linkages That Contain Guiding Tracks," Transactions of the ASME, Journal of Mechanisms, Transmissions, and Automation in Design, Vol. 109, pp. 155-162, 1987.

4. Singh, Y. P., "Determination of AGMA Geometry Factor J for External Slotted Spur Gears," Transactions of the ASME, Journal of Vibration, Acoustics, Stress and Reliability in Design, Vol. l05, pp. 305-311, July l983.

5. Singh, Y. P., "Mathematical Formulation of Cooling Water Flow Rates for High Speed Continuous Slab Caster", Transactions of the ASME, Journal of Mechanical Design, Vol. l03, No. 2, pp. 3l8-327, l98l.

6. Singh, Y. P., and Kohli, D., "Synthesis of Cam-Link Mechanisms for Exact Path Generation", Journal of the International Federation for the Theory of Machines and Mechanisms, Mechanism and Machine Theory, Vol. l6, No. 4, pp. 447-457, l98l.

Refereed Papers:

7. Singh, Yesh P., and Patchigolla, R., “Effect of Rim Thickness on Bending Stresses in Low Addendum Large Spur Gears,” Proceedings of the 2006 International Ansys Conference, Paper No. 334, pp. 1-21, May 2006, *Best of Session Technical Paper Award*.

8. Patchigolla, R., and Singh, Yesh P., "Finite Element Analysis of Large Spur Gear Tooth and Rim with and without Web Effects - Part I," Proceedings of the 2006 ASEE Gulf-Southwest Annual Conference, Session 1, Paper #T1A6, pp.1-11, March 2006.

9. Patchigolla, R., and Singh, Yesh P., "Finite Element Analysis of Large Spur Gear Tooth and Rim With and without Web Effects - Part II," Proceedings of the 2006 ASEE Gulf-Southwest Annual Conference, Session 13, Paper #T4A1, pp.1-11, March 2006.

10. Talley, Peggy L., Singh, Yesh P., and Bernstein, Henry L., "Design Modification of a Gas Turbine Blade Shroud," Proceedings of the 2005 ASEE Gulf-Southwest Annual Conference, Session T1C2, pp. 1-13, March 2005.

11. Karimi, A., Eftekhar, J., Manteufel, R., and Singh, Y., "Industrially Supported Projects in a Capstone Design Sequence," Proceedings of the 2003 American Society for Engineering Education Annual Conference, Session No. 1566, June 2003

12. Wharton, S. M., Garg, H., and Singh, Y. P., "Knee Motion Data Collection and Determination of Instant Centers," Proceedings of the International Scientific Conference of Mechanical Engineering, COMEC 2002, Coloquio de CAD-CAM-CAE, pp. 1-8, Nov. 2002.

13. Fussner, D., and Singh, Y. P., "Dual Stage Input Coupled Split Power Transmission Efficiency Optimization," Proceedings of the 2002 ASME International Design Engineering Technical Conferences (IDETC), Paper No. DETC 2002/DAC-34057, pp. 1-16, September 2002.

14. Fussner, D., and Singh, Y. P., "Development of Dual Stage Input Coupled Split Power Transmission Arrangements and their Characteristics," Proceedings of the SAE 2002 World Congress, Paper No. 2002-01-0590, pp. 43-48, March 2002.

15. Fussner, D., and Singh, Y. P., "Development of Single Stage Input Coupled Split Power Transmission Arrangements and their Characteristics," Proceedings of the SAE 2002 World Congress, Paper No. 2002-01-1294, pp. 331-340, March 2002.

16. Higgs, D., Sanders, P., and Singh, Y. P., "Design of below the Knee Prosthetic Socket," Proceedings of the 2002 ASEE Gulf-Southwest Annual Conference, VC2, pp.1-14, March 2002.

17. Gernentz, R., Goodrich, M., and Singh, Y. P., "Design of a Portable Windmill," Proceedings of the 2002 ASEE Gulf-Southwest Annual Conference, VC1, pp. 1-10, March 2002.
The paper received Best Student Paper-Honorable Mention Award in the conference.

18. S. Jagannathan, Annie Levesque, and Y. Singh, "Approximation-Based Control and Avoidance of a Mobile Base with an Onboard Arm for Mars Greenhouse Operation," Proceedings of the 2001 IEEE International Symposium on Intelligent Control, pp. 103-108, September 2001.

19. Wharton, S. M., and Singh, Y. P., “Development of Solid Models and Multimedia Presentations of Kinematic Pairs,” Proceedings of the 2001 American Society for Engineering Education Annual Conference, Session No. 2793, pp. 1-12, June 2001.

20. S. Jagannathan, Annie Levesque, and Y. Singh, “Adaptive Network Control of a Mobile Base with an Onboard Arm for Mars Greenhouse Operation,” Proceedings of the American Control Conference, pp. 606-611, June 2001.

21. Mei, E., and Singh, Y. P., "Optimization of a Four-Bar Prosthetic Knee Mechanism," Proceedings of International Conference on Mechanics in Medicine and Biology (ICMMB-11), pp. 155-158, April 2000.

22. Mei, E., and Singh, Y. P., "Continuous Knee Joint Motion with Regression Approach," Proceedings of International Conference on Mechanics in Medicine and Biology (ICMMB-11), pp. 149-152, April 2000.

23. Balaraman, V., and Singh, Y. P., "Enumeration of Human Knee Prostheses-An Overview," Proceedings of the 32nd Annual Rocky Mountain Bioengineering Symposium & 32nd International ISA Biomedical Sciences Instrumentation Symposium, Vol. 31, pp. 263-268, April 1995.

24. Balaraman, V., and Singh, Y. P., "Synthesis, Analysis, and Optimization of Cam-Link Prosthetic Knee Mechanism," Proceedings of the 32nd Annual Rocky Mountain Bioengineering Symposium & 32nd International ISA Biomedical Sciences Instrumentation Symposium, Vol. 31, pp. 269-274, April 1995.

25. Shabbir, S. A., Singh, Y. P., and Carnes, Jr., D.L., "Computer Aided Design, Analysis, and Manufacturing of a New Endodontic Instrument," Proceedings of the Ist National Applied Mechanism & Robotics Conference, Volume I, pp. 6C-1-7, November 1989.

26. Guzman, H. M., Burgess, J. M., and Singh, Y. P., "Data Acquisition and Control of Mold Oscillator Mechanisms for Continuous Casters," Proceedings of the ASME International Computers in Engineering Conference, Volume One, pp. 565-570, August 1989.

27. Jurek, J. M., Cimadevilla, M., and Singh, Y. P., "Optimization and Interactive Computer Aided Design of Mechanisms Containing a Guiding Track," Proceedings of the ASME International Computers in Engineering Conference, Vol. One, pp. 233-243, August 1989.

28. Burgess, J. M., Guzman, H. M., and Singh, Y. P., "Mold Oscillator Mechanisms for Continuous Casters-Synthesis and Computerized Design," Proceedings of the ASME International Computers in Engineering Conference, Vol. One, pp. 257-264, August 1989.

29. Singh, Y. P., Ball, J. H., Rouch, K.E.,"A Parametric Approach for Determining Dynamic Characteristics of Pump System - Part I - Parameterization and Finite Element Models",

Proceedings of the ASME 7th Biennial Conference on Failure Prevention, Reliability and Stress Analysis, pp. 39-46, September 1987.

30. Singh, Y. P., Ball, J. H., Rouch, K. E., "A Parametric Approach for Determining Dynamic Characteristics of Pump Systems - Part II - Modal Analysis and Correlation of Results," Proceedings of the ASME 7th Biennial Conference on Failure Prevention, Reliability and Stress Analysis, pp. 47-52, September 1987.

31. Singh, Y. P., Ball, J. H., and Rouch, K. E., "Dynamic Analysis and Design of Centrifugal Pump Systems," ANSYS 1987 Conference Proceedings, Integrating Design and Analysis, pp. 8.10-8.26, April 1987.

32. Singh, Y. P., "On the General Design of Very Large Spur and Helical Gears Used in Cement and Mining Industry," Proceedings of the 9th Applied Mechanisms Conference, VII B, pp. V.l-V.9, October l985.

33. Singh, Y. P., "Kinematic Synthesis and Design of Welding Torch Mechanisms", Proceedings of the 9th Applied Mechanisms Conference, III B, pp. II.l-II.7, October l985.

34. "Kinematic Synthesis of Planar Cam-Link Mechanisms for Exact Path and Exact Motion Generation," Ph. D. dissertation, University of Wisconsin-Milwaukee, May 1984.

35. Singh, Y. P., and Kohli, D., "Synthesis of Planar Cam-Link Mechanisms for Generation of Plane Algebraic Curves," Proceedings of the Eighth Applied Mechanisms Conference, pp. 18-l - 18-l2, September l983.

36. Singh, Y. P., and Kohli, D., "Synthesis of Planar Cam-Link Mechanisms for Exact Motion Generation," Proceedings of the 7th Applied Mechanisms Conference, pp. XLII-1 - XLII-6, December l98l.

37. Singh, Y. P., and Kohli, D., "Synthesis of Cam-Link Mechanisms for Exact Path Generation", Proceedings of the 6th Applied Mechanism Conference, pp. XXXV-l - XXXV-l3, October l979.

38. Singh, Y. P., and Kohli, D., "Kinematic Analysis of Spatial Mechanisms Containing Lower and Higher Pairs", Proceedings of the 5th Applied Mechanism Conference, pp. 14-l - 14-10, November l977.

Conference Papers:

39. Singh, Y. P., “Finite Element Based Design of Prosthetic Socket and Socket/Artificial Limb Connection,” Proceedings of the 17th Southern Biomedical Engineering Conference, P. 91, February 1998.

40. Weissman, J., Singh, Y. P., and Arroyo, A., "Historical Analysis of EIT/FE Success Rate at UTSA Division of Engineering," Proceedings of the 1998 ASEE/GSW Conference, 1998.

41. Neely, G. D., and Singh, Y. P., "Computer-Aided Design of a Diesel Engine Piston," Proceedings of the 1996 Annual Meeting of the Gulf Southwest Section of ASEE, pp. 158-163, March 1996.

42. Singh, Y. P., "Mechanical Design Component in Undergraduate Engineering Education at the UTSA," Proceedings of the ASEE Gulf-Southwest Section Annual Meeting, March 1992.

43. Singh, Y. P., "An Integrated Mechanical Design Approach in Undergraduate Engineering Education," Proceedings of the ASEE Gulf-Southwest Section Annual Meeting, March 1991.

44. Karimi, A., Eftekhar, J., and Singh, Y. P., "ME Senior Design Group-Projects at UTSA," Proceedings of the ASEE Gulf-Southwest Section Annual Meeting, March 1991.

45. Singh, Y. P., and Jurek, J. M., "An Interactive Computerized Design of Higher Pair Planar Mechanisms for Path Generation", Proceedings of the ASEE Gulf-Southwest Section Annual Meeting 1988, pp. 199-216, March 1988.

46. Singh, Y. P., "Pressure Angle and Radius of Curvature of Guiding Tracks in Planar Linkages", Proceedings of the 10th Applied Mechanisms Conference, Vol. 1, 2B, December 1987.

Other Publications (Project Reports):

1. "Procedures and Computer Programs for Mechanical Design and Analysis of Springs, Shafts, and Gears", University of Texas at San Antonio, San Antonio, Texas, June 1987.

2. "Hibbtac Gear and Pinion Tooth Deflection Analysis," Energy and Minerals Systems Company, Allis Chalmers Corporation, Milwaukee, Wisconsin, Report Number 8039l-PR-5l49, June l985.

3. "Vibration Analysis and Design of NSYV Pump Systems", An Interim Report, Industrial Pump Division, Cincinnati, Ohio, Report Number 80353-PR-5113, March l985.

4. "Enhancement of Agriculture Tractor Division Spur and Helical Gearing Program," Agricultural Tractor Division, Allis-Chalmers Corporation, Advanced Technology Center, Report Number 3335-C-4400, November l984.

5. "Elkem Rotating Kiln Afterburner Support Structure Analysis," Allis-Chalmers Corporation, Advanced Technology Center, Document No. 3335-TM-4030, September l984.

6. "Elkem Kiln Shell Structural Analysis," Allis-Chalmers Corporation, Advanced Technology Center, Report Number 3335-C-4151, April l984.

7. "Kinematic Synthesis of Planar Cam-Link Mechanisms for Exact Path and Exact Motion Generation", Doctoral Dissertation, University of Wisconsin-Milwaukee, Milwaukee, Wisconsin, May 1984.

8. "Hibbing Taconite Mill Main Gear Failure Analysis," Allis-Chalmers Corporation, Advanced Technology Center, Document Nos. 3335-C-4358, 3335-C-4346, 3335-TM-4026, l984.

9. Seismic Calculations of Anchor Bolts for Novato Treatment Plant," DYN Construction Corporation, S.O. No. 37926, Allis-Chalmers Corporation, Advanced Technology Center, Report No. 40084-PR-40l3, May l984.

10. (with K. Rouch), "Cyclic Symmetry in Analysis of Impeller Vibration," Allis-Chalmers Corporation, Advanced Technology Center, Report Number 553l8-PR-4002, March l984.

11. "Development of Computer Program, HGEARD, for Design of Gears for Kiln and Mill Drives," Allis-Chalmers Energy and Minerals Systems Company, Advanced Technology Center, Document Nos. 3335-C-4268 and 3335-C-3734, December l983.

12. (with K. Rouch, and H. Jhansale), "Stress and Fatigue Evaluation of Detroit-Edison IP Rotor", Allis-Chalmers Corporation, Advanced Technology Center, Report No. 453l9-PR-3037, November l983.

13. (with D. Lovejoy, D. McCann, and K. Rouch), "Life Expectancy of Steam Turbine Components of Port Washington Unit No. 3", Allis-Chalmers Corporation, Advanced Technology Center, Document Nos. 453l6-PR-304l and 213101J, November l983.

14. (with D. Lovejoy, D. McCann, and K. Rouch), "Life Expectancy of Steam Turbine Components of Oak Creek Unit No. l", Allis-Chalmers Corporation, Advanced Technology Center, Document Nos. 453l6-PR-3040 and 213100J, November l983.

15. "KilnGAS Soot Blower Steam Piping Thermal Analysis", Allis-Chalmers Corporation, Advanced Technology Center, Document No. 40084-C-3662, October l983.

16. "Dynamic Analysis of Crusher Building for RTB-BOR Copper Mine," Majdanpek, Yugoslavia, Allis-Chalmers Corporation, Advanced Technology Center, Report No. 45308-PR-3033, September l983.

17. "Summary of Results and Recommendations, Crusher Building Dynamic Analysis," Allis-Chalmers Corporation, Advanced Technology Center, Report No. 45308-PR-3029, August l983.

18. "Analysis and Design of NSW-V Model, 250 Series Pumps," Industrial Pump Division, Allis-Chalmers Corporation, Advanced Technology Center, Report No. 55332-PR-3022, July l983.

19. "Dynamic Analysis and Design Modification of Water Pump for Korean Electric Company Using Finite Element Techniques," Allis Chalmers Corporation, Advanced Technology Center, Document No. 50243-C-3557, July l983.

20. "Dynamic Analysis of l0 x 24 Lo-Head Double Deck Screen Using Finite Element Techniques," Solids Process Equipment Division, Allis-Chalmers Corporation, Advanced Technology Center, Document No. 55349-C-3l59, April l983.

21. "Pump System Finite Element Model and Dynamic Mode Shapes," Allis-Chalmers Corporation, Advanced Technology Center, Document No. 55332-PR-2024, October l982.

22. "Seismic Evaluation of 220 KV, 350 MVA Auto Transformer per TrafoUnion Report No. 3l42," Allis-Chalmers Corporation, Advanced Technology Center, Report No. 45280-PR-2028, December l982.

23. "Seismic Qualification for Switchgear for US Department of Energy," Gas Centrifuge Enrichment Plant, Portsmouth, Ohio, DOE Contract No. DE-AC05-780R05629, Allis-Chalmers Corporation, Advanced Technology Center, Report No. 45268-PR-2020, September l982.

24. "Special Study of Case Carburized and Ground Tooth of Intermediate Helical Gear Set," Falk l060 FCB3 Reducer, Allis-Chalmers Corporation, Document No. l3796, May l982.

25. "Mill and Kiln Spur Gear Design," Cement, Mining & Metals Systems Division, Allis-Chalmers Corporation, Document No. l3744, November l98l.

26. "Mill Main Bearing Trunnion Assembly Thermal Analysis," Cement, Mining & Metals Systems Division, Allis-Chalmers Corporation, Document No. 13726, June l98l.

27. "Thermal Analysis of Support Roller-Shaft of Coal Gasifier," Commercial Module, Wood River, Illinois, Allis-Chalmers Corporation, Document No. 13717, May l98l.

28. "Phase I, Phase II, and Phase III Thermal Analyses of Kiln Support Roller-Shaft," Cement, Mining & Metals Systems Division, Allis-Chalmers Corporation, Document l3709, March l98l.

29. "Thermal Study of Kiln Support Roller Shaft Assembly," Cement, Mining & Metals Systems Division, Allis-Chalmers Corporation, Document No. 13700, March l98l.

30. "Investigation of Surface and Sub-Surface Stresses for Cylindrical Surfaces in Contact," Cement, Mining & Metals Systems Division, Allis-Chalmers Corporation, February l980.

31. "Computer-Aided Design for Allis-Chalmers High Speed Continuous Slab Caster," Metals Processing Equipment Department, Allis-Chalmers Corporation, December l979.

32. "Cooling Water Computer Program, Continuous Slab Caster," Metals Processing Equipment Department, Allis-Chalmers Corporation, Document No. 13588, December l979.

33. "Casting Bow Roll Geometry Computer Program, Continuous Slab Caster," Metals Processing Equipment Department, Allis-Chalmers Corporation, Document No. 13488, June l979.

34. "Critical Length Computer Program, Continuous Slab Caster," Metals Processing Equipment Department, Allis-Chalmers Corporation; Document No. 13428, December 1978.

35. "Withdrawal Resistance Computer Program, Continuous Slab Caster," Metals Processing Equipment Department, Allis-Chalmers Corporation, Document No. 13427, December l978.

Book Reviews:

1. Reviewed, "Machine Design: An Integrated Approach," Fourth Edition, Robert L. Norton (pub. 2011), 2010

2. Reviewed, "Engineering Mechanics: Statics," 12th Edition (pub. 2010), R.C. Hibbler, 2008

3. Reviewed, "Chapter 5: Failures Resulting from Static Loading," of the book, "Shigley's Mechanical Engineering Design," 8th edition (pub. 2008), Budynas and Nisbett, 2006

4. Reviewed the book, "Design of Machinery," 3rd Edition, development plan for the 4th edition text and media supplement, Robert L. Norton (pub. 2008), 2004

5. Reviewed the book, "Fundamentals of Machine Component Design," 3rd edition, Robert Juvinall and Kurt Marshek, 2003

6. Reviewed the book, "Mechanism Design: Analysis and Synthesis," Volume I, 4th edition, Arthur G. Erdman, George N. Sandor, and Sridhar Kota (pub. 2001), 2000

Seminars/Short Courses/Professional Reviews:

1. "Finite Element Applications in Mechanical Design," Southwest Research Institute, San Antonio, Texas, April l986.

2. "Review of Gear Design Practices and Standards," Minerals Systems Division, Allis-Chalmers Corporation, Milwaukee, Wisconsin, December l984.

3. "Pump System Dynamics Program and User Training for NSW-V Model, 250 Series Pumps," Industrial Pump Division, Allis-Chalmers Corporation, Cincinnati, Ohio, August l983.

4. Seminar on ANSYS Mesh Generation," with D. Lovejoy, presented to in house technical staff at Allis-Chalmers Corporation, Milwaukee, Wisconsin, May l983.

5. "Computer Program, GEARD, for Design of Hobbed, Shaped and Formed External Spur Gears," Cement, Mining and Metals Systems Division, Allis-Chalmers Corporation, Milwaukee, Wisconsin, l98l.

6. "Review of High and Low Addendum Gearing System" Torque Carrying Capacity of the Gear and Pinion, Cement, Mining and Metals Systems Division, Allis-Chalmers Corporation, Milwaukee, Wisconsin, l98l.

7. "Tooth Tip Relief and Hertzian and Bending Deflections of Mating Teeth of Typical Kiln Gear Set," Cement, Mining and Metals Systems Division, Allis-Chalmers Corporation, Milwaukee, Wisconsin, l980.

8. "Computer Program, GEOMAT, for Determining the Tooth Geometry Coordinates, Tip Relief and Root Profile," Cement, Mining and Metals Systems Division, Allis-Chalmers Corporation, Milwaukee, Wisconsin, l979.

9. ASME FE Review Session: Mechanical Design and Analysis, October 25, 2011.

10. Presented “Machine Design Workshops,” at Test Masters Educational Services, Houston, September 28, 2008, April 12, 2009.

11. Presented, “Machine Design Review Session,” at British Petroleum, Houston, October 11, 2008.

12. Presented, “Machine Design Review Sessions,” at Test Masters Educational Services, Houston, October 12, 2008, March 29, 2009.

13. Organized, “SolidWorks & Cosmos Motion, and Cosmos Works,” seminar for student enrolled in Mechanical Design courses at UTSA, Oct. 18 2007.

14. Organized, “Process Re-Engineering Seminar,” for businesses in San Antonio, co-sponsored with Structural Dynamics Research Corporation (SDRC), June 1998.

15. Organized, “Quality Control of Visuals,” Seminar for CE, EE, and ME seniors, April 1997.

16. Organized, “Mental and Experimental Geometry: Coexistence with Computer Graphics,” Seminar, Division of Engineering, UTSA, March 1992.

Research Support

Thirty-five (35) sponsored research projects prior to August 1985 are listed under Other Publications (Project Reports). Some of the technical projects I worked on are listed below.

- Principal Investigator, "Dynamic Analysis of Crusher Building for RTB-BOR Copper Mine", Advanced Technology Center, Allis-Chalmers Corporation, Report Number 45308-PR-3033, September 1983. Sponsor: RTB-BOR Copper Mine, Majdanpek, Yugoslavia.
- Co-Principal Investigator, "Seismic Qualification for Switchgear", Gas Centrifuge Enrichment Plant, Portsmouth, Ohio. Advanced Technology Center, Allis-Chalmers Corporation, Report Number 45268-PR-2020, September 1982. Sponsor: US Department of Energy, Contract Number DE-AC05-780R05629.
- Principal Investigator, "Analysis and Design Program for NSW-V Model, 250 Series Pumps", Advanced Technology Center, Allis-Chalmers Corporation, Report Number 55332-PR-3022, July 1983. Sponsor: Industrial Pump Division of Allis-Chalmers Corporation, Cincinnati.
- Co-Principal Investigator, "Stress and Fatigue Evaluation of Detroit-Edison IP Rotor", Detroit-Edison Turbine S/N 10523, at St. Clair. Advanced Technology Center, Allis-Chalmers Corporation, Report Number 45319-PR-3037, November 1983. Sponsor: Detroit-Edison Company.

Research Projects/Grants since Joining UTSA:

- Additional Principal Investigator and Project Director, "New Root Canal Instrument and Instrument Technique", a joint project with the Dental School, University of Texas Health Science Center at San Antonio. Sponsor: The Texas Higher Education Coordinating Board. Total amount $182,160; June 1988-May 1990.
- Principal Investigator, "Finite Element Study of Mold Copper Plates Used in Continuous Casters". Sponsor: Voest-Alpine International Corporation, New York, NY. Total amount $20,098; June 1987-May 1988.
- Principal Investigator, “Strand Interface Elongation in Continuous Casting of Slab,” Sponsor: Advanced Production Technology, Inc., Pittsburgh, PA. Total amount $7,700; Jan. 1988-Aug. 1988.
- Principal Investigator, “Withdrawal Resistance in Strand Support System of Continuous Slab Casters,” Sponsor: Advanced Production Technology, Inc., Pittsburgh, PA. Total amount $7,700; Jan. 1988-Aug. 1988.
- Project Director, “Biomechanics Learning Modules,” funded by UT Systems through VaNTH ERC at Austin, $48,500/year for 2 years, Oct. 1999-Aug. 2001.
- "Development of Working Design & Fabrication of a Hippotherapy Device," jointly with Prof. Nalty at UTHSCSA, funded by UTHSCSA. Total amount $10,000; Nov. 1998.
- Principal Investigator, "Development of Procedures and Computer Programs for Mechanical Design and Analysis of Springs, Shafts, and Gears". Sponsor: The University of Texas at San Antonio, San Antonio, Texas. Total amount $3,000; September 1985-August 1986.

Consulting:

- Department of Physical Therapy, UTHSC, San Antonio, TX, 1998-99
- Department of Physical Medicine and Rehabilitation, UTHSC, San Antonio, TX, 1989-97

- Endodontic Department, UTHSC, San Antonio, TX, 1988-90
- Voest-Alpine International Corporation, New York, NY, 1987-91
- Advanced Production Technology, Inc., Pittsburgh, PA, 1988

TEACHING

Classroom/Laboratory:

2019	Spring:	ME	3823	Machine Element Design I, section 1	U
	Summer:	ME	3823	Machine Element Design I	U
2018	Spring:	ME	3823	Machine Element Design I, section 2	U
	Summer:	ME	3823	Machine Element Design I	U
	Fall:	ME	3513	Mechanism Design	U
2017	Summer:	ME	3813	Mechanics of Solids	U
		ME	3823	Machine Element Design I	U
	Fall:	ME	3513	Mechanism Design	U
2016	Spring:	ME	4603	Finite Element Analysis	U
	Summer:	ME	3513	Mechanism Design	U
		ME	3823	Machine Element Design I	U
	Fall:	ME	3823	Machine Element Design I, Section 1	U
		ME	3823	Machine Element Design I, Section 2	U
2015	Spring:	ME	3513	Mechanism Design	U
		ME	3823	Machine Element Design I, Section 1	U
	Summer:	ME	3813	Mechanics of Solids	U
		ME	3823	Machine Element Design I	U
	Fall:	ME	3823	Machine Element Design I, Section 1	U
		ME	3823	Machine Element Design I, Section 2	U
2014	Spring:	ME	4953	Special Studies in ME: Mechanism Design	U
		ME	3823	Machine Element Design I	U
	Summer:	ME	3813	Mechanics of Solids	U
		ME	3823	Machine Element Design I	U
	Fall:	ME	3823	Machine Element Design I, Section 1	U
		ME	3823	Machine Element Design I, Section 2	U
2013	Spring:	ME	4953	Special Studies in ME: Mechanism Design	U
		ME	3823	Machine Element Design	U
	Summer:	ME	3813	Mechanics of Solids	U
		ME	3823	Machine Element Design	U
	Fall:	ME	4433	Machine Element Design II	U

		ME	3823	Machine Element Design I	U
2012	Spring:	ME	4953	Special Studies in ME: Mechanism Design	U
		ME	3823	Machine Element Design	U
		ME	4913	Independent Study	U
		ME	6953	Independent Study	G
	Summer:	ME	3813	Mechanics of Solids	U
		ME	3823	Machine Element Design	U
	Fall:	*Retired, VSIP, August 31, 2012*			
2011	Spring:	ME	4953	Special Studies in ME: Mechanism Design	U
		ME	3823	Machine Element Design	U
		ME	4913	Independent Study	U
		ME	6953	Independent Study	G
	Summer:	ME	3813	Mechanics of Solids	U
		ME	3823	Machine Element Design	U
	Fall:	ME	4953	Special Studies in ME: Mechanism Design	U
		ME	3823	Machine Element Design	U
2010	Spring:	ME	3513	Mechanism Design	U
		ME	3823	Machine Element Design	U
	Summer:	ME	3513	Mechanism Design	U
		ME	3823	Machine Element Design	U
	Fall:	ME	4953	Special Studies in ME: Mechanism Design	U
		ME	3823	Machine Element Design	U
2009	Spring:	ME	5513	Advanced Mechanism Design	G
		ME	5973	Special Project	G
		ME	3513	Mechanism Design	U
		ME	3823	Machine Element Design	U
		ME	6983	Master’s Thesis	G
	Summer:	ME	3513	Mechanism Design	U
		ME	3823	Machine Element Design	U
	Fall:	ME	3513	Mechanism Design	U
		ME	3823	Machine Element Design	U
2008	Spring:	EGR	2103	Statics	U
		ME	3513	Mechanism Design	U
		ME	3823	Machine Element Design	U
	Summer:	ME	3823	Machine Element Design	U
		ME	3813	Mechanics of Solids	U
	Fall:	ME	6983	Master’s Thesis	G
		ME	5533	Advanced Machine Design	G
		ME	3513	Mechanism Design	U
		ME	3823	Machine Element Design	U

2007	Spring:	ME1402	Engineering Graphics	U
		ME 3513	Mechanism Design	U
		ME 3823	Machine Element Design	U
		ME 6983	Master's Thesis	G
	Summer:	EGR 2103	Statics	U
		ME 3813	Mechanics of Solids	U
	Fall:	ME 1402	Engineering Graphics	U
		ME 3513	Mechanism Design	U
		ME 3823	Machine Element Design	U
2006	Spring:	ME 3513	Mechanism Design	U
		ME 3823	Machine Element Design	U
		ME 4603	Finite Element Applications in Mechanical Design	U
		ME 6983	Master's Thesis	G
	Summer:	EGR 2103	Statics	U
		ME 3813	Mechanics of Solids	U
	Fall:	ME 3513	Mechanism Design	U
		ME 3823	Machine Element Design	U
		ME 4603	Finite Element Analysis	U
2005	Spring:	ME 3513	Mechanism Design	U
		ME 3823	Machine Element Design	U
		ME 4603	Finite Element Applications in Mechanical Design	U
		ME 6983	Master's Thesis	G
	Summer:	ME 3513	Mechanism Design	U
		ME 3813	Mechanics of Solids	U
	Fall:	ME 3513	Mechanism Design	U
		ME 3823	Machine Element Design	U
		ME 4603	Finite Element Applications in Mechanical Design	U
		ME 6983	Master's Thesis	G
2004	Spring:	ME 3513	Mechanism Design	U
		ME 4603	Finite Element Applications in Mechanical Design	U
		ME 6961	Comprehensive Exam	G
	Summer:	ME 3513	Mechanism Design	U
		ME 3813	Solid Mechanics	U
	Fall:	ME 3823	Machine Element Design	U
		ME 4603	Finite Element Applications in Mechanical Design	U
		ME 6983	Master's Thesis	G
2003	Spring:	ME 3823	Machine Element Design	U
		ME 4603	Finite Element Applications in Mechanical Design	U
		ME 4811	ME Project Planning Laboratory	U
		ME 6953	Independent Study	G
		ME 6983	Master's Thesis	G
	Summer:	EGR 2213	Statics & Dynamics	U

		ME	4913	Independent Study	U
		ME	6983	Master's Thesis	G
	Fall:	ME	3513	Mechanism Design	U
		ME	4603	Finite Element Applications in Mechanical Design	U
		ME	5533	Advanced Machine Design	G
2002	Spring:	ME	3813	Solid Mechanics	U
		ME	3823	Machine Element Design	U
		ME	4603	Finite Element Applications in Mechanical Design	U
		ME	6953	Independent Study	G
	Summer:	ME	3813	Solid Mechanics	U
		ME	3103	Kinematics and Dynamics	U
		ME	6983	Master's Thesis	G
	Fall:	ME	4603	Finite Element Applications in Mechanical Design	U
		ME	5553	Advanced Design of Cams and Gears	G
		ME	6983	Master's Thesis	G
2001	Spring:	ME	4603	Finite Element Applications in Mechanical Design	U
		ME	4811	ME Project Planning Laboratory	U
		ME	6983	Master's Theses	G
	Summer:	ME	3813	Solid Mechanics	U
		ME	3103	Kinematics and Dynamics	U
		ME	6953	Independent Study	G
	Fall:	ME	4603	Finite Element Applications in Mechanical Design	U
		ME	4813	Mechanical Eng. Design Project	U
		ME	6953	Independent Study	G
		ME	6983	Master's Thesis	G
2000	Spring:	ME	4423	Machine Element Design	U
		ME	4813	Mechanical Engineering Design Project	U
		ME	6983	Master's Thesis	G
	Summer:	ME	3813	Solid Mechanics	U
		ME	4603	Finite Element Applications in Mechanical Design	U
		ME	6983	Master's Thesis	G
	Fall:	ME	4603	Finite Element Applications in Mechanical Design	U
		ME	5513	Advanced Mechanism Design	G
		ME	6983	Master's Thesis	G
1999	Spring:	ME	3513	Mechanism Design	U
		ME	4813	Mechanical Engineering Design Project	U
		ME	5523-4	Advanced Design of Cams and Gears	G
	Summer:	ME	3813	Solid Mechanics	U
	Fall:	ME	3513	Mechanism Design	U
		ME	4413	Intermediate Mechanism Design	U
		ME	4811	ME Project Planning Laboratory	U
		ME	6953	Independent Study	G

1998	Spring:	ME	3513	Mechanism Design	U
		ME	4423	Int. Machine Element Design	U
		ME	4813	Mechanical Eng. Design Project	U
		ME	5973	Special Project	G
	Summer:	EGR	3213	Mechanics of Solids	U
		EGR	5533-1	Advanced Strength of Materials	G
	Fall:	ME	3513	Mechanism Design	U
		ME	4423	Machine Element Design	U
		ME	4813	Mechanical Eng. Design Project	U
1997	Spring:	ME	3513	Mechanism Design	U
		ME	4423	Int. Machine Element Design	U
		ME	4813	Mechanical Eng. Design Project	U
		ME	6953	Independent Study	G
		ME	6983	Master's Thesis	G
	Summer:	EGR	2503	Dynamics	U
		EGR	3213	Mechanics of Solids	U
	Fall:	ME	3513	Mechanism Design	U
		ME	4413	Int. Mechanism Design	U
		ME	4813	ME Design Project	U
		ME	6953	Independent Study	G
1996	Spring:	ME	3513	Mechanism Design	U
		EGR	5533-1	Advanced Strength of materials	G
		ME	6953	Independent Study	G
	Summer:	ME	4413	Int. Mechanism design	U
		ME	4603	CAD Methodology	U
	Fall:	ME	3513	Mechanism Design	U
		ME	4813	ME Design Project	U
1995	Spring:	ME	3513	Mechanism design	U
		ME	4413	Int. Mechanism Design	U
		ME	4912	Independent Study	U
		ME	6953	Independent Study	G
	Summer:	EGR	3213	Mechanics of Solids	U
		ME	4603	CAD Methodology	U
	Fall:	ME	3513	Mechanism Design	U
		ME	4423	Int. Machine Element Design	U
1994	Spring:	ME	3513	Mechanism Design	U
		ME	5523-2	Advanced Machine Design	G
		ME	6983	Master's Thesis	G
	Summer:	EGR	3213	Mechanics of Solids	U
		ME	4603	CAD Methodology	U
		ME	4911	Independent Study	U

	Fall:	ME	3513	Mechanism Design	U
		ME	4423	Int. Machine Element Design	U
		ME	6983	Master's Thesis	G
1993	Spring:	ME	3513	Mechanism Design	U
		ME	3523	Machine Element Design	U
		ME	5523-1	Advanced Mechanism Design	G
	Summer:	EGR	3213	Mechanics of Solids	U
		ME	4603	CAD Methodology	U
	Fall:	ME	3513	Mechanism Design	U
		ME	3523	Machine Element Design	U
1992	Spring:	ME	3513	Mechanism Design	U
		ME	4603	CAD Methodology	U
		ME	5523-2	Advanced Machine Design	G
	Summer:	EGR	2503	Dynamics	U
		EGR	3213	Mechanics of Solids	U
	Fall:	ME	3513	Mechanism Design	U
		ME	3523	Machine Element Design	U
		ME	4533	Mechanical Design Methodology	U
1991	Spring:	ME	3513	Mechanism Design	U
		ME	4603	CAD Methodology	U
		ME	5523-1	Advanced Mechanism Design	G
	Summer:	EGR	3213	Mechanics of Solids	U
		ME	3523	Machine Element Design	U
	Fall:	ME	3513	Mechanism Design	U
		ME	4533	Mechanical Design Methodology	U
		EGR	5513	Finite Element Methods in Mechanics	G
1990	Spring:	EGR	3213	Mechanics of Solids	U
		ME	3523	Machine Element Design	U
		ME	4603	CAD Methodology	U
	Summer:	EGR	3213	Mechanics of Solids	U
	Fall:	EGR	3213	Mechanics of Solids	U
		ME	3513	Mechanism Design	U
		ME	4533	Mechanical Design Methodology	U
		ME	4913	Independent Study	U
1989	Spring:	EGR	2503	Dynamics	U
		ME	3523	Machine Element Design	U
		ME	4813	Mechanical Eng. Design Project	U
	Summer:	EGR	2503	Dynamics	U
	Fall:	EGR	3213	Mechanics of Solids	U
		ME	3513	Mechanism Design	U

		ME 4533	Mechanical Design Methodology	U
		ME 4913	Independent Study	U
1988	Spring:	ME 3523	Machine Element Design	U
		ME 4813	Mechanical Eng. Design Project	U
	Summer:	EGR 2503	Dynamics	U
	Fall:	EGR 3213	Mechanics of Solids	U
		ME 3513	Mechanism Design	U
		ME 4603	CAD/CIM Methodology	U
1987	Spring:	EGR 3213	Mechanics of Solids	U
		ME 3513	Mechanism Design	U
		ME 4603	CAD/CIM Methodology	U
	Summer:	EGR 3213	Mechanics of Solids	U
	Fall:	ME 3513	Mechanism Design	U
		ME 3523	Machine Element Design	U
1986	Spring:	EGR 3203	Dynamics	U
		ME 4953	Machine Design II	U
	Summer:	EGR 3213	Mechanics of Solids	U
	Fall:	EGR 2503	Dynamics	U
		EGR 3213	Mechanics of Solids	U
		ME 3523	Machine Element Design	U
1985	Fall:	EGR 3203	Dynamics	U
		ME 4213	Machine Design I	U

Summary of the Courses Taught at UTSA

Twenty-three (23) years of hands-on experience in Mechanical Design area in industries in India, former USSR, and USA proved very useful in citing practical examples to students in my classes.

EGR 2103	Statics; and Statics, EGR 2213
EGR 2503	Dynamics
EGR 3213	Mechanics of Solids
EGR 5513	Finite Element Methods in Mechanics
EGR 5533-1	Advanced Strength of Materials
ME 1402	Engineering Graphics
ME 3103	Kinematics and Dynamics
ME 3513	Mechanism Design
ME 3523	Machine Element Design
ME 3533	ME Design Methodology
ME 3813	Solid Mechanics
ME 3823	Machine Element Design (ME 4423)
ME 4213	Machine Design I

ME 4413 Intermediate Mechanism Design
ME 4423 Intermediate Machine Design
ME 4533 Mechanical Engineering Design Methodology
ME 4603* CAD/CIM Methodology
ME 4603* CAD Methodology
ME 4603* Finite Element Analysis, and FE Applications in Mechanical Design
ME 4811 Mechanical Engineering Project Planning Laboratory
ME 4813 Mechanical Engineering Design (Senior Design Projects)
ME 4913 Independent Study
ME 4953-1 Special Studies in Mechanical Engineering
ME 4953-2 Special Studies in ME: Mechanism Design
ME 5013 Enumeration of Kinematic Structures According to Function
ME 5513 Advanced Mechanism Design
ME 5523-1* Advanced Mechanism Design
ME 5523-2* Advanced Machine Design
ME 5523-4* Advanced Design of Cams and Gears
ME 5553 Advanced Design of Cams and Gears
ME 5973 Special Project
ME 6953 Independent Study- Advanced Topics in Gear Design

* Some of the courses have same number but the topics are different.

Instructional Development:

- Developed and taught, "Special Studies in ME: Mechanism Design," ME 4953-2, an undergraduate course, open to graduate/undergraduate students in mechanical engineering, Fall 2010.
- Developed, "Advanced Topics in Mechanism Design: Enumeration of Kinematic Structures According to Function, ME 5013," a brand-new graduate level course for mechanical engineering students. Fall 2002.
- Developed and taught the Finite Element Applications in Mechanical Design, ME 4603, a new undergraduate level course for mechanical engineering senior students, Summer 2000. The course was offered for the first time.
- Developed and taught the Advanced Design of Cams and Gears, ME 5553/ME 5523-4, a new graduate level course for mechanical engineering students, Spring 1999. The course was offered for the first time.
- Developed and taught the ME Project Planning Laboratory, ME 4811, a new undergraduate level course for mechanical engineering students, Fall 1999. The course was offered for the first time.
- Restructured the Advanced Strength of Materials, EGR 5533, a graduate level course for mechanical engineering students. Taught the course for the first time in Spring 1996.
- Developed and taught the Intermediate Mechanism Design, ME 4413, a new senior level undergraduate technical elective course for mechanical engineering students, Spring 1995. The course was offered for the first time.

- Developed and taught the Intermediate Machine Element Design, ME 4423, a new senior level undergraduate technical elective course for mechanical engineering students, Fall 1994. The course was offered for the first time.
- Developed and taught the Advanced Machine Design, ME 5533/ME 5523-2, a new graduate level course for mechanical engineering students, Spring 1992. The course was offered for the first time.
- Developed and taught the Advanced Mechanism Design, ME 5513/ME 5523-1, a new graduate level course for mechanical engineering students, Spring 1991. The course was offered for the first time.
- Restructured the Finite Element Methods in Mechanics, EGR 5513, and a graduate level course for mechanical and civil engineering students. Taught the course for the first time in Fall 1991.
- Restructured the Mechanical Design Methodology, ME 4533, a senior level mechanical engineering technical elective course to provide emphasis on practical applications and design project(s). Taught the course for the first time in Fall 1989.
- Restructured the Mechanical Engineering Design, ME 4813, course to provide emphasis on synthesis, modeling, and computer-aided design projects for real-life industrial application. An external examiner from industry was invited to provide independent evaluation of the student design projects, Spring 1988.
- I significantly expanded the scope and quality of the course, ME Senior Design Project, ME 4813. Using my industrial contacts as an active member and past-chair of ASME San Antonio Section I provided industrial mentors and industrial support for student design projects and arranged videotaping the student design project presentations. These videotapes were made available for ABET visits, Spring 1997.
- For ME seniors, I started a "hands-on" experience in using machines such as: lathes, mills, CNC machines, and welding equipment in the ME Project Planning Laboratory, ME 4811. The course was offered for the first time. I introduced two machine shop assignments. The experience gained in these assignments proved of significant help to students in understanding the importance of mechanical drawings including limits and tolerances, dimensions, surface finishes, and weld symbols, etc. They quickly learned that by paying attention to details on drawings one would change the cost of part(s) and the project significantly, Fall 1999.
- Developed and taught the CAD/CIM Methodology, ME 4603, a new senior level undergraduate technical elective course for mechanical engineering students. The course was offered for the first time in Spring 1987.
- Restructured the Mechanism Design, ME 3513, course to provide emphasis on practical applications and design project(s). This is a junior level mechanical engineering required course. Taught the course for the first time in Fall 1987.
- Restructured the Machine Design II, ME 4953-1, course to provide emphasis on practical applications and design project(s). This is an undergraduate senior level elective course for mechanical engineering students. Taught the course for the first time in Spring 1986.
- Developed and taught the Machine Element Design, ME 3523, a junior level mechanical engineering required course, Fall 1986. Introduced practical applications, design codes and standards, and design project(s). The course was offered for the first time.
- Assisted in restructuring the Mechanics of Solids, EGR 3213, a required course for civil and mechanical engineering students, Fall 1986.

- Restructured the Engineering Graphics, ME 1402, course, Spring 2007. Enhanced the course by introducing two (2) projects emphasizing mechanical components and assembly of mechanical components; introduced limits, fits, tolerances, weld and surface finish symbols on drawing, added “assembly modeling-II” and “working with drawing views –I and II” in the syllabus.

Course Coordinator for the following courses:

1. Finite Element Analysis, ME 4603, 2015-2016
2. Advanced Topics in Mechanism Design: Enumeration of Kinematic Structures According to Function, ME 5013, 2002-04
3. Advanced Design of Cams and Gears, ME 5553/ME 5523-4, 1999-2004
4. Advanced Mechanism Design, ME 5513/ME 5523-1, 1991-04
5. Advanced Machine Design, ME 5533/ME 5523-2, 1992-04
6. Advanced Strength of Materials, EGR 5553/EGR 5533-1, 1996-02
7. Finite Element Methods in Mechanics, EGR 5513, 1991-94
8. Finite Element Applications in Mechanical Design, ME 4603, 1998-04
9. Solid Mechanics, ME 3813, 2000-02
10. Mechanics of Solids, EGR 3213, 1987-97
11. Intermediate Mechanism Design, ME 4413, 1994-02
12. Intermediate Machine Design, ME 4423, 1994-02
13. Machine Element Design II (Intermediate Machine Element Design), ME 4433, 2000-02, 2015-2016
14. Machine Element Design I, ME 3823, 2000-04, 2015-2016
15. Machine Element Design, ME 4423, 1998-00
16. Machine Design, ME 4213, 1985-86
17. Machine Element Design, ME 3523, 1986-98
18. Introduction to Mechanical Design, ME 3523, 1998-00
19. ME Design Methodology, ME 4533/ME 3533, 1989-00
20. CAD/CIM Methodology, ME 4603, 1987-88
21. CAD Methodology, ME 4603, 1989-97
22. Mechanism Design, ME 3513, 1987-04, 2015-16
23. Dynamics, EGR 2503, 1987-90
24. Co-Coordinator, ME Project Planning Laboratory, ME 4811, 1998-03
25. Co-Coordinator, Mechanical Engineering Design Project, ME 4813, 1991-03
26. Engineering Graphical Communications, EGR 1402, 1991-00
27. Engineering Graphics and Design, ME 1403, 2000- 04
28. Engineering Graphics, ME 1402, 2007-08

Course coordinators were not assigned from the years 2004-2012. The Engineering Graphics, ME 1402 course was an exception; Dr. Frank Chen assigned a course coordinator for the course for three semesters: Spring of 2007, Fall 2007, and Spring 2008.

Masters' Theses Directed:

- Patchigolla, Ravi, MSME, "Effects of Rim Thickness on Bending Stresses in Low Addendum Large Spur Gear Teeth," 2005
- Kosaraju, Vishala, MSME, Non-Thesis Option, 2004
- Garg, Himanshu, MSME, "Design of Customized Higher Pair Linkage for Above the Knee Prosthesis," 2003
- Fussner, Douglas, MSME, "Design of Input Coupled Split Power Toroidal Transmissions," 2001
- Scott, Wharton, MSME, "Kinematic Synthesis of a Customized Higher Pair Linkage for Above the Knee Prosthesis," 2000
- Mei, Eric, MSME, Non-Thesis Option, 1998
- Balaraman, V., MSME, "Enumeration of Human Knee Prostheses and Design of a Three-Bar Prosthetic Knee Mechanism," 1994

Membership on Graduate Committees:

- Tamannagari, Gauthami, MSEE, "Power Efficient Design of Finger-Ring Sensor for Patient Monitoring," December 2008.
- Singh, Hardev, MSME, "Error Estimators for Finite Element-Based Stress Intensity Factor Determination," 2008
- Challa, Vinay, MSME, "Three-Dimensional Non-Linear Analysis on Intracranial Aneurysm," 2005
- Chalumuri, Dhan, MSME, "Modeling of Maneuver Induced Vehicle Rollover," 2005
- Taber, Joseph H., MSME, "Dynamic Probabilistic Analysis of Bolt Retraction During Separation of the Propulsion on an Orbiting Vehicle," 2001
- Jurena, M. T., MSME, "Structural Reliability Using Finite Element Analysis and a Probabilistic Material Strength Degradation Model," 1999
- Paruchuru, S., MSME, "Development of a New Technique to Determine the Critical Strain Energy Release Rate of Bone and Other Biological Materials," 1995
- Scott, Shelia P., MSME, Non-Thesis Option, 1993

Undergraduate Students (research Supervised):

- "Lunar Cart Design," Team: "No Boundaries," Team Leader- Christopher Kite, Faculty Advisor, Yesh P. Singh, JSC Mentor- Robert Trevino, NASA, TSGC Design Challenge Top Design Team, First Place both in Oral Presentation and Model/Prototype, Fall 2009.
- Talley, Peggy L., "Design Modification of a Gas Turbine Blade Shroud," 2005
- Sanders, P., "Design of Below the Knee Prosthetic Socket," 2002
- Gernentz, R., "Design of a Portable Windmill," 2002
- Guzman, H. M., "Data Acquisition and Control of Mold Oscillator Mechanisms for Continuous Casters," 1989
- Burgess, J. M., "Mold Oscillator Mechanisms for Continuous Casters-Synthesis and Computerized Design," 1989
- Jurek, J. M., "Optimization and Interactive Computer Aided Design of Mechanisms Containing a Guiding Track," 1989

SERVICE

Professional Activities:

Scientific Organizations/Societies:

- 2009-present Life Member, American Society of Mechanical Engineers (ASME)
- 1992-present Fellow, ASME
- 1974-76 Student Member, ASME
- 1976-present Member, ASME
- 1986- Member, American Society for Engineering Education (ASEE)
- 1978- Member, Association of Iron and Steel Engineers (AISE)
- 1980-82 Member, Society of Mining Engineers (SME-AIME)
- 2000-01 Member, San Antonio Bioengineering Research (SABER) Partners

Offices Held in professional Organizations:

- 2009 Faculty Advisor, Texas Space Grant Consortium Design Challenge
- 8/10-2012 Faculty Advisor, ASME Student Section, UTSA
- 2006-2009 Faculty Advisor, ASME Student Section, UTSA
- 9/2002-8/03 Faculty Advisor, Texas Space Grant Consortium Design Challenge
- 2003-05 Faculty Mentor for NSF CSEMS Scholars
- 1994-95 Chair, ASME San Antonio Section
- 1993-94 Vice-Chair, ASME San Antonio Section
- 1992-93 Secretary, ASME San Antonio Section
- 1990-91 Treasurer, ASME San Antonio Section

Session Chair/Organizer:

- Session Chaired, International ANSYS Conference
- Session Chaired, Biomedical Engineering Conference
- Session Chaired, ASEE-GSW Conferences
- Session Chaired, ASME Design Technical Conference
- Session Chaired, ASME Mechanism Conference
- Session Chaired, Applied mechanisms Conference
- Session Chaired, ASME International Computers in Engineering Conference
- Session Chaired, Applied mechanisms and Robotics Conference
- Session Chaired, U.S.-Mexico Technical Interchange Conference
- Chaired, Student Paper Contest Review Committee, Applied Mechanisms and Robotics Conferences
- Chaired, Design Review Committees at the Allis Chalmers Corporation

- Chaired, Design Review Committees at the Heavy Machine Building Plant, HEC, Ltd.

Reviewed Papers for Journals:

- Transactions of the ASME, Journal of Mechanical Design
- Journal of the International Federation for the Theory of Machines and Mechanism, Mechanism and Machine Theory
- ASME International Computers in Engineering Conference

Community Service:

- Member of the Panel Discussion Session on, "The Teaching of Mechanical Engineering," International Scientific Conference of Mechanical Engineering, COMEC, Santa Clara, November 2002.
- Submitted a list of errors in solutions manual and suggestions for improving figures in the book, "Mechanism Design and Synthesis, Volume I, second edition, by Arthur G. Erdman and George N. Sandor, August 2000.
- Official Nominator, The United States Achievement Academy for National Collegiate Engineering Awards (NCEA), 1991-2006
- Technical Coordinator, the ANSYS finite element program, ANSYS Inc., PA, 1986-2009
- Technical Coordinator, the Lincages-4 mechanism program, MINTT, New Brighton, MN, 1986-2012
- UNYSIS/GRAFTEK CAD/CAM program coordinator, UNYSIS/ GRAFTEK, Inc., Boulder, Colorado, 1986-1991
- Chaired many committees at the ASME San Antonio Section since 1989. Chair of Programs (1999-00), Chair of Professional Development Committee (1998-99), Chair of Professional Practice Committee (1997-98), Chair of Nominations and National Agenda Committee (1995-96), **Section Chair** (1994-95), Vice-Chair (1993-94), Secretary (1992-93), Treasurer (1990-91), Chair of College Relation Committee (1989-90, and 96-97).
- Organized, "Process Re-Engineering Seminar," for the major manufacturers and businesses in San Antonio, co-sponsored with Structural Dynamics Research Corporation (SDRC), June 1998.
- Public Television, KLRN, Fund Raising, December 1993, 94, 95, 96, 97
- Administrator of FE Activities, and Head Proctor of FE / EIT examinations at UTSA, 1987-2006
- Administered the National Engineering Aptitude Search (NEAS) examinations at UTSA. 1991-94.
- Participated in special projects such as judges for Alamo Regional Science Fair (1994-95), and Judges in Bridge Building Contest at UTSA, July 1998.
- When I was Chair of ASME San Antonio Section, 1994-95, submitted Ljungstrom Air Preheater Landmark Proposal to History and Heritage Committee of ASME.
- As a Chair of ASME San Antonio Section, hosted *Landmark Dedication Ceremony for designating the Newell Shredding Machine of San Antonio, ASME Landmark No. 111*, September 1994.

- As a Chair of ASME San Antonio Section, *initiated a cooperative agreement between the Swedish Sveska Mecanisternas Rikforbund (SMR) and ASME*, Chicago, November 1994.
- Administered the National Institute Certification in Engineering Technologies (NICET) examination at San Antonio, 1991.
- Organized the FE /EIT review sessions at the Division of Engineering, UTSA, 1986 thru 96.

Committees:

Department:

- Chair, Undergraduate Committee of Mechanical Engineering (ME), 2011-12
- Member, Assessment Committee of Mechanical Engineering, 2011-12
- Member, Periodic Performance Evaluation of ME, 2011-12
- Member, Third Year Review Committee of ME, 2011-12
- Member, Faculty Review Advisory Committee (FRAC) of Mechanical Engineering Department, 2009-10, 2011-12
- Member, Review of Endowed Chair Committee, ME Department, 2009-10
- Member, Undergraduate Studies Committee, ME department, 2009-10
- Chair, Periodic Performance Evaluation Committee (PPEC) of Mechanical Engineering Department, 2005-06 and 2007-08
- Chair, Faculty Review Advisory Committee (FRAC) of Mechanical Engineering Department, 2004-05, 2006-07, 2007-08
- Chair, ME Department Software & PC-Lab Committee, 2006-07
- Chair, Faculty Review Advisory Committee (FRAC) of Mechanical Engineering and Biomechanics Department, 2001-04
- Chair, Graduate Studies Committee of ME and Biomechanics Department, Sept. 1998-Aug. 2001
- Chair, ME Faculty Search Committee for the Systems and Controls position, 2002-03
- Chair, ME Faculty Search Committee for Assistant Professor's Position, 2000-01
- Newsletter Editor, Mechanical Engineering Department, 2007-08
- Member, Periodic Performance Evaluation Committee (PPEC) of Mechanical Engineering and Biomechanics Department, 2001-02
- Member, Mechanical Engineering Graduate Studies Committee, 1987-2006
- Member, Department's Ad Hoc Committee on Teaching Evaluations, 2006-07
- Member, Ad Hoc Committee for MEB PhD Program Development, 2004-05
- Member, Mechanical Engineering and Biomechanics Search Committee for the Endowed Chair Position, 2004-05
- Member, Mechanical Engineering and Biomechanics Faculty Search Committee for Open Rank in Biomedical Engineering, 2004-05
- Member, Faculty Search Committee of ME & Biomechanics Department, for the Open Position in Biomechanics, 2001-03
- Member, Faculty Search Committee of ME & Biomechanics Department, for the Assistant Professor Position in Thermal and Fluid Mechanics, 2002-03
- ABET accreditation documentation for Mechanical Engineering, 2004, 2001, 1998, 95, 92, 89, and 1986

- Assisted the Division of Engineering Building Committee in development of the following laboratories: Engineering CAD Laboratory, Microcomputer/PC Laboratory, Senior Design Laboratory, Solid Mechanics/Structures Laboratory, Special Projects (Student Shop), Engineering Design Conference/Library, and Mechanical Engineering CNC Laboratory, 1989-91

College of Engineering:

- Chair, Ad-Hoc Faculty Review Advisory Committee, BME Department, 2005-06
- Chair, College Faculty Development Leave Committee, 2006-07
- Chair, Recruitment and Retention Committee, Division of Engineering, 1992-93
- Coordinator of the Fundamentals of Engineering (FE) / Engineer-In-Training (EIT) activities, 1987-2006
- Administrator and Head Proctor of the Fundamentals of Engineering Exams, 1987-2006
- Member, College Task Force-2 Committee, 2006-07
- Affirmative Action Advocate (AAA), Faculty Search Committee of Electrical and Computer Engineering Department, 2000-2003
- Member, College Faculty Advisory Committee, 2006-07 and 2007-08
- Member, College Faculty Review Advisory Committee (CFRAC), 2001-03, 2004-06
- Member, College Academic Policy Curriculum Committee (CAPCC), College of Engineering, 2002-03, 2003-04, and 2004-05
- Member, Faculty Advisory Committee (FAC), Division of Engineering, 1993-1999
- Member, Division of Engineering Accreditation Committee, 1997-1998
- Member, Academic Policy for Curriculum Committee, Division of Engineering, 1994-2000
- Member, College of Sciences Scholarship Committee, 2006-07
- Member, Faculty Review Advisory Committee, Division of Engineering, 1989-1997
- Member, Computer/CAD Committee, Division of Engineering, 1987-1995
- Member, Longbotham Scholarship Committee, 2006-2007
- Member, Recruitment and Planning Committee, Division of Engineering, 1991-92
- Member, Planning Committee, Division of Engineering, 1990-91

University:

- Member, University Libraries Committee, 2009-August 31, 2012
- Member, Chancellor's Teaching Award Committee, 2005-06
- Member, University Faculty Review Advisory Committee (UFRAC), 2005-06
- Member, University of Texas Volunteer Corps for College, 2007-present
- Member, University Review Committee (URC), 2006-2007
- Member, Evaluation, Merit, Rewards, and Workload Committee of the University, 2005-06
- Member, University Standing Committee on Extended Education, 2000-04
- Member, University Standing Building Advisory and Design Review Committee, 2004-06
- Member, University Family Weekend Committee, 2003-05
- Member, University Diversity & Affirmative Action Committee, 2003-05
- Member, Membership Committee of the University Graduate Council, UTSA, 1995-1997
- Member, MS MOT Graduate Studies Committee, UTSA, 1993-1996
- Member, Faculty Senate and University Assembly

Administrative Responsibilities:

Department:

9/1993-12/96	Chair of Mechanical Engineering Program
9/1998-8/2001	Graduate Advisor of Record, MSME Program
9/1998-8/2001	Chair of Mechanical Engineering Graduate Studies Program
6/1986-8/86	Undergraduate Advisor of Record, Mechanical Engineering

College:

1/1998-3/02	Director of Machine Shop, College of Sciences and Engineering

University:

1987-2006	Administrator of FE Activities, and Head Proctor of FE/EIT Examinations, UTSA Test Center, 1987-2006