Curriculum Vitae
(December 15, 2010)

NAME Vikram Cariapa, Ph.D., P.E.

1. ADDRESS
(Office)

Department of Mechanical Engineering
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2. EDUCATION:

Ph.D.	1985	University of Arkansas Fayetteville, Arkansas Major: Industrial Engineering Dissertation: "The Concept of Modular" Robots: "Validated by a Designed and Manufactured Robot."
M.S.	1982	University of Arkansas Fayetteville, Arkansas Major: Industrial Engineering.
M.E.P.	1977	Indian Institute of Management Ahmedabad, India Major: Management Education Program.
B. Tech.	1969	Indian Institute of Technology Madras, India. Major: Mechanical Engineering

3. PROFESSIONAL EXPERIENCE:

August 1992 – Present:
Associate Professor, Industrial Engineering Program, Department of Mechanical and Industrial Engineering, Marquette University, Milwaukee, WI.

August 1995 – August 1996:
Adjunct Associate Professor (Clinical), Department of Restorative Sciences, School of Dentistry, Marquette University, Milwaukee, WI.

August 1984- August 1992:
Assistant Professor, Industrial Engineering Program, Department of Mechanical and Industrial Engineering, Marquette University.

August 1988-Present:
Principal Duties: Teaching, Development of Industrial Engineering undergraduate courses and laboratories.

August 1984- August 1988:
Principal Assigned duties: Development of Industrial Engineering undergraduate courses and laboratories.

August 1980 – August 1984:
Graduate Assistant, Department of Industrial Engineering, University of Arkansas, Fayetteville, AR.
Supervisor, Industrial Engineering and Robotics Laboratory, University of Arkansas. AR.

November 1969 – August 1980:
Design Engineer (1969-1976); Head of Tool Design Dept. (1976-1980); Bharat Heavy Electricals Limited, Tiruchy, India.

4. CURRENT RESEARCH INTERESTS:

Mass Finishing
Design of prosthesis for spinal cord injury patients
Rapid Prototyping Processes
Design of Implements for the Elderly

5. PATENTS AWARDED:

Patent #5,891,065 awarded April 6, 1999 for Mobile Extremity Pumping apparatus to Vikram Cariapa, Dean C. Jeutter, & Shih-Kang Liang

Patent #5,437,610 awarded August 1, 1995 for Extremity Pumping apparatus to Vikram Cariapa, Dean C. Jeutter, & Shih-Kang Liang

6. SCHOLARLY ACTIVITIES:

I. Refereed Journals

Sridhar Harivanam, Richard W. Marklin, Paula E. Papanek, Vikram Cariapa, "A Shovel with a Perforated Blade Reduces Normalized Energy Expenditure Required for Digging and Shoveling Wet Clay." *Human Factors: The Journal of the Human Factors and Ergonomics Society* published online 8 September 2010, DOI: 10.1177/0018720810379850

Cariapa, V., Park, H., Cheng, C. “Reliability Analysis of Mass Finishing Processes.” Transactions of the NAMRC, v38, 169-176. (2010).

Cariapa, V., Park, H., Kim, J., Cheng, C., Evaristo, A.E.B. “ Effect of Abrasive content in media wear and material removal rate in centrifugal disk mass finishing machine.” Transactions of the NAMRC, v36, 341-348. (2008).

Cariapa, V., Park, H., Kim, J., Cheng, C., Evaristo, A.E.B. “Development of a metal removal model using spherical ceramic media in a centrifugal disk mass finishing machine.” International Journal of Advanced Manufacturing Technology, 39: 92-106. (2008).

Stango, R.J., Cariapa, V., Zuzanski, M., “Contact zone force profile and machining performance of Filamentary brush.” Transactions of the ASME ,Journal of Manufacturing Science & Engineering, Vol. 127, No.1, pp. 217-226, (2005).

Domblesky, J., Evans, R., Cariapa, V. “Material removal model for Vibratory Finishing.” International Journal of Production Research, Vol.42, No.5, 1029-1041, (2004)

Domblesky, J., Evans, R., and Cariapa, V., “Investigation of Vibratory Bowl Finishing.” International Journal of Production Research**,** Vol. 41, No. 16, pp. 3942-3953, (2003)

Chen, L., Stango, R.J., Cariapa, V., “A Force-Control Model for Edge-Deburring with Filamentary Brush.” Journal of Manufacturing Science and Engineering**,** vol. 123, No. 3, pp. 528-532, (2001).

Undeger, V.R., Cariapa V., Wenzel, T.H., Moussa, B., “Chain Pull Force Characteristics when Conveying the Clinker in a Drag Chain Conveyor.” Bulk solids Handling, the International Journal of Storing, Handling and Transporting Bulk**,** vol. 21, No.3, pp. 321-328, (2001).

Undeger, V.R., Cariapa, V., Wenzel, T.H., Moussa, B., “Chain Pull Force Characteristics when Conveying Clinker in a Drag Chain Conveyor.” Bulk solids Handling, the International Journal of Storing, Handling, and Transporting Bulk. vol. 20, No.2, pp. 177-182, (2000).

Payne, J., Cariapa, V., “A fixture repeatability and reproducibility measure to predict the quality of machined parts.” International Journal of Production Research, vol.38, No. 18 pp.4763-4781, (2000).

Stango, R.J., Chen, L., Cariapa, V., “Automated Deburring with a Filamentary Brush: Prescribed Burr Geometry.” Journal of Manufacturing Science & Engineering, vol. 121, No. 3, pp. 385-392, (1999).

Gottschalk, K., Cariapa, V., and Wick, G., “Feasibility of Stereolithography as an Alternative to Prototype Patterns for High Speed Sand Casting.” AFS Transactions**,** vol. 103, paper 95-91, pp. 711-720, (1995).

Cariapa, V., "Investigation of Polishing Characteristics of Circular Filamentary Brushes." Processing of Advanced Materials**,** Vol. 2, pp. 25-35, (1992).

Cariapa, V., Stango, R.J., Chen, L., and Hermann, R., "Aspects of Process model for Automatic Control of Edge-Deburring with Filamentary Brush." Transactions of ASME, Journal of Engineering for Industry**,** Vol. 114, No. 3, pp. 294-300, (1992).

Cariapa, V., Akbay, K.S., and Rudraraju, R., "Applications of Neural Networks for Compliant Tool Polishing Operations." Journal of Materials Processing Technology**,** Vol. 28, No. 1-2, pp.241-250, (1991).

Stango, R.J., Matar, J.E., Cariapa, V., and Ryan, W.E., "Effect of Fabrication Parameters on Void Content for Filamentary Wound Composites." ASME Journal Manufacturing Review, vol. 4, No. 3, pp. 205-213, (1991).

Cariapa, V., "Multi-mode Machine Tools – A Concept that Improves Operations of Flexible Manufacturing Systems." International Journal of Productions Research, Vol.29, No.5, pp. 1069-1079, (1991).

Cariapa, V., Stango, R.J., Liang, S.K., and Prasad, A., "Measurement and analysis of Brushing Tool Performance Characteristics: Part II – Contact Zone Geometry." Transactions of the ASME, Journal of Engineering for Industry**,** vol. 113, No. 3, pp. 290-296, (1991).

Stango, R.J., Cariapa, V., Prasad, A., And Liang, S.K., "Measurement and Analysis of Brushing Tool Performance Characteristics: Part I – Stiffness Response." Transactions of the ASME Journal of Engineering for Industry**,** Vol. 113, No.3, pp. 283-289, (1991).

II. Refereed Abstracts

Dhuru, V., Hintz, J., Cariapa, V., and Ferguson, D., "Surface properties of Different Types of Orthodontic Wires," Journal of Dental Research**,** 74 (IADR Abstracts) (1996), Special Issue (74th General Session of IADR, San Francisco, June 28-July1, 1995).

Kiyoshi, A., Dhuru, V., and Ziebert, G., "Effect of Various Polishing Agents on Dental Porcelain Surfaces," Journal of Dental Research, 74 (IADR Abstracts) (1995), Special Issue (73rd General Session of IADR, San Francisco, June 28-July 1, 1995).

III. Conference Proceedings:

A. Refereed, Conference proceedings (presented by Vikram Cariapa)*

*Cariapa, V., Park, H., Cheng, C. "Reliability of Mass Finishing Processes." Presented at NAMRC 38, Kingston, Ontario, Canada, and May 23-26, 2010.

*Cariapa, V., Park, H., Kim, J., Cheng, C., Evaristo, A.E.G. Effect of Abrasive content in media wear and material removal rate in centrifugal disk mass finishing machine. Presented at NAMRC 36, Monterrey, Mexico, May 20-23, 2008.

Stango, R.J., Cariapa, V., and Zuzanski, M., "Contact Zone Force Profile and Machining Performance of Filamentary Brush" ASME IMCE, symposium on Advances to further the Automation of Material Removal Processes**,** New Orleans, LA, (2002) (CD format).

*Domblesky, J.D., Rice, J.A., Cariapa, V., "Closing competency Gaps in Manufacturing through Student Learning Factories-One Approach". Published in the ASEE Conference Proceedings and Presented at the ASEE Conference 2001 in Albuquerque, New Mexico on June 27, 2001. (CD format).

Chen, L., Stango, R.J., Cariapa, V.,"Automated prototype Deburring with Compliant Brushing Tools", ASME Symposium on Intelligent Design and Manufacturing for Prototyping, Atlanta, GA, December 4-8, 1991, pp. 147-162.

Stango, R.J., Matar, J.E., Cariapa, V., Ryan, W.E., "Effect of Fabrication Parameters on Void Content for Filament Wound Composites," ASME Symposium on Processing and Manufacturing of Composite Materials, Atlanta, GA, December 4-8, 1991, pp. 277-290.

*Akbay, K.S., Cariapa, V., Rudraraju, R.,"Applications Of Neural Networks for Compliant Tool Polishing Operations", Proceedings of the Seventh International Conference on Computer Aided Production Engineerin**g,** Cookeville, TN, August 13-14, 1991, pp. 271-280.

Cariapa, V., Stango, R.J., Chen, L. and Hermann, R. "Aspects of Process model for Automatic Control of Edge-deburring with Filamentary Brushes, "Proceedings of the ASME Winter Annual Meeting, Dallas, TX, November 25-30, 1990, pp. 133-147.

*Cariapa, V., Stango, R.J., Chen, L., and Hermann, R., "Development of Process model for Robotic Adaptive Control of Compliant Tool Deburring Operations," Proceedings of the Seventh International Conference on Systems Engineering, Las Vegas, NV, July 18-20, 1990, pp. 579-586.

Stango, R.J., Cariapa, V., Prasad, A., and Liang, S.K., "Measurement and Analysis of Brushing Tool Performance Characteristics: Part I – Stiffness Response, " Proceedings of ASME Production Engineering Division, Symposium on the Mechanics of Deburring and Surface Finishing Processes, San Francisco, CA, December 10-15, 1989, pp. 143-157.

*Cariapa, V., Stango, R.J., Liang, S.K., and Prasad, A., "Measurement and Analysis of Brushing Tool Performance Characteristics: Part II – Contact Zone Geometry, "Proceedings of ASME Production Engineering Division, Symposium on the Mechanics of Deburring and Surface Finishing Processes, San Francisco, CA, December 10-15, 1989, pp. 159-172.

*Cariapa, V., "Universal Machine Tools Make Flexible Manufacturing More Efficient," Proceedings of the Second International Conference on Robotics and Factories of the Future, San Diego, CA, July 20-21, 1987, pp. 257-264.

*Cariapa, V., "Modular Robots – The Robots of the Future, " Proceedings of the First International Conference on Robotics and Factories of the Future, Charlotte, NC, December 6, 1984, pp. 247-252.

B: Other Conference Publications (Also presented paper at the conference)

Cariapa, V., Liang, S.K., Brower Jr., W.E. " The Relationship of Process Characteristics of Stereolithography to Prototype Dimensions", Proceedings of the Second Solid Freeform Fabrication Symposium, Austin, Texas, August 12-14, 1991, pp. 56-61.

Cariapa, V., Stango, R.J., Chen, L., "Applications of Neural Networks to Compliant Tool Deburring Operations," **SME** Deburring and Surface Conditioning Conference, Orlando, FL, Paper MR 91-135, February 19-21, 1991.

Stango, R.J., Cariapa, V., and Manion, J.M., "Experimental Evaluations of Circular Brush Stiffness: Preliminary Results," Proceedings of the SME Deburring and Surface Conditioning Conference, San Diego, CA, Paper MR889-143, February 1989.

7. GRANTS:

I. Proposals under review.

NONE

II. Funded Proposals:

NASA Summer Faculty Fellow at NASA Langley (VA). Summer 2006 ($12,000).

NASA Summer Faculty Fellow at NASA Langley (VA). Summer 2005 ($12,000).

NASA Summer Faculty Fellow at NASA Langley (VA). Summer 2004 ($12,000).

NASA Summer Faculty Fellow at NASA Langley (VA). Summer 2003 ($12,000).

Abrasive Finishing (Chelsea, Michigan) Media for mass finishing ($6000) August 2003.

Kimberly Clark Phase 1and 2 implementation of the Cross functional data lab. May 2001 – present. ($60, 000).

Kimberly Clark preliminary Study of Cross functional data lab. August 2000 – May 2001. ($10,000).

Briggs and Stratton, Donation of 9 Engines (October 2000) ($2250).

Brown and Sharp Coordinate Measuring machine (August 2000) ($5000).

Autodesk Design Software (March 2000) ($4500).

NSF “Re-engineering the manufacturing curricula” January 2001 to January 2002. (With Dr. J Domblesky)($80,036).

Rexnord Conveying equipment division research setup. May – June 1998. ($25,000).

Material Handling Institute Teachers grant. June 1997 ($5000).

Washington Mills mass finishing research media donation. August 1996 ($5000).

MU center for Sensing Technology grant “Miniature edema sensor research and implementation.” April 1996 ($13,600).

Rotofinish mass finishing equipment grant. November 1996 ($25,000).

Marquette University Rapid Prototyping grant. July 1995 ($45,000).

MU Research Challenge grant “proof of concept of computerized edema sensing system for patients with spinal cord injuries. January 1994 ($9900).

NASA Summer Faculty Fellow at Huntsville (AL). Summer 1994 ($11,000).

Allen Bradley programmable Controller project August Jan. 1994. ($4200).

NASA Summer Faculty Fellow at Huntsville (AL). Summer 1993 ($11,000).

Spinal Cord Society, “Development of a Miniature Portable Extremity Pump System,” August 1992-1993 with Dr. Jeutter ($20,378).

NSF Grant Number USE – 92515894, “Incorporating Ergonomics Theory and Practice into Industrial Engineering Undergraduate Education,” 1992-93 with R. Schoenmarklin. ($25,082).

College of Engineering Research Foundation, MU, “Implementing Neural Networks for the Design of Adaptive Controlled Deburring,” 1990-1991 with K. Akbay. ($12,000).

Sundstrand Aerospace Corp., stereolithography development grant, 1991. ($8,000).

Rotofinish, Kalamazoo, Michigan, equipment grant, 1991. ($6,000).

Briggs & Stratton Corp., research grants, 1991. ($6,000).

Johnson Controls, Stereolithography resin grant, 1991. ($3000).

Voell Machinery, Milwaukee, software grant, 1991. ($5000).

Briggs and Stratton Corp., "Brush Deburring of Aluminum Alloy Materials," 1989-90 with R.J. Stango. ($21,500).

Briggs & Stratton Corp., "Development of an Automated Deburring Process," 1990 with R.J. Stango. ($20,000).

Briggs & Stratton Corp., Equipment grant, 1989. ($15,000).

EKF Design and Development Corp., software grant, 1988. ($6,500).

DataMyte Corporation, Minneapolis, MN equipment grants 1987. ($24,000).

General Motors Corp., continuation grant for development of the Industrial Engineering Manufacturing Program, 1987 with J. Farrow. ($250,000).

CADKEY, Micro Control Systems Inc., software grant, 1987. ($50,000).

Allen-Bradley, equipment grant, 1986. ($1,000).

Briggs & Stratton Corp., equipment grant, 1984. ($1,200).

III. Development of External Educational Facilities

In addition to the foregoing equipment and research grants, several companies and institutions (MATC, Briggs & Stratton, Kearny & Trecker) have provided the use of their facilities for instructional and research purposes. (Estimated value: $ 150,000).

IV. Unfunded Proposals

NSF, October 1, 2009, Exploring Intrinsic Properties of Granular Media. ($ 737,071 for 36 months)

Marquette University Equipment Grant. February 27, 2009, A Non-Contact Surface Finish Measuring System. ($105, 000).

NSF, February 16, 2009, Discovering Transport Mechanisms for Composite Granular Materials. ($ 631,507 for 28 months)

A Mass Finishing Model to Predict Material Removal, NSF, Project Director, $350,927, Sep. 28, 2005.

Mass finishing based on Process Models for Material Removal, NSF, Project Director, $323, 824, Jan 31, 2005.

Development of a Water Quality Analyzer for Astronaut Habitat Monitoring using X-Ray Fluorescence Spectroscopy for Determining Chemical Constituents. Co Investigator with Warren Kelliher from NASA Langley, $286,129 for 3 years, Aug. 2004 - Aug. 2007.

NSF/Whitaker. “A methodology for reducing Health Care Costs: August 97-August 2000. ($878,387).

NSF. “Design and evaluation of media for centrifugal disk mass finishing machines” August 1997-August 1999. ($58,551).

Spinal Cord Society “Radio frequency bladder sealing machine” January 1997 – June 1997 ($32,100).

Brown and Sharpe Metrology Grant, “Metrology grant program” April 1995 ($ 11, 847).

NSF. “Investigation of characteristics of small holes produced by wire electrical discharge machining” November 1994 ($30,000).

Marquette University Research challenge grant. “Proof of concept of computerized edema sensing systems for patients with spinal cord injury.” January 1994. ($9900).

Marquette University Research challenge grant. “Entrepreneurial strategy and success in turbulent industries.” January 1994 ($10,000).

Paralyzed Veterans of America, “Development of a Miniature Portable Extremity Pump System,” January 1993 ($98,630).

Brown and Sharpe Metrology Grant, “MicroVal PFx Personal Coordinate Measuring Machine,” April 1993 ($61,950).

Cleaver Brooks, Milwaukee, WI, “Design of Experiments,” April 1993 ($15,000).

Marquette University Schmitt Fellowship. October 1992 ($8400).

Briggs & Stratton Corp., “Implementation of Adaptively Controlled Deburring with Nylon Abrasive Nylon Filamentary Brushes,” April 1990 ($49,500).

National Science Foundation, “Adaptive Control of Circular Filamentary Brushes in a Deburring Operation,” January 1990 ($59, 323).

NSF, “Principles and Applications of Robotic Assembly,” November 1989 ($93,380).

Brown and Sharpe Metrology, “The Evaluation of Surface Finish Generated by Rotary Compliant and Semi-compliant Tools, April 1989 ($13,500).

NSF, “Real-time Robotic Process Control,” November 1988 ($98,950).

National Bureau of Standards, “Development of and On-Line Laser Based Surface Finish Control System,” May 1988 ($ 104,743).

SME Manufacturing Education Foundation, “Development of Interactive Lectures for Manufacturing Processes, January 1988 ($26,363).

NSF, “Validating the Concept of Multimode Machine Tools,” January 1988 ($57,426).

Daedal Systems, Inc., Milwaukee, WI, “Quality Networking Software,” December 1987.

NSF, “Utilization of a Computer/Projection System to improve Comprehension in Engineering Courses. November 1987 ($23,287).

NSF, “Improvement of the Quality of Manufacturing Education Marquette University,” November 1987 ($84,512).

National Science Foundation, “Operationalizing the Concept of Universal Machine Tools,” January 1987, ($50,663).

Marquette University 1987 Summer Faculty Fellowship, “Development of Microcomputer Based Interactive Lectures on Manufacturing Processes,” December 1986.

Society of Manufacturing Engineers, miniproposal for a Cybot robot which ahs to be used in the College of Engineering’s Flexible Manufacturing Laboratory, February 1986, ($4,000).

Marquette University 1986 Summer Faculty Fellowship, “Development and Implementation of Control Algorithms for On-Line Real-time Adaptive Control of Computer Controlled Robots,” November 1985.

8. THESIS AND ESSAY DIRECTION

I. Completed Theses

Evaristo, A. “Characteristics of Material Removal by ceramic media on metallic coupons for mass finishing applications”. (Ph.D. Thesis. August 2001)

Akkurt, V. “Characteristics of the Ink – Jet Rapid Prototyping Machine for Jetting Thermoplastics and Wax”. (M.S. Thesis. May 2001)

Undeger, V. “Analysis of Cement Clinker Properties and Determination of Forces acting on Chain in Drag Conveyor Application”. (M.S. Thesis. May 1999)

Payne, J.A. “Evaluation of CNC Machining Fixtures for Aluminum Die Castings Using Measurements Systems Analysis” (M.S. Essay. May 1997).

Soik, M.R. “ Productivity Programming, Increasing the Efficiency of CNC Machine Tool Ancillary Operations (M.S. Thesis. May 1994)

Gottschalk, K., “Implementation of Stereolithography in Rapid Prototyping for Sand Castings,” (M.S. Thesis, May, 1994).

Morley, C.T., “Development of Mass Finishing Process strategies”. (M.S. Thesis, May, 1994)

Rudraraju, R., “Investigation of Compliant Tool Polishing Operation Using Taguchi Design and Analysis Using Neural Networks” (M.S. Thesis, December 1991) Co-Director, Dr. K.A. Akbay.

Agarwal, P., “Open Loop Control of a Compliant Tool Burr Height Reduction Process,” (M.S. Thesis, July 1991).

Liang, S.K., “Performance Characteristics of Circular Brushing Tools-Material Removal,” (M.S. Thesis, May 1990).

Popken, J., “Three Dimensional Topology of Plates Generated by Circular Brushing Tools,” (M.S. Thesis, May 1990)

Albaugh, T.W., “Computers and the Machining Factory with a Future” (M.S. Essay, May 1986)

II. Theses in Progress:

NONE

III. Thesis Committee membership

Khullar, P., “Development and Implementation of a Novel Bristle Tool for Surface Treatment of Metallic Components.” (M.S. Thesis, November 10,2009, Director: Dr. R.J. Stango).

Freier, S. “The Effect of Office Chair Backrest Design on the Body's Metabolic Response to Office Work.” (M.S. Thesis, October 15, 2009, Director: Dr. R. Marklin).

Bowman, A.J., “Investigation of Laminar Flow and Heat transfer Characteristics in Coiled Tube Systems”, (Ph.D. Thesis, May 16, 2007, Director: Dr. H. Park).

Harivanam, S., “Digging and Shoveling Wet Clay with a Perforated Shovel”, (M.S. Thesis, October 2005, Director: Dr. R Marklin).

Soesetyo, H., “Effect of Computer Keyboard slope and Computer Workstation Dimensions on Wrist Extension Angle”, (M.S. Thesis, May 2003, Director: Dr. R Marklin).

Hutchinson, G.M., “A new Method for Setting Monitoring Alarm Limits Based on Calculated Variables of a physiologic Model.” (Ph.D. Thesis, December 2000, Director: Dr. R Marklin).

Pereira, A.C. “Validity Model proposal applied to Human Sensors in Quality Engineering Planning, A Psychometric Approach”. (Ph.D. Thesis, December 1997, Director: Dr. J Rice).

Eleadora, Andretta, “Scholastic, Multi-Objective Job-Shop Scheduling model (Ph.D. Thesis, May 1997, Director: Dr. J. Rice).

Amano, K., “Effect of Polishing Agents on Dental Porcelain Surface”. (M.S. Thesis, February 1994, Director: Dr. V. Dhuru).

Peters, M. “Post –treatment and Post retention Changes in the Mandibular Arch in relation to the Curve of Speech”. (M.S. Thesis, May 1993, Director: Dr. D. Ferguson).

Farrow, C.A., M.S. Thesis- “The Application of Facilities Design to Circuit Layout,” (M.S.Thesis, December 1992, Director: Dr. K.S. Akbay).

Shia, C.Y., Ph.D. Dissertation- “Mechanics Analysis of Constrained Filament Deformation and Dynamic Response of Brushing Tools,” (Ph.D. Thesis, July 1992, Director: Dr. R.J. Stango).

Carlson, L.A., M.S. Thesis – “HEALTHSIM: A SLAM II Interface for Modelling Health Care Systems”, (M.S. Degree Thesis, May 1992, Director: Dr. K.S. Akbay).

Kinowski, E., (Marquette University Dental School, Orthodontics Department). Designed and set up the entire procedure for measurement of tooth characteristics in order to determine change in spee and overbite. (Spring 1991).

Froula, A., M.S. Essay- “Management of a Large Road Race: Using Simulation to Avoid Chaos,” (M.S. Thesis, May 1992, Director: Dr. K.S. Akbay.

Prasad, A., M.S. Thesis- “Experimental Evaluation of Circular Brushing Tool Performance Characteristics: Stiffness Response and Contact Zone Geometry”, (M.S. Thesis, February 1991, Director: Dr. R.J. Stango).

Chen, L., Ph.D.Dissertation – “Modeling and Control of Compliant Tool Deburring Process”, (Ph.D. Thesis, January 1991, Director: Dr. R.J. Stango).

Sharma, J., M.S.Essay – “Accelerated Life Testing Mechanical Components,” (M.S. Thesis, October 1990, Director: Dr. J.E. Matar).

Tarrab, K., M.S.Thesis- “Dynamic properties of Circular Brushes and Evaluation of Filamentary Stress: Photographic Analysis,” (M.S. Thesis, August 1990, Director: Dr. R.J. Stango).

Chada, S., M.S. Thesis – "Morphology of 6061-T6 Aluminum Surfaces Generated by Steel Wire Bushing," (M.S. Thesis, August 1990, Director R.J. Stango).

9. SERVICE ACTIVITIES

I. Committee Memberships

Member, College Computer Resources Committee (1987-2000).
Member, Department Laboratory Committee (1987-present).
Member, Search Committee for Industrial Engineering Director (1988-1989).
Member, Marquette University Library Board (1986-1987).
Member, Milwaukee Area Technical College Curriculum Committee for Computerized Machining Technology (1988-1995).
Member, Milwaukee Area Technical College Curriculum Committee on Industrial Engineering (1988-1995).

II. Miscellaneous Service

(a) 1984-1987 and 1991, 2000 – 2004 – Faculty Advisor to Student Chapter of Industrial Engineers at Marquette University.
(b) 1987-1990 – Young Scholars Programs.
(c) 1984-Present – Engineering Open House.

10. COURSE INTRODUCTION AND DEVELOPMENT:

I. Graduate Courses Developed and Taught

ENMA 282: Reliability and Design Failure analysis (2000).

ENMA 284- Total Quality Engineering (2001).

ENMA 285- Value Engineering (with William Dunbar) (2001).

MEEN 273- Computer Integrated Manufacturing (1991).

INEN 295- Research Topics in CIM, Neural Networks and Controls (1987-present).

II. Undergraduate Courses Developed and Taught

INEN 120 Engineering Economy.
INEN 131 Industrial Simulation.
INEN 140 Engineering Statistics.

INEN 143 Manufacturing Engineering 1.
INEN 144 Manufacturing Engineering 2.
INEN 148- Design of Engineering Experiments.
INEN 151- Work Measurement and Methods Development (with laboratory),
INEN 153- Manufacturing Processes (with laboratory).
INEN 160- Flexible Manufacturing Systems (with laboratory.
INEN 163- Applied Robotics (with laboratory).
INEN 195- Undergraduate Research Topic Courses in surface finishing, Stereo lithography and compliant tool deburring.

MEEN 146 Principles of Design.
MEEN 147 Principles of Design.

III. Laboratory Development

A. Manufacturing Laboratory (1984-1992)

The development (from ground up) of an undergraduate industrial engineering flexible manufacturing laboratory began in August 1984. The laboratory is used to validate principles in the Industrial Engineering Courses, particularly INEN 151- Work Measurement and Methods Development, INEN 153- Manufacturing Processes, INEN 155- Facilities Design, INEN 160- Flexible Manufacturing Systems, and INEN 163-Applied Robotics. The laboratory was completed in 1987. Equipment has been installed for metal cutting processes; robotics; press working; non-traditional manufacturing processes; computerized design, data logging and analysis; automated control and audio visual education.

B. Controls Laboratory (1986-1990)

An undergraduate/graduate laboratory was developed for advanced control applications in surface finishing control and deburring. Work on the laboratory began in 1986 and was completed in 1990. Experiments which establish concepts in automated control are developed in this laboratory before implementation in INEN 160 and INEN 163 courses.

C. Rapid prototyping Research Laboratory (1989-2000)

An undergraduate/graduate laboratory was designed and developed for rapid prototyping. This laboratory includes a stereolithography machine (SLA 250, $220, 000) and peripheral equipment. The laboratory is used to support the courses INEN 146/147 and for graduate research.

D. Cross-functional multi disciplinary information processing laboratory (2001-present)

This laboratory will essentially simulate a small modern manufacturing facility, and educate students on the various aspects of generating data and processing this data to produce information that is required for successfully executing the necessary business and engineering activities such as planning, design and manufacturing. A long-range plan has been developed for

installing Computer Aided Design workstations, rapid prototyping machines, computer numerical controlled (CNC) metal removal machines, industrial robots, sensors, control computers and programmable logic controllers. In this laboratory, all of the machines will be networked and connected to a lab server. This lab will generate different types of data. This includes real time analog data, real time digital data, continuous signals, intermittent signals, on/off status data etc. These different types of data will be generated by experiments involving the various pieces of equipment that have been identified earlier in this section. All the data that is generated will be fed into data bases that will be used for educating students in the Industrial engineering, Manufacturing engineering and Business programs. Kimberly –Clark Corporation, donated $35,000 for investigating the proof-of-concept for such a lab.

11. HONORS RECEIVED:

i. Society of Manufacturing Engineers Scholar – University of Arkansas (1983-84)
ii. Alpha Pi Mu – Honor Society of the Institute of Industrial Engineers (1981-84)
iii. Professional Engineers Registration in April 1993
iv. Institute of Industrial Engineers Chapter 45-Member of the Year (92-93)
v. Institute of industrial Engineers Chapter 45- President (93-94 and 94-95)
vi. Institute of industrial Engineers Chapter 45 Board (1993-present)
vii. NASA Summer Faculty 1993 (NASA/Marshall Space Flight Center, Huntsville, AL).
viii. NASA Summer Faculty 1994 (NASA/Marshall Space Flight Center, Huntsville, AL).
ix. NASA Summer Faculty 2003 (NASA Langley Research Center, Hampton, Virginia).
x. NASA Summer Faculty 2004 (NASA Langley Research Center, Hampton, Virginia).
xi. NASA Summer Faculty 2005 (NASA Langley Research Center, Hampton, Virginia).
xii. NASA Summer Faculty 2006 (NASA Langley Research Center, Hampton, Virginia
xiii. Marquette University Senior design team placed 6th out of 41 teams in the International Capstone Design Fair (ICDF) held in Seoul National University of Science and Technology on November 17th, 2010.

12. MEMBERSHIP IN PROFESSIONAL SOCIETIES:

i. Alpha Pi Mu
ii. Institute of Industrial Engineers, Senior Member (10/80).
iii. Society of Manufacturing Engineers, Senior Member (10/80).