Subhash C. Sarin

College Level Education

- B.Sc.: Mechanical Engineering, University of Delhi, 1970

- M.S.: Industrial Engineering, Kansas State University, 1973

- Ph.D.: Operations Research and Industrial Engineering,
  North Carolina State University, 1978

Academic Employment Experience

2001-present	Associate Director, Production and Information Systems, Center for High Performance Manufacturing.
1999-present	Director, Electronics Manufacturing Research Laboratory.
09/02-present	Paul T. Norton Endowed Professor
09/91-08/02	Professor, Department of Industrial and Systems Engineering, Virginia Polytechnic Institute and State University, Blacksburg, Virginia.
09/87-08/91:	Associate Professor, Department of Industrial Engineering and Operations Research, Virginia Polytechnic Institute and State University, Blacksburg, Virginia. (Tenure Granted: May 1987)
09/83-08/87:	Assistant Professor, Department of Industrial Engineering and Operations Research, Virginia Polytechnic Institute and State University, Blacksburg, Virginia.
10/78-6/83:	Assistant Professor, Department of Industrial and Systems Engineering, The Ohio State University, Columbus, Ohio.
9/76-9/78:	Assistant Professor (Prior to completing Ph.D.), Department of Industrial and Systems Engineering, The Ohio State University, Columbus, Ohio.
7/76-8/76:	Instructor, Graduate Program in Operations Research, North Carolina State University, Raleigh, North Carolina.

Professional Non-Academic Employment Experience

7/83-9/83	International Business Machines Corporation, Federal Systems Division, Owego, NY. Advisor to the Manufacturing Systems and Robotics Development Department.

Consulting Experience

2/01	Springer Review of a book entitled, "Scheduling Algorithms" by P. Brucker
12/00	Prentice-Hall Review of a book entitled, "Scheduling, Theory Algorithms and Systems" by M. Pinedo
1999	Homespire Virginia Tech Corporate Research Center
4/98	Irwin/McGraw Hill Review of a book entitled, "Production Scheduling"
5/97	McGraw Hill Review of a book entitled, "Production Planning Control and Integration"
3/94	PWS-Kent Review of a book entitled, "Manufacturing Facilities"
2/87	WestVaco, Covington, VA. Analysis of their paper production system.
6/86	WestVaco, Covington, VA. Analysis of their paper production system.
6/84	International Business Machine Corporation, Lexington, KY. Gave lecture on Design Problems in Robotics.
1/84	Census Bureau, Department of Commerce. Application of Operations Research to Data Collection.
12/82-1/83	AccuRay, Columbus, OH. Developed algorithms for the slitting of defective paper rolls.
1981	Vision Center, Columbus, OH. Gave lectures on production scheduling.
6/80-7/80	Defense Construction Supply Center, Columbus, OH. Gave lectures on the methods of operations research.
6/73-8/73	Douglas G. Peterson and Associates, Inc., Greenfield, MA. The work included industrial forecasting, cost estimation and development of software package for statistical tests.

Membership in Professional Organizations and Honor Societies

IIE (Institute of Industrial Engineering), Fellow
INFORMS (Institute for Operations Research and Management Sciences), Full Member
Industrial Engineering Honor Society, Alpha Pi Mu, 1974
Operations Research Honor Society, Omega Rho, 1975

Professional Honors, Awards, Recognitions, Fellowships and Prizes

- Recipient of Institute of Industrial Engineers **David F. Baker Distinguished Research Award** for significant contributions to the advancement of the industrial engineering profession through outstanding research activity, 2015 (the highest research award given by the Institute).

- Recipient of the Council of Supply Chain Management Professionals **Outstanding Ph.D. Dissertation Award** (2nd place), Daniel W. Steeneck (Ph.D. Advisee), 2015.

- Recipient of **Best Paper Award**, 8th ISDSI Conference held in Pune, India, 2015.

- Recipient of **Best Paper Award**, IFAC MIM '13 Conference held in Saint Petersburg, Russia, 2013.

- Recipient of **Alumni Award for Excellence in Graduate Advising**, Virginia Tech, 2013.

- Invited by the King Mongkut's Institute of Technology, Bangkok, Thailand, as an **expert in Manufacturing Systems Engineering** to visit various academic units in Thailand and give talks, 2005.

- Recognized by the Office of the Vice President of Research as the **Virginia Tech Scholar of the Week**, July 26 – August 2, 2004.

- Recipient of Institute of Industrial Engineers **outstanding M.S. Thesis Award** (3rd place), Ajay Bhootra (M.S. Advisee), 2004.

- Appointed to the **Paul T. Norton Endowed Professorship**, 2002.

- **Recognized by the Virginia Tech Research Division on WVTF** for research contributions toward the effective operational control of the electronics/microelectronics manufacturing facilities, April 22, 2002.

- Recipient of Institute of Industrial Engineers **Albert Holzman Distinguished Educator Award** for outstanding contributions to the industrial engineering profession through teaching, research and publication, 2000.

- Recipient of Institute of Industrial Engineers **Outstanding Ph.D. Dissertation Award** (2nd place), Adar Kalir (Ph.D. Advisee), 2000.

- Invited to become an **area editor** of Production Planning and Scheduling, Computers and Industrial Engineering, 2000.

- Recipient of **Dean's Award** for Excellence in Teaching, 1999.

- Selected as a **Fellow** of the Institute of Industrial Engineers, 1999.

- Recipient of the **Pletta Award**, as the 1998 Virginia's Engineering Educator of the Year.

- Invited to give a **keynote address** at the 5th International Conference on Production Engineering and Design for Development, held in Cairo, Egypt, 1998.

- Recipient of **1st Place** Technical Paper Award, <u>1998 Southeast Decision Sciences Institute Annual Meeting</u>, Adar Kalir (graduate student), held in Roanoke, Virginia.

Professional Honors, Awards, Recognitions, Fellowships and Prizes (Cont'd)

- Recipient of **1st Place** Technical Paper Award, <u>1998 Southeastern Regional University Conference</u>, <u>Institute of Industrial Engineers</u>, Steve Zaloga (undergraduate student), held in Miami, Florida, and **2nd Place** Award in the National Competition conducted by <u>Institute of Industrial Engineers</u> National Conference held in Banff, Canada.

- Recipient of **Sporn Award** for Excellence in Teaching, College of Engineering, Virginia Tech, 1996-97.

- Recipient of <u>Institute of Industrial Engineers</u> **Outstanding M.S. Thesis** Award (1st place), Frederic Doutriaux (M.S. Advisee), 1996.

- Invited to be a **Co-Editor** of a special issue on <u>Scheduling and Logistics</u> by <u>Institute of Industrial Engineers</u>, 1992.

- Invited to become an **Associate Editor** of the <u>Institute of Industrial Engineering Transactions</u>, 1992-97.

- Recipient of <u>Institute of Industrial Engineers</u> **Outstanding Ph.D. Dissertation Award**, **(1st Place)**, Sanchoy Das (Ph.D. Advisee), 1991.

- Invited to become a member of the **Editorial Board** of the <u>International Journal of Production Planning and Control</u>, 1988-2008.

- Recognized as an **Outstanding Faculty**, Department of Industrial Engineering and Operations Research, 1986.

- Invited to be a **Research Fellow**, Production Management and Operations Research, Technische Hogeschool Twente, Netherlands, 1985.

- Listed in <u>Outstanding Young Men of America</u>, 1984.

- Listed in <u>Outstanding Men and Women from India in North America</u>, 1984.

- Listed in "**Mathematics: Who's Who**," published by Analytic Publishing Co., Delhi, India, 1982.

- Recipient of **Merit Scholarship**, Delhi College of Engineering, University of Delhi, India, 1965.

- Appeared on **Dean's list** of Student Teaching Evaluation (seven times).

TEACHING ACTIVITIES

Courses Taught at Virginia Tech since 2000
(All courses were taught on campus and are of 3 credits)

Year	Semester	Course Number and Title	# of Students	# of Good and Excellent Ratings in Overall Category	Overall Rating (Out of 4.0)
2000	Spring	ISE 5454 Production Planning & Control	32	32	3.9
2000	Fall	ISE 2404 Deterministic Operations Research	35	34	3.5
		ISE Seminar	73	(evaluations not conducted)	
2001	Spring	ISE 5454 Production Planning & Control	25	22	3.4
		ISE 6434 Scheduling & Sequence Theory	18	17	3.7
2001	Fall	ISE 2404 Deterministic Operations Research	43	42	3.6
		ISE 6424 Dynamic Programming	15	14	3.3
2002	Spring	ISE 5454 Production Planning & Control	31	29	3.7
2002	Fall	ISE 4984/5984 Modeling & Analysis of Semiconductor Manufacturing	11	11	3.8
2003	Spring	ISE 5454 Production Planning & Control	21	21	3.8
		ISE 6434 Scheduling & Sequence Theory	16	16	3.9
2003	Fall	ISE 6424 Dynamic Programming	16	16	3.7
2004	Spring	ISE 5454 Production Planning & Control	34	28	3.4
2004	Fall	ISE 4984/5984 Modeling & Analysis of Semiconductor Manufacturing	13	12	3.7
2005	Spring	ISE 5454 Production Planning & Control	9	9	4.0
		ISE 6434 Scheduling & Sequence Theory	11	11	3.8
2006	Fall	ISE 5984 Modeling & Analysis of Semiconductor Manufacturing	6	6	3.8
2007	Spring	ISE 6434 Scheduling & Sequence Theory ISE 5454 Production Planning & Control	6 11	(evaluations not conducted)	

TEACHING ACTIVITIES (Cont'd)

Year	Semester	Course Number and Title	# of Students	# of Good and Excellent Ratings in Overall Category	Overall Rating (Out of 4.0)
2007	Fall	ISE 5104 Operations Research (Distance Learning Course)	11	9	3.1
		ISE 6424 Dynamic Programming	6	6	3.8
2008	Spring	ISE 5454 Production Planning and Control	12	12	4.0
2008	Fall	ISE 5104 Operations Research (Distance Learning Course)	14	10	3.2
		ISE 5264 Modeling & Analysis of Semiconductor Manufacturing (Distance Learning Course)	13	13	3.85
2009	Spring	ISE 5454 Production Planning & Control	19	16	3.3
2009	Fall	ISE 6424 Dynamic Programming	11	11	3.85
2010	Spring	ISE 5454 Production Planning & Control	20	17	3.60
		ISE 6434 Sequencing & Scheduling	9	9	3.85
2011	Spring	ISE 5454-Production Planning & Control	24	22	3.46
		ISE 5264-Modeling & Analysis of Semiconductor Manufacturing (Distance learning course)	7	7	3.57

Year	Semester	Course Number and Title	Number of Students	# of Good and Excellent Ratings in Overall Category	Overall Rating (Out of 6.0)
2011	Fall	ISE 6424-Dynamic Programming	6	6	5.67
2012	Spring	ISE 5454-Production Planning & Control	10	8	5.00
		ISE 6434-Sequencing & Scheduling	6	6	5.67
2012	Fall	ISE 5104 Operations Research (Distance Learning Course)	16	11	5.0
		ISE 5264 Modeling & Analysis of Semiconductor Manufacturing (Distance Learning Course)	5	5	6.0
2013	Spring	ISE 5454-Production Planning & Control	19		
2013	Fall	ISE 6424-Dynamic Programming	8	6	5.0
2014	Spring	ISE 5454-Production Planning & Control	8	7	5.38

Advising

Has advised 52 Master's and 25 Ph.D. students to completion. His students are now well-placed in academia and industry around the world. The positions held by his students include: <u>Deans</u> (Professor and Dean of Planning, Kyung Hee University, Seoul, South Korea (previously held Department Head position); Professor and Dean, Bilkent University, Ankara, Turkey); <u>Department Chair</u> (Professor and Chairman, Operations Management, Indian Institute of Management, Lucknow, India; Professor and Director of Graduate Program, Engineering Management, Florida International University, Miami, Florida); <u>Directors</u> (MIT Zaragoza Logistics Center, Spain; Metalworking and Machinery Industries Division, Ministry of Industry, Bangkok, Thailand) <u>Director of Research Laboratories</u> (Professor and Director, Center for Quality and Change Leadership, The Dupree School of Management, Georgia Tech, Atlanta, Georgia); <u>Professor</u> (New Jersey Institute of Technology, Newark, New Jersey); <u>Associate Professors</u> (Ain Shams University, Cairo, Egypt (2) and Management Department, National Taipei University of Technology, Taipei, Taiwan;); <u>Assistant Professors</u> (Florida International University, Miami, Florida; Soochow University, China); <u>Post Doc</u> (MIT, Cambridge, Massachusetts); <u>CEOs</u> (CEO Entrepreneur, Investor, New York Telecommunications; CEO Growth Ventures Group at Tata Communications; and CEO Kingfisher Airlines, India); <u>Senior Manager</u> (IBM, Fishkill, New York); <u>Managers</u> (Intel, Israel; International Rectifier, Tamacula, California; American Airlines, Dallas, Texas; Delta Airlines, Atlanta, Georgia; Llanasoft, Ann Arbor, Michigan), Research Scientist (Google, and Amazon), Operations Research Analyst (U.S. Army), and <u>Industrial Engineer</u> (Micron), among others. Several of his graduate students have won major accolades for their graduate research work. Two of his doctoral students have won the Pritsker Outstanding Dissertation Award (1st and 2nd place) and two of his M.S. students have won the Outstanding Master's Thesis Award (1st and 3rd place) all given by Institute of Industrial Engineers (IIE), and one student has won the Best Dissertation Award (2nd Place) given by the Council of Supply Chain Management Professionals. He and his students have also won best paper awards. He has also advised 58 senior design project teams and 8 undergraduate research projects. Thirteen of his senior design teams have been recognized with *the outstanding project awards*. One of his undergraduate research advisees won the second place award in the national competition held by IIE during its annual conference in Banff, Canada.

1. **Students Who Have <u>Completed</u> Theses Requirements**

•   **M.S. ADVISING**

    <u>AT VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY</u>

    "Selection of an Optimal Set of Assembly Part Delivery Dates of a Stochastic Assembly System," Sanchoy Das, June 1985. (M.S.)

    "Development of a Knowledge-Based Approach for Dynamic Scheduling," Rangnath Salgame, March 1987. (M.S.)

    "An Integrated Approach to the Optimal Sequencing of Robot Operations in a Workcell," Chetan Desai, May 1988. (M.S.)

"A Geometric Programming Based Procedure to Design Bridge Superstructures," Anuj Mehrotra, August 1988. (M.S.)

"Bicriteria Optimization of Schedules on One and Two Machines," Rema Hariharan, December 1988. (M.S.)

"Lot Sizing in the Wood Furniture Industry", Kris Hoff, May 1991. (M.S.)

"A Multi-Attribute Layout Design Problem," Prateek Mishra, May 1992. (M.S.)

"A Systems Engineering Approach Towards Scheduling and Operations at the Peninsula Center," Steven Macri, December 1992. (M.S.)

"An Infrastructure for Integrated Document Management," Manu Chadha, December 1994. (M.E.)

"Optimal Sublot Determination in Multiple Batch, Two Stage Production Systems," Frederic Doutriaux, May 1995. (M.S.) (His thesis won the <u>Institute of Industrial Engineers</u> **Outstanding Thesis Award** (1st Place) of 1996)

"A Study and Analysis of a Transmission Scheduling and Discount Algorithm for ATM Networks," Tzu-En-Lee, September 1995. (M.S.)

"Sequencing Policy for a CONWIP Production System," Michael Greco, March 1996. (M.S.)

"Modeling and Algorithmic Development of a Staff Scheduling Problem," Sanjay Agarwal, May 1996. (M.S.)

"Bicriteria Scheduling Problems on Parallel Machines," Divya Prakash, May 1997. (M.S.)

"Assembly Yield Model for Area Array Packages," Sanjay Sharma, February 2000. (M.S.)

"Solving the QAP Using Self-Organizing Neural Networks," R. V. Kalapatapu, May 2000. (M.E.)

"Job Sequencing and WIP Level Determination in a Cyclic CONWIP Flowshop with Blocking," Nipun Palekar, September 2000. (M.S.)

"E-Commerce in B2C Transactions of a Credit Card Company," Senthil Subramanian, (co-advisor), September 2000. (M.E.)

"Multi-Product Loading: A New Heuristic and Its Computational Effectiveness," Vikas K. Goel, June 2001. (M.E.)

"Animation of the Photolithography Process Area in a Wafer Fabrication Facility," Maya S. Chandrashekhar, June 2001. (M.E.)

"Reduction of Average Cycle Time at a Wafer Fabrication Facility," Sameer T. Shikalgar, December 2001. (M.S.)

"Determination of an Optimal Production/Shipment Policy for a Single Vendor – Single Buyer Over Infinite Planning Horizon," Devendar Tasgaonkar, December 2001. (M.S.)

"Implementation of a Line Monitoring System CIMCIS, A Case Study," Manjunath Mysore, 2001. (M.E.)

"A Mathematical Programming Based Procedure for the Scheduling of Lots in a Wafer Fab," Vinod Shenai, 2002. (M.S.)

"Impact of Lot Dedication on the Performance of a Fab," Madhav Kidambi, 2002. (M.S.)

"Supply Chain Management: An Overview," Ragu Vasu, 2002. (M.S.)

"Single Period, Single Set-up Formulation of Integrated Production-Inventory Problem," Naveen Yerri, 2002. (M.S.)

"Achieving Best Practice in Manufacturing Business Optimization Systems," Amit S. Chaubal, 2002. (M.E.)

"A Review of Methodologies Used in Practice for the Planning and Control of Production in a Wafer Fab," Jaydeep Kripal Joshi, 2002. (M.E.)

"User Guide to Forecasting," Oscar Pinto, 2002. (M.E.)

"Evaluation of the Performance of Customer Service Representatives in a Call Center Using DEA," Abhishek P.J. Panicker, (co-advisor), 2002. (M.S.)

"Computer Implementatino of Gait Algorithms with Graphical Interface," Srikrishnan Damodaran, (co-advisor), 2002. (M.S.)

"Layout Design for Irregular Shaped Facilities," Minakshi Tilak, 2003. (M.S.)

"Testing Performance of Various Procedures for the Solution of the Wafer Fab Backend Lot Sizing Problem," Ritesh Punyamurthula, 2003. (M.E.)

"Real Time Control of Semiconductor Batching Operations: An Overview," Reuben Johnson, 2003. (M.E.)

"Static and Dynamic Job-Shop Scheduling Using Rolling-Horizon Approaches and the Shifting Bottleneck Procedure," Ahmed Ghoneim, 2003. (M.S.)

"Production Issues Involved in Transition from 200mm to 300mm Wafers," Akbar Rizvi, 2003. (M.E.)

"Strategy for Lower Bound Implementation in SALBP-1," Ravikumar Somasundaram, 2003. (M.E.)

"Disassembly Optimization," Ajay Bhootra, May 2003. (M.S.) (His thesis won the Institute of Industrial Engineers **Outstanding Thesis Award** (3rd Place) of 2004.)

"A Study of the Expected Values and Variances of Schedules for Different Machine Configurations," Balaji Nagarajan, 2004. (M.S.)

"Microelectronics Manufacturing," Phani Ram, 2004. (M.S.)

"An Agent-based Manufacturing Planning Module for Advanced Planning and Scheduling," Amol Goel, 2004. (M.S.)

"An Agent-based Manufacturing Scheduling Module for Advanced Planning and Scheduling," Hitesh Attari, 2005. (M.S.)

"Scheduling at the Backend of a Wafer Fab," Milind Mohile, 2006 (M.S.)

"Project Scheduling in the Presence of Production Functions," Daniel Steeneck, 2009 (M.S.)

AT THE OHIO STATE UNIVERSITY

"The Two Machine Mean Flowtime Problem with Some Special Cases," Dirk Eybl, June 1978. (Thesis)

"Optimal Pumping Schedule to Minimize Energy Costs by Dynamic Programming," Wahib Elbenni, June 1979. (Thesis)

"Optimization for the Packing of Various Types of Disks on a Circular Plate," Seokyoo Ahn, June 1980. (Thesis)

"Job Sequencing Problems," C. Vichien, June 1981. (Thesis)

"The Heuristic Approach for Scheduling Project Networks with Limited Amount of Resources," C. Damrongmongkolgul, June 1981. (Thesis)

"Transit System Design for Metropolitan Columbus, Ohio," Soumen Ghosh, June 1982. (Thesis)

"Comparison of the Performance of Job Shop Scheduling Methods to Minimize Makespan," Naomasa Kaneko, June 1982. (Thesis)

"Quantitative Analysis of Proposed MX-Missile Deployment System," Philip Mishins, June 1983. (Thesis)

"Network Algorithm for Obtaining K-Best Solutions of the Knapsack Problem with Single Constraint," Dae-Bong Chang, June 1983. (Thesis)

"Allocation of Precedence Related Jobs to a Single Resource to Minimize Total Weighted Flowtime," Surinder Saboo, June 1984. (Thesis)

- **Ph.D. DISSERTATIONS**

  AT VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

"Methodologies for Manufacturing System Selection and for Planning and Operation of a Flexible Manufacturing System," Chin-Sheng Chen, September 1985. (Professor and Director, Engineering Management Program, Florida International University, Miami, Florida.)

"A Decision Theoretic Approach to the General Layout Problem," Pasu Loharjun, March 1986. (Director General, Department of Industrial Promotions, Government of Thailand.)

"A Methodology for Solving Stochastic, Single-Model Assembly Line Balancing Problems," Erdal Erel, June 1987. (Professor and Dean, Faculty of Business Administration, Bilkent University, Ankara, Turkey.)

"A Structured Approach to Production Control in Integrated Manufacturing Systems," Sanchoy K. Das, January 1989. (Professor, Department of Industrial and Manufacturing Engineering, New Jersey Institute of Technology, Newark, New Jersey. His dissertation won the Institute of Industrial Engineers **Outstanding Dissertation Award** (1st Place) of 1990.)

"An Investigation of the Stochastic Unpaced Mixed-Model Assembly Line Problem," Ahmed M. Ali, 1989 (jointly with Professor A. S. El-Sabbagh, Ain Shams University, Cairo, Egypt) (Associate Professor, Ain Shams University, Cairo, Egypt.).

"Scheduling Production in Underground Coal Mines - An Application of Sequencing and Scheduling Theory," Jan West-Hansen, May 1989. (Working for SEL-Software, GmbH and Co., OHG, Berlin, a semi-goverment company.)

"Optimal Part Delivery Dates in Small Lot Stochastic Assembly Systems," Rajiv K. Srivastava, August 1989. (Professor, and Previously Department Head, Operations Management, Indian Institute of Management, Lucknow, India; previously at New York University, Buffalo, N.Y.)

"An Integrated Approach to Environmentally Conscious Design and Manufacturing," Meng-Jong (Kuan) Goan, June 1996. (Working for the Government of Taiwan.)

"Optimal and Heuristic Solutions for the Single and Multiple Batch Flow Shop Lot Streaming Problem," Adar Kalir, May 1999. (Senior Manager, Intel, Israel. His dissertation won the Institute of Industrial Engineers **Outstanding Dissertation Award** (2nd place) of 2000.)

"Multistage, Common Cycle Scheduling Problem," Ihab El-Shawarby, July 2000. (Jointly with Dr. Kharbotly, Ain Shams University, Cairo, Egypt) (on the faculty of Ain Shams University, Cairo, Egypt).

"Tight, Flow-based Formulations for the Asymmetric Traveling Salesman Problem and Their applications to Some Scheduling Problems," Pei-Fang Tsai, May 2006. (Assistant Professor, Department of Industrial Engineering and Management, National Taipei University of Technology, Taipei, Taiwan; previously, Research Assistant Professor, Department of Systems Science and Industrial Engineering, State University of new York at Binghamton.).

"Stochastic Scheduling for a Network of MEMS Job shops," Amrush Varadarajan, November 2006 (Manager, International Rectifier.)

"Models and Algorithms for Some Combinatorial Optimization Problems: University Course Timetabling, Facility layout and Integrated Production-Distribution Scheduling," Yuqiang Wang, August 2007 (Senior Operations Research Consultant, American Airlines, Dallas, Texas.)

"Lot Sizing at the Operational Planning and Shop Floor Scheduling Levels of the Decision Hierarchy of Various Production Systems," Ming Chen, October 2007 (Staff Software Engineer, Seagate Technologies, Minneapolis, Minnesota.)

"Modeling, Analysis and Solution Approaches for Some Optimization Problems: High Multiplicity Asymmetric Traveling Salesman, Primary Pharmaceutical Manufacturing Scheduling, and Lot Streaming in an Assembly System," Liming Yao, May 2008 (Senior Analyst, Delta Airlines.)

"Optimal and Approximate Algorithms for the Multiple-lots-per-Carrier Scheduling and Integrated Automated Material Handling and Lot Scheduling Problems in 300mm Wafer Fabs," Lixin Wang, August 2008 (Systems Analyst, Micron Technologies, Inc.)

"Branch and Price Method for Stochastic Generalized Assignment Problem, Hospital Staff Scheduling Problem and Stochastic Short-Term Personnel Planning Problem," Seon Ki Kim, August 2009 (Assistant Professor, Engineering Management Program, Florida International University, Miami, Florida; previously, Systems Analyst, Intel, Arizona.)

"Novel Approaches for Some Stochastic and Deterministic Scheduling Problems," Lingrui Liao, June 2011 (Software Engineer, Google, California.)

"Planning for Army Force Generation Using Lot Streaming, and Extensions," Adria Markowski, December 2011 (Operations Research Analyst, US Army, Virginia.)

"Modeling and Analysis of a Feedstock Logistics Problem," Jason Judd, May 2012 (Operations Research Analyst, LlamaSoft, Michigan.)

"Lot Streaming in a Two-stage Assembly System and Hybrid Flow Shop," Ming Cheng, December, 2012 (Assistant Professor, Soochow University, Suzhou, China.)

"Lot Streaming in Two-Stage Flow Shops and Assembly Systems," Niloy Mukherjee, Defended August 2014 (Research Scientist, Amazon, Washington.)

"Strategic Planning for the Reverse Supply Chain: Optimal End-of-Life Option, Product Design, and Pricing," Daniel Steeneck, Defended September 2014 (Post Doc, Massachusetts Institute of Technology, Massachusetts. His dissertation won the **Outstanding Dissertation Award** (2nd place) given by the Council of Supply Chain Management Professionals, 2015.)

AT THE OHIO STATE UNIVERSITY

"Geometric Programming for Engineering Design Optimization," Guri Brar, June 1981. (Senior Engineer, Ohio Department of Transportation.)

"Sequencing Independent Jobs on Two or More Machines to Minimize Weighted Flowtime," Seokyoo Ahn, June 1982. (Professor and Dean, College of Business School, Kyung Hee University, Seoul, Korea.)

- **ADVISING IN PROGRESS**

  Chairman of M.S. Thesis Committee

  Rahul Ramachandran

  Chairman of Ph.D. Dissertation Committees

  Maichel Aguayo
  Sanchit Singh
  Fangzhou Sun
  Jie Zhang

- **ADVISING OF UNDERGRADUATE RESEARCH**

  Sarah Stewart, 2014
  Nick McGinness, 2013
  Enes Yildrim, 1999
  Cem Yildrim, 1999
  Rahul Basule, 1998
  Cem Yildrim, 1998
  Steve Zaloga, 1997-98
  Luv Batra, 1995

Development of New Teaching Methods and/or Materials Course and/or Curriculum Development Short Courses

Malmborg, C. and S. C. Sarin, "Production Planning and Control," IEOR 4211 Course Workbook, Virginia Productivity Center, Department of Industrial Engineering and Operations Research, Virginia Polytechnic Institute and State University, p. 216, 1984.

Malmborg, C. and S. C. Sarin, "Plant Layout and Design," IEOR 4212 Course Workbook, Virginia Productivity Center, Department of Industrial Engineering and Operations Research, Virginia Polytechnic Institute and State University, p. 234, 1984.

Sarin, S. C., "Some Practical Procedures for Scheduling a Fixed System of Jobs on Machines," Supplementary Notes for IEOR 5490, Kinko Publishing, Department of Industrial Engineering and Operations Research, Virginia Polytechnic Institute and State University, p. 210, 1985.

Sarin, S. C., Notes on Deterministic Operations Research Course, put on a web site, Fall 2000.

Developed a new course on "Modeling and Analysis of Semiconductor Manufacturing (ISE 4984/5984). This is one of the elective courses of the university-wide option in Microelectronics Manufacturing. This was taught during the Fall 2002 semester.

"Center for High Performance Manufacturing Research Series Seminar" held in Richmond, VA, July 29, 2003.

"Advanced Planning and Scheduling" seminar held in Richmond, VA, August 14, 2003 and in Blacksburg, VA, August 21, 2003.

RESEARCH ACTIVITIES

Total funding garnered exceeds $11.5M over 60 projects sponsored by government agencies and industry with the sole Principal Investigator of 38 projects and share of funding of $6.6M.

Funded Research

09/13-09/16	Co-Investigator (5%) (with FDC Corporation, Columbus, Ohio) (Department of Energy)
	"Streaming the Feedstock Supply Chain," Amount: $5.7M (Virginia Polytechnic Institute and State University.
10/12-9/15	Co-Investigator (1%) (with Christopher Williams) (National Science Foundation)
	"Research Experience for Teachers: Innovation-based Manufacturing, Amount; $300K (Virginia Polytechnic Institute and State University).
8/12-6/13	Principal Investigator (100%) TEMCI (Virginia Transportation Equipment Manufacturers Competitiveness Initiative, U.S. Department of Commerce)
	"Design and Implementation of Dex Truck Parts' Refurbishment and Disassembly Lines," Amount: $75,886.98 (Virginia Polytechnic Institute and State University).
5/12-6/13	Principal Investigator (100%) TEMCI (Virginia Transportation Equipment Manufacturers Competitiveness Initiative, U.S. Department of Commerce)
	"In-house Process Improvement for DEX," Amount: $88,116 (Virginia Polytechnic Institute and State University).
1/12-1-13	Principal Investigator (100%) TEMCI (Virginia Transportation Equipment Manufacturers Competitiveness Initiative, U.S. Department of Commerce)
	"Value Stream Mapping of Volvo NRV Business Processes," Amount: $77,220 (Virginia Polytechnic Institute and State University).
	Member of the team led by Dr. Jaime Camelio
	Center for Innovation-Based Manufacturing, ICTAS, Amount: $70,000 (Virginia Polytechnic Institute and State University)

5/09-5/13	<u>Co-Principal Investigator</u> (50%) ((with Hanif D. Sherali) (National Science Foundation)
	"Novel Modeling and Analytical Approaches for Primary Pharmaceutical Manufacturing Scheduling," Amount: $350,003 (Virginia Polytechnic Institute and State University).
7/08-5/12	Faculty Associate (25%) (with Jeff Alwang, John Cundiff and Richard Hirsh)
	"USDA National Needs Fellowship in Bio-Fuel Systems," Amount: $229,500 (Virginia Polytechnic Institute and State University).
1/06-12/08	<u>Co-Principal Investigator</u> (7.5%) (Subcontract under George Mason University – National Science Foundation)
	"NSF Partnership for Nanotechnology Education and Workforce Development," Amount: $600,000
6/06-6/07	<u>Principal Investigator</u> (100%) (Center for High Performance Manufacturing)
	"A Lean Tool to Shorten Production Lead Time," Amount: $34,000
5/06-11/06	<u>Principal Investigator</u> (100%) (Sperry-Marine)
	"An Adaptation of FlexSched for Solving the Production Scheduling Problem of Sperry Marine's Facility in Charlottesville, Virginia," Amount: $17,000, (Virginia Polytechnic Institute and State University)
6/05-11/06	<u>Principal Investigator</u> (100%) (M/A-COM)
	"Modeling and Analysis of Production Planning Problems for the M/A-COM Lynchburg Facility," Amount: $89,846, (Virginia Polytechnic Institute and State University)
8/05-8/06	<u>Principal Investigator</u> (100%) (Center for High Performance Manufacturing)
	"Optimal Daily Start Plans in the Face of Uncertain Demand and Cycle Time," Amount: $33,472 (Virginia Polytechnic Institute and State University)
8/05-2/06	<u>Principal Investigator</u> (100%) (Virginia Philpot Manufacturing Extension Partnership and Virginia Glass Products)
	"Scheduling of Shipment to Meet Customer Delivery Requirements at Minimum Cost," Amount: $40,972 (Virginia Polytechnic Institute and State University)
10/05-12/05	<u>Principal Investigator</u> (100%) (Salem Preferred Partners, LLC)
	"A Study of Facilities Planning Problem," Amount: $24,199 (Virginia Polytechnic Institute and State University)

6/04-6/05	<u>Co-Principal Investigator</u> (80%) (with Pushkin Kachroo (20%)) (Center for High Performance Manufacturing)
	"An Agent-Based Methodology for Advanced Planning and Scheduling," Amount: $33,472 (Virginia Polytechnic Institute and State University)
6/03-6/04	<u>Co-Principal Investigator</u> (70%) (with Sanjay Jain (30%)) (Center for High Performance Manufacturing)
	"Dynamic Lot Release," Amount: $33,472, (Virginia Polytechnic Institute and State University)
6/03-6/04	<u>Co-Principal Investigator</u> (70%) (with Sanjay Jain (30%)) (Center for High Performance Manufacturing)
	"An Advanced Dynamic Scheduling Tool," Amount: $33,472, (Virginia Polytechnic Institute and State University)
6/03-5/04	<u>Co-Principal Investigator</u> (50%) (with C. Suchicital (50%)) (Inland Motors and Center for High Performance Manufacturing)
	"A Systematic Study of the Oxidation Occurrences on Manufactured Metal Ball Bearing Parts," Amount: $42,977, (Virginia Polytechnic Institute and State University)
7/02-6/03	<u>Co-Principal Investigator</u> (70%) (with Sanjay Jain (30%)) (Center for High Performance Manufacturing)
	"Dealing with Demand Uncertainty in Manufacturing," Amount: $33,472, (Virginia Polytechnic Institute and State University)
5/02-11/03	<u>Co-Principal Investigator</u> (50%) (with John Shewchuk (50%)) (Sperry-Marine and Center for High Performance Manufacturing)
	"Dynamic Scheduling and Capacity Planning of the Sperry-Marine Facility in Charlottesville, Virginia," Amount: $23,000, (Virginia Polytechnic Institute and State University)
4/02-3/04	<u>Principal Investigator</u> (100%) (M/A-COM, Virginia Center for Innovative Technology and Center for High Performance Manufacturing)
	"Development of Effective Operational Control Strategies for a Semiconductor Manufacturing Fab," Amount: $82,086, (Virginia Polytechnic Institute and State University)
7/1/01-6/30/06	<u>Associate Director</u> (10%, one of 5 faculty associate directors with F. F. Chen (PI), and A. C. Loos and R. G. Kander (Co-PIs)), (Commonwealth Technology Research Fund, Virginia Department of Planning and Budgeting)

"Enhancing Virginia's Research Infrastructure for High Performance Manufacturing," Amount: $4,339,577, (Virginia Polytechnic Institute and State University)

1/1/00-12/31/02   Co-Principal Investigator (25%), (with R. Hendricks, J. Helfin and A. Huang), (National Science Foundation)

"Innovative Combined Curriculum and Research Experiments for the Design of Microelectronics Devices, Processes, and Manufacturing Operations," Amount: $350,000, (Virginia Polytechnic Institute and State University)

7/1/99-6/30/02   Principal Investigator (100%), (Virginia Department of Transportation Research Council)

"Optimal Route Generator for Safety Service Patrols," Amount: $15,000, (Virginia Polytechnic Institute and State University)

8/15/01-12/30/01   Principal Investigator (100%), (VT Corporation Research Center)

"Identification of Optimal Parameters for Implementation in Database Management and Web Design," Amount: $9,180, (Virginia Polytechnic Institute and State University)

8/15/00-8/14/01   Co-Principal Investigator (with R. Hendricks, J. Helfin and A. Huang), (National Science Foundation)

"Innovative Combined Curriculum and Research Experiments for the Design of Microelectronics Devices, Processes, and Manufacturing Operations," Amount: $20,000, (Virginia Polytechnic Institute and State University)

6/1/00-8/15/01   Principal Investigator (100%), (VT Corporation Research Center)

"Identification of Optimal Parameters for Implementation in Database Management and Web Design," Amount: $118,000, (Virginia Polytechnic Institute and State University)

8/15/00-12/31/00   Principal Investigator (100%), (White Oak Semiconductor, now Infineon Technologies)

"Planning and Scheduling of White Oak Semiconductors' Photolithography Area," Amount: $36,522, (Virginia Polytechnic Institute and State University)

6/1/00-9/1/00   Principal Investigator (100%), (M/A-COM, Inc.)

"Reduction in Production Lead Time at a Microelectronics Manufacturing Facility," Amount: $7,970, (Virginia Polytechnic Institute and State University)

1/15/00-1/14/01	Principal Investigator (100%), (Universal Instruments)
	"Optimization of Flip Chip Under fill Process," Amount: $60,368, (Virginia Polytechnic Institute and State University)
10/10/99-8/31/00	Principal Investigator (100%), (ITT GaAsTEK, Inc. and Virginia Center for Innovative Technology)
	"Reduction in Production Lead Time at a Microelectronics Manufacturing Facility," Amount: $50,000, (Virginia Polytechnic Institute and State University)
7/15/99-4/15/00	Principal Investigator (100%), (Ericsson, Inc.)
	"Modeling and Productivity Improvement of the Panther Line," Amount: $30,436, (Virginia Polytechnic Institute and State University)
9/1/99-7/31/00	Principal Investigator (100%), (Virginia Center for Innovative Technology)
	"Modeling and Productivity Improvement of the Panther Line," Amount: $24,990, (Virginia Polytechnic Institute and State University)
6/15/99-open	Principal Investigator (on behalf of the Manufacturing Group), (Pratt Foundation, College of Engineering, Virginia Tech)
	"Operational Control of Microelectronics Facilities," Amount: $25,000, (Virginia Polytechnic Institute and State University)
12/15/98-8/14/99	Principal Investigator (100%), (Universal Instruments Corporation)
	"Modeling, Analysis and Assessment of Chip Scale Package and Direct Chip Attack Assembly Yields," Amount: $48,992, (Virginia Polytechnic Institute and State University)
7/1/98-6/30/99	Co-Principal Investigator (50%), (with George Ioannou), (Center for Innovative Technology)
	"Virginia's Center for Research in Microelectronics Manufacturing (VCR-MEM)," Amount: $25,000, (Virginia Polytechnic Institute and State University)
9/1/98-8/31/01	Co-Principal Investigator (50%), (with John Cundiff; Department of Biological Systems Engineering), USDA (Food and Agriculture Sciences National Needs Products Grants Program)
	"System Analysis of Harvest and Transportation Issues in Energy Biomass Industry," Amount: $108,000, (Virginia Polytechnic Institute and State University)

5/1/98-6/30/99   Principal Investigator (100%), (Egyptian Cultural and Education Bureau)

"Production Scheduling of Multi-Stage Manufacturing Facilities," Amount: $8,000, (Virginia Polytechnic Institute and State University)

6/15/98-12/14/98   Co-Principal Investigator (50%), (with George Ioannou), (Insteel Wire Products)

"Analysis of Material Flow, Examination of Material Handling Alternatives, and Study of Production Performance Measures in a Wire Manufacturing Facility," Amount: $18,081, (Virginia Polytechnic Institute and State University)

6/15/98-12/14/98   Co-Principal Investigator (50%), (with George Ioannou), (Center for Innovative Technology)

"Analysis of Material Flow, Examination of Material Handling Alternatives, and Study of Production Performance Measures in a Wire Manufacturing Facility," Amount: $20,000, (Virginia Polytechnic Institute and State University)

1/15/98-6/15/98   Co-Principal Investigator (50%), (with George Ioannou), (Insteel Wire Products)

"Development of Production Related Training Material for Insteel Wire Products," Amount: $4,500, (Virginia Polytechnic Institute and State University)

1/15/98-6/15/98   Co-Principal Investigator (50%), (with George Ioannou), (Outreach Program at Virginia Tech

"Development of Production Related Training Material for Insteel Wire Products," Amount: $7,500, (Virginia Polytechnic Institute and State University)

5/1/97-4/30/98   Principal Investigator (100%), (Egyptian Cultural and Education Bureau)

"Production Scheduling of Multi-Stage Manufacturing Facilities," Amount: $8,000, (Virginia Polytechnic Institute and State University)

6/97-12/98   Principal Investigator (100%), (Universal Instruments Corporation)

"Modeling, Analysis and Assessment of Chip Scale Package and Direct Chip Attach Assembly Yields," Amount: $117,442, (Virginia Polytechnic Institute and State University)

6/93 - 5/94   Co-Principal Investigator (75%), (with D. Earl Kline; Forest Products) USDA of Forest Services

"Integrated Production Control System for Furniture Manufacturing", Amount: $40,979. (Virginia Polytechnic Institute and State University)

6/90 - 12/91	Principal Investigator (100%), (National Science Foundation)

"Computer Integrated Production Planning and Control." Amount $16,000, (Virginia Polytechnic Institute and State University).

6/90 - 12/91	Principal Investigator (100%), (U.S. Department of Forest Services)

"Computer Integrated Production Planning and Control." Amount: $16,000. (Virginia Polytechnic Institute and State University).

1/90 - 1/91	Principal Investigator (100%), (Virginia Department of Transportation)

"Development of Mathematical Programming Based Procedures to Design and Select Bridges." Amount: $27,207, (Virginia Polytechnic Institute and State University).

1/89-12/89	Principal Investigator (100%), (Virginia Department of Transportation)

"Development of Mathematical Programming Based Procedures to Design and Select Bridges." Amount: $58,676, (Virginia Polytechnic Institute and State University).

7/87-12/88	Principal Investigator (100%), (Mining and Mineral Resources Research Institute, Department of the Interior)

"Optimal Scheduling of Production in Underground Coal Mining." Amount: $18,778, (Virginia Polytechnic Institute and State University).

1/87-12/88	Principal Investigator, (100%), (Virginia Department of Highways and Transportation)

"Development of Mathematical Programming Based Procedures to Design and Select Bridges." Amount: $131,690, (Virginia Polytechnic Institute and State University).

7/86-6/87	Principal Investigator (100%), (Mining and Mineral Resources Research Institute, Department of the Interior)

"Optimal Scheduling of Production in Underground Coal Mining." Amount: $11,580, (Virginia Polytechnic Institute and State University).

1/86-12/86	Co-Principal Investigator (50%) (with H. D. Sherali), (Center for Innovative Technology, Institute for Computer-Aided Engineering and Institute of Information Technology)

"Mathematical Programming and Artificial Intelligence Approaches to a Two Stage Production Process." Amount: $28,353. Level of Responsibility: $14,177, (Virginia Polytechnic Institute and State University).

9/85-8/86	<u>Co-Principal Investigator</u> (50%) (with H. D. Sherali), (Burroughs Corporation)

"Mathematical Programming and Artificial Intelligence Approaches to a Two-Stage Production Process." Amount: $28,358. Level of Responsibility: $14,179, (Virginia Polytechnic Institute and State University).

1/85-6/85	<u>Co-Principal Investigator</u> (50%) (with H. D. Sherali), (Virginia Center for Innovative Technology, Institute for Computer-Aided Engineering)

"Application of Integer Programming Methods to Computer Integrated Manufacturing." Amount: $12,136. Level of Responsibility: $6,150, (Virginia Polytechnic Institute and State University)

6/84-4/85	<u>Principal Investigator</u> (100%), (Research Grant from Society of Manufacturing Engineering)

"Optimal Arrangement of Patterns in Mold Flasks." Amount: $3,575, (Virginia Polytechnic Institute and State University)

2/83-12/84	<u>Co-Faculty Associate</u> (with W. E. Wilhelm), (National Science Foundation)

"Assembly System Design and Analysis." Amount: $77,000; Level of Responsibility: Moved to Virginia Polytechnic Institute and State University and continued work there leading to two refereed journal publications. (The Ohio State University; the research continued at Virginia Polytechnic Institute and State University)

12/82-7/83	<u>Principal Investigator</u> (100%), (Research Grant from Society of Manufacturing Engineering)

"Mathematical Models for the Packing of Molds in Mold Flasks." Amount: $9,000, (The Ohio State University)

10/80-12/81	<u>Principal Investigator</u> (100%), (Task Force on Learning, The Ohio State University)

"Development of Computer Programs for the Solution of Nonlinear Programming Problems." Amount: $1,500 (The Ohio State University)

1/80-9/80	<u>Principal Investigator</u> (100%), (Mining and Mineral Resources Research Institute, Department of the Interior)

"Productivity Improvement in Underground Coal Mining Using Operations Research Methods." Amount: $4,000 (The Ohio State University)

5/78-8/79	<u>Principal Investigator</u> (100%), Graduate School, (The Ohio State University)

"Mathematical Models for the Mixed Disc Packing Problem." Amount: $4,000, (The Ohio State University)

Refereed Papers in Major Technical Journals

<div align="center">

Sequencing and Scheduling

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1. Sarin, S. C. "Scheduling Independent Projects Against a Single Resource," *International Journal of Production Research*, Vol. 20, No. 2, pp. 135-146, 1982.

2. Sarin, S. C. and S. E. Elmaghraby, "Bounds on the Performance of a Heuristic to Schedule Precedence Related Jobs on Parallel Machines," *International Journal of Production Research*, Vol. 22, No. 1, pp. 17-30, 1984.

3. Wilhelm, W. E. and S. C. Sarin, "A Structure for Sequencing Robot Activities in Machine Tending Applications," *International Journal of Production Research*, Vol. 23, No. 1, pp. 47-64, 1985.

4. Sarin, S. C., S. Ahn, and A. B. Bishop, "An Improved Branching Scheme for the Branch and Bound Procedure for Scheduling N Jobs on M Processors to Minimize Total Weighted Flow Time," *International Journal of Production Research*, Vol. 27, No. 7, pp. 1183-1191, 1988. Erel, E. and S. C. Sarin, "Scheduling Independent Jobs with Stochastic Processing Times and a Common Due Date on Parallel and Identical Machines," *Annals of Operations Research*, Vol. 17, pp. 181-198, 1989.

5. Sarin, S. C. and R. Salgame, "A Knowledge-Based System Approach for Dynamic Scheduling," in *Expert Systems in Manufacturing*, a collection of papers published as a book edited by A. Kusiak, Taylor and Francis, 1989.

6. Salgame, R. and S. C. Sarin, "Development and Implementation of a Knowledge-Based System for the Dynamic Scheduling of a Two-Stage Production Process," *International Journal of Production Planning and Control*, Vol. 1, No. 3, pp. 158-169, 1990.

7. Sarin, S. C. and R. Salgame, "Development of a Knowledge-Based System for Dynamic Scheduling," *International Journal of Production Research*, Vol. 28, No. 8, pp. 1499-1512, 1990.

8. Sarin, S. C., E. Erel and G. Steiner, "Sequencing Jobs on a Single Machine with a Common Due Date and Stochastic Processing Times," *European Journal of Operational Research*, Vol. 15, No. 2, pp. 188-198, 1991.

9. Kalir, A. A. and S. C. Sarin, "The Role of Advanced Start and Dominance Rules in Simulated Annealing for Parallel Processor Scheduling Problems," *International Journal of Production Planning and Control*, Vol. 10, No. 8, pp. 757-766, December 1999.

10. Sarin, S. C. and R. Hariharan, "A Two Machine Bicriteria Scheduling Problem," *International Journal of Production Economics*, Vol. 65, No. 2, pp. 125-139, 2000.

11. Sarin, S. C. and S. Aggarwal, "Modeling and Algorithmic Development of a Staff Scheduling Problem," *European Journal of Operational Research*, 128, pp. 558-569, 2001.

12. Sarin, S. C. and D. Prakash, "Equal Processing Time Bicriteria Scheduling on Parallel Machines," *Journal of Combinatorial Optimization*, Vol. 8, pp. 227-240, 2004.

13. Sarin, S. C. and Jan West-Hansen, "Solving the Long-Term Production Scheduling Problem by Mixed Binary Programming," *IIE Transactions*, Vol. 37, No. 2, pp. 109-121, 2005.

14. Sarin, S. C., B. Nagarajan, and L. Liao, "Analytic Evaluation of the Expectation and Variance of Different Performance Measures of a Schedule on a Single Machine Under Processing time Variability," *Journal of Combinatorial Optimization*, Vol. 17, No. 4, pp. 400-416, 2009.

15. Laha, D. and S. C. Sarin, "A Heuristic to Minimize Total Flow Time in Permutation Flow Shop," *OMEGA*, Vol. 37, 2009, pp. 734-739.

16. Sarin, S. C., Y. Wang and A. Varadarajan, "A University-Timetabling Problem and its solution using Benders' Partitioning—A Case Study," *Journal of Scheduling*, Vol. 13, pp. 131-141, 2010.

17. Liao, L., S. C. Sarin, and H. D. Sherali, "A Scenario Generation-Based Lower Bounding Approach for Stochastic Scheduling Problems," *Journal of Operational Research Society*, January 2012.

18. Sarin, S. C., H. D. Sherali, and L. Liao, "Minimizing Conditional-Value-at-Risk for Stochastic Scheduling," *Journal of Scheduling*, Vol. 14, pp. 5-15, 2014.

19. Sarin, S. C., H. D. Sherali, and L. Liao, "Primary Pharmaceutical Manufacturing Scheduling Problem," *IIE Transactions*, Vol. 46, Issue 12, 2014.

20. Steeneck, D., and S. C. Sarin, "Project Scheduling in the Presence of Productivity Functions," *Journal of Operational Research Society*, Published online. doi: 10.1057/jors.2014.44, 2014.

21. Sarin, S. C., Sherali, H. D., Varadarajan, A. & Liao, L., "Stochastic Scheduling for a Network of Flexible Job Shops." To appear in *Heuristics, Meta-Heuristics and Approximation Methods in Planning and Scheduling*, Springer, New York, NY., 2015.

Lot Streaming

22. Kalir, A. A. and S. C. Sarin, "Evaluation of the Potential Benefits of Lot Streaming in Flow-Shop Systems," *International Journal of Production Economics*, Vol. 66, pp. 131-142, 2000.

23. Kalir, A. A. and S. C. Sarin, "Optimal Solutions for the Single Batch Flow Shop Lot Streaming Problem with Equal Sublots," *Decision Sciences*, Vol. 32, No. 2, pp 387-397, Spring 2001.

24. Kalir, A. A. and S. C. Sarin, "A Near-Optimal Heuristic for the Sequencing Problem in Multiple-Batch Flow-Shops with Small Equal Sublots," *Omega, The International Journal of Management Sciences*, 29, pp. 577-584, 2001.

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26. Sarin, S. C., A. A. Kalir, and M. Chen, "Unified Cost-Based Lot Streaming Problem for the Single Batch Flow Shop with Equal Sublots," *International Journal of Production Economics*, Vol. 113, No. 1, pp. 413-424, 2008.

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Asymmetric Traveling Salesman Problem

32. Sarin, S. C., H. D. Sherali and A. Bhootra, "New Tighter Polynomial Length Formulations for the Asymmetric Traveling Salesman Problem with and without Precedence Constraints," *Operations Research Letters*, Vol. 33, pp. 62-70, 2005.

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Mathematical Programming Applications

37. Sarin, S. C., "What's Wrong with Current OR Curricula," appeared in Summary of Student Panel Discussion at Philadelphia ORSA/TIMS meeting, by S. Nahimas and M. Magazine, *Interfaces*, Vol. 7, No. 4, pp. 92-101, 1977.

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Assembly System Design

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Palekar, N. and S. C. Sarin, "Job Sequencing and WIP Level Determination in a Cyclic CONWIP Flow Shop with Blocking," *INFORMS*, Miami, FL, November 2001.

Sarin, S. C. and M. Chen, "Planning and Scheduling in a Wafer Fab," *Annual Conference of the British Operational Research Society*, York, England, September 7-9, 2004.

Company or University Reports, Discussions of Papers, Book Reviews, Letters to the Editor

Research Reports

Sarin, S. C., "Use of Industrial Engineering Techniques to Improve Productivity in Underground Coal Mining," Research Report, Department of Industrial and Systems Engineering, The Ohio State University, 1980.

Sarin, S. C., "Packing Problems and Available Bounds on Packing Densities," Research Report, Department of Industrial and System Engineering, The Ohio State University, 1981.

Sarin, S. C., "Report of the IIE-OR Division Straw Poll on the OR Division Newsletter," IIE-OR Division Newsletter, Vol. XVII, No. 3, Winter 1982.

Sarin, S. C., "Optimal Arrangement of Patterns in Mold Flasks," Research Report, submitted to Society of Manufacturing Engineering, Department of Industrial Engineering and Operations Research, Virginia Polytechnic Institute and State University, 1986.

Sarin, S. C. and H. D. Sherali, "Application of Artificial Intelligence and Integer Programming Based Methods to Computer-Integrated Manufacturing," Research Report submitted to Center for Innovative Technology, Division of Computer Aided Engineering, Department of Industrial Engineering and Operations Research, Virginia Polytechnic Institute and State University, January 1986.

Sarin, S. C., H. D. Sherali, and R. Desai, "Mathematical Programming and Artificial Intelligence Based Approaches to a Two-Stage Production Process," Interim Research Report, submitted to Standard Register and Center for Innovative Technology, Department of Industrial Engineering and Operations Research, Virginia Polytechnic Institute and State University, 1986.

Sarin, S. C. and H. D. Sherali, "Mathematical Programming and Artificial Intelligence Approaches to a Two-Stage Production Process," Final Research Report, submitted to Standard Register and the Center for Innovative Technology, Department of Industrial Engineering and Operations Research, Virginia Polytechnic Institute and State University, March 1987.

Sarin, S. C., "Development of a Mathematical Programming Based Procedure to Design and Select Bridges," Interim Research Report I, submitted to Virginia Department of Transportation, Virginia Polytechnic Institute and State University, August 1987.

Sarin, S. C., A. Mehrotra and A. Barr, "Development of a Mathematical Programming Based Procedure to Design and Select Bridges," Interim Research Report II, Submitted to Virginia

Department of Transportation, Virginia Polytechnic Institute and State University, August 1988.

Sarin, S. C., R. Srivastava and A. Barr, "Development of a Mathematical Programming Based Procedure to Design and Select Bridges," Interim Research Report II (Revised), submitted to Virginia Department of Transportation, Virginia Polytechnic Institute and State University, March 1989.

Sarin, S. C., R. Srivastava and A. Barr, "Development of a Mathematical Programming Based Procedure to Design and Select Bridges," Interim Research Report III, submitted to Virginia Department of Transportation, Virginia Polytechnic Institute and State University, September 1989.

Sarin, S. C. and A. S. Barr, "Development of a Mathematical Programming Based Procedure to Design and Select Bridges," Final Report submitted to Virginia Department of Transportation, September 1991.

Hoff, K. and S. C. Sarin, "Production Control in the Wood Furniture Industry," Industry Report, Northeastern Experiment Station, Forestry Science Lab., Princeton, West Virginia, 1991.

Sarin. S. C., "Computer-Integrated Production Planning and Control," Final report submitted to National Science Foundation, 1992.

Sarin, S. C., D. Earl Kline, Sanjay Aggarwal and Divya Prakash, "Development of and Integrated Production Control System for Furniture Manufacturing," Final report submitted to USDA/Forest Products, August 1994.

Sharma, S. and S. C. Sarin, "DCA/CSP Assembly Yield Model," Surface Mount Technology Laboratory, Universal Instruments, Binghamton, New York and the Department of Industrial and Systems Engineering, Virginia Tech, January 1998.

Sharma, S. and S. C. Sarin, "Characterization of Amkor/Anam 256 Super BGA; Amkor/Anam 256 (1.27 mm pitch) PBGA; Amkor/Anam 16. PBGA; Amkor/Anam 256 (1 mm ppitch) PBGA; Micro CSP (6 leads); Micro CSP (8 leads); V144 Flex CSP; SHARP CSP; and V132, FLEX CSP," a series of 9 reports completed, Surface Mount Technology Laboratory, Universal Instruments, Binghamton, New York and the Department of Industrial and Systems Engineering, Virginia Tech, February 1998.

Sarin, S. C., Nipun Palekar and Madhav Kidambi, "Modeling and Productivity Improvement of the Panther Line," Final report submitted to Ericsson, Inc. and Virginia Center for Innovative Technology, June 2000.

Sarin, S. C. and S. Shikalgar, "Reduction in Production Lead Time at a Microelectronics Facility," Final report submitted to M/A-COM, August 2000.

Sarin, S. C. and M. Kidambi, "Planning and Scheduling of White Oak Semiconductor (now Infineon Technologies) Photolithography Area," Final report submitted to Infineon Technologies, December 2001.

Sarin, S. C. and M. Chen, "Development of Effective Operational Control Strategies for a Semiconductor Manufacturing Fab," Interim report submitted to M/A-COM, July 2003.

Sarin, S. C. and J. Shewchuk, "Dynamic Scheduling and Capacity Planning of the Sperry-Marine Facility in Charlottesville, Virginia, Final report submitted to Sperry-Marine, November 2003.

Sarin, S. C. and S. Jain, "Dealing with Demand Uncertainty in Manufacturing," Final report submitted to the Center for High Performance Manufacturing, Virginia Tech, 2003.

Suchicital, C., S. C. Sarin, and R. H. Sturges, "A Systematic Study of the Oxidation Occurrences on Manufactured Metal Ball Bearing Parts," Final report submitted to Inland Motors and Center for High Performance Manufacturing, Virginia Tech, 2004.

Sarin, S. C. and S. Jain, "An Advanced Dynamic Scheduling Tool," Final report submitted to the Center for High Performance Manufacturing, Vriginia Tech, 2004. (Led to the development of FlexSched, a dynamic production scheduling software, and DynaPro, a dynamic production planning software.)

Sarin, S. C. and S. Jain, "Dynamic Lot Release," Final report submitted to the Center for High Performance Manfacturing, Virginia Tech, 2004.

Sarin, S. C., "Development of Effective Operational Control Strategies for a Semiconductor Manufacturing Fab," Final report submitted to M/A-COM, Roanoke, Virginia, 2004.

Sarin, S. C. and P. Kachroo, "An Agent-Based Methodology for Advanced Planning and Scheduling," Submitted to the Center for High Performance Manufacturing, Virginia Tech, 2005.

Sarin, S. C., "A Study of Facilities Planning Problem," Final report submitted to Salem Preferred Partners, Salem, Virginia, 2005.

Sarin, S. C., "Scheduling of Shipment to Meet Customer Delivery Requirements at Minimum Cost," Final report and software submitted to Virginia Philpot Manufacturing Extension partnership and Virginia Clay Products, Virginia, 2006.

Sarin, S. C., "Modeling and Analysis of Production Planning Problem for the M/A-COM Lynchburg Facility," Final report and software delivered to M/A-COM, Lynchburg, Virginia, 2006.

Sarin, S. C., "An Adaptation of FlexSched for Solving the Production Scheduling Problem of Sperry-Marine's Facility in Charlottesville, Virginia," Final report and software delivered, 2007.

Sarin, S. C., "A Lean Tool to Shorten Production Lead Time," Final report and software delivered to the Center for High Performance Manufacturing, Virginia Tech, 2007.

Sarin, S. C., and H. D. Sherali, "Novel Modeling and Analytical Approaches for Primary Pharmaceutical Manufacturing Scheduling," Submitted to National Science Foundation, January 2011.

Sarin, S. C., and H. D. Sherali, "Novel Modeling and Analytical Approaches for Primary Pharmaceutical Manufacturing Scheduling," Submitted to National Science Foundation, January 2012.

Sarin, S. C., and H. D. Sherali, "Novel Modeling and Analytical Approaches for Primary Pharmaceutical Manufacturing Scheduling," Final report submitted to National Science Foundation, April 2013.

Sarin, S. C., D. W. Steeneck, "In-house Process Improvement for DEX ($88,116), Final report submitted to TEMCI (Virginia Transportation Equipment Manufacturers Competitiveness Initiative), June 2013.

Sarin, S. C. and N. Mukherjee, "Value Stream Mapping of Volvo NRV Business Processes," Final report submitted to TEMCI (Virginia Transportation Equipment Manufacturers Competitiveness Initiative), June 2013.

Sarin, S. C., J. Flittner, "Design and Implementation of Truck Parts Refurbishment and In-house Process Improvement for DEX," Final report submitted to TEMCI (Virginia Transportation Equipment Manufacturers Competitiveness Initiative), June 2013.

Book Reviews

Computer Scheduling of Public Transport, A Collection of Papers Presented at an International Workshop, University of Leeds, 16-18 July, 1980, A. Wren (Editor), *IIE-OR Division Newsletter*, Vol. XVI, No. 2, Fall 1981.

Nonlinear Programming: Analysis and Method, by M. Avriel, Prentice-Hall, 1976, appeared in *IIE-OR Division Newsletter*, Vol. XVI, No. 3, Winter 1982.

Stochastic Models in Operations Research - Volume 1, by D. P. Heyman and M. J. Sobel, McGraw-Hill, New York, 1982, *IIE-OR Division Newsletter*, Vol. XVII, No. 2, Fall 1982.

Fundamentals of Network Analysis, by D. T. Phillips and A. Garcia-Diaz, Prentice-Hall, 1981, appeared in *Institute of Industrial Engineers Transactions*, Vol. 14, No. 4, December 1982.

Engineering Optimization: Methods and Applications, by G. R. Reklaitis, A. Ravindran and K. M. Ragsdell, John Wiley, 1983, appeared in *Industrial Engineeri*ng, Vol. 16, No. 9, September 1984.

Scheduling Algorithms, by Peter Brucker, Springer, 1998, appeared in *International Journal of Production Planning and Control*, Vol. 13, No. 4, pp. 424-425, 2002.

SERVICE ACTIVITIES

- **University**

College of Engineering Representative to the University Level Promotion and Tenure Committee, 1997-99.

Panel Member, Undergraduate Honor System at Virginia Tech, 1995 - 1998.

- **College**

  Member, College of Engineering Promotion and Tenure Committee, 1994 - 2005.

  Member, College Committee on University Planning and Engineering and Department of Physical Plant, 1986-87.

  Member, Microelectronics Manufacturing Committee

  Member, College-level Microelectronics Manufacturing Committee

  Member, College of Engineering Rolls-Royce Colloquium and Hiring Committee, 2011-present.

  Member, College of Engineering Honorifics Committee, 2011-present.

- **Department**

  Chairman, Department Honorifics Committee, 2012-present.

  Chairman, Honors and Awards Committee, 2014-present.

  Member, Honors and Awards Committee, 2013-2014

  Member, Department Faculty Search Committee, 2013-present

  Member, Department Graduate Student Admissions Committee, 2013-2014.

  Member, Undergraduate Curriculum Committee, 2011-2012.

  Chairman, Department Promotion and Tenure Committee, 1994-2005.

  Coordinator, Manufacturing Systems Engineering Option, Department of Industrial and Systems Engineering, January 1997 to May 1997, and September 1998–2009.

  Member, Committee of Operations Research Area Faculty in the department.

  Member, Mentoring Program Committee in the department.

  Chairman, Industrial and Systems Engineering Department Head Search Committee, June 1995 to May 1996.

  Member, Department of Industrial and Systems Engineering, Graduate Policy Committee, September 1995 to May 1996 and September 1998 to present.

  Mentor, Dr. Chris Wernz, Assistant Professor, Grado Department of Industrial and Systems Engineering, 2012-present.

  Mentor, Dr. Raghu Pasupathy, Assistant Professor, Grado Department of Industrial and Systems Engineering, 2006-2009.

Mentor, Dr. Thurmon Lockhart, Assistant Professor, Grado Department of Industrial and Systems Engineering, 2000-2005.

Mentor, Dr. George Ioannou, Assistant Professor, Department of Industrial and Systems Engineering, 1997-99.

Chairman, Departmental Committee to develop a White Paper on Engineering Research for Investment of Pratt Funds, May 1998

Member, Committee of Operations Research Area Faculty in the department

Member, Grado Endowment Steering Committee

Member, Committee of Manufacturing Systems Engineering Area Faculty in the department.

Member, Department of Industrial and Systems Engineering Honors and Awards Committee, September 1996 - 1997.

Member, Undergraduate Curriculum Committee, 1989 - 1996.

Member, Department of Industrial and Systems Engineering Personnel Committee, 1987 - 1994.

Departmental Representative to the Library Committee, 1989 - 1995.

Departmental Personal Computer Coordinator, 1984-1988

Faculty Advisor, ORSA Student Chapter at Virginia Tech, 1983-90.

Member, Cunningham Scholarship Committee, Winter, Spring 1984.

Sophomore Student Advisor, 1984-85.

Junior Student Advisor, 1985-86.

Senior Student Advisor, 1986-87.

Member, Ad-Hoc Committee of Manufacturing Engineering Curriculum Development.

Member, Ad-Hoc Committee for Operations Research Curriculum Development

Member, Department Committee for reviewing applicants of Manufacturing Engineering Option, 1985-86.

Member, Department Seminar Committee, 1991-92.

Guest Lecturer in ISE 5024 on "Operations Research," Spring 1992.

Examiner for the Operations Research part of the MEA examination 1992.

Guest Lecturer in ISE 5204 (TV Course) on "Master Scheduling and Manufacturing Requirements Planning," Spring 1992.

Guest Lecturer in ISE 5454, Production Planning and Control (3 weeks), Spring 1994.

Guest Speaker to the Society of Manufacturing Engineers, Gave seminar on "Modeling to Reduce Cycle Time at a Wafer Fabrication Facility," April 25, 2002.

Visited and/or hosted several companies/organizations in connection with the activities of the Center for High Performance Manufacturing, 2001-2006.

Advisor to Senior Design Projects

Year	Number of Projects
Spring 1985	3; one of these projects was judged by the faculty to be among the **top 4** projects out of about 30 projects.
1985-86	3; one of these projects was judged by the faculty to be the **Best Project** out of about 30 projects.
1986-87	4; one of these projects was judged by the faculty to be the **Best Project** out of over 30 projects.
1987-88	4; one of these projects was judged by the faculty to be the **Best Project** out of over 30 projects.
1988-89	4; one of these projects was judged by the faculty to be among the **top 5** projects out of over 35 projects.
1989-90	2; one of these projects was judged by the faculty coordinator to be among the **top 3** projects out of about 25 projects.
1990-91	2
1991-92	2; one of these projects received award of excellence for being among the **top 3** projects of the year.
1992-93	1
1993-94	2
1995-96	1
1996-97	1
1997-98	3

(competitions for the best project of the year were not held from 1992-1997)

1998-99	3; one of the projects received the **Best Project** of the Year Award.
1999-00	2; one of the projects received the **Best Project** of the Year Award

2000-01	2
2001-02	2, one of the projects received the **Outstanding** Senior Design Project Award
2002-03	2
2003-04	2, one of the projects received the **Outstanding** Senior Design Project Award
2004-05	1, with M/A-COM
2006-07	1
2007-08	2
2008-09	1
2009-10	1
2010-11	2
2011-12	1
2012-13	1, won the **Best Presentation** Award
2013-14	3, one team won the **Best Project Outcome** Award
2014-15	2

- **Other**

  Faculty Advisor, India Student Association at Virginia Tech, 1984-85.

  Guest Lecturer, IEOR 4980, 1984.

  Faculty Advisor, India Student Association at Virginia Tech, 1987- 1994.

  Keynote Speaker, Society of Asian American Association Function, April 2000.

  AT THE OHIO STATE UNIVERSITY

  Chairman, Industrial and Systems Engineering Graduate Fellowship Committee, 1980-82.

  Member, Industrial and Systems Engineering Graduate Fellowship Committee, 1982-83.

  Member, Industrial and Systems Engineering Undergraduate Scholarship Committee, 1978-80.

  Faculty Advisor, India Student Association at The Ohio State University, 1980-83.

  Member, Graduate Faculty Committee, 1979-83.

<u>Faculty Advisor</u>, Industrial and Systems Engineering Undergraduate Students, 1978-83.

Thesis and Dissertation Committees at Virginia Polytechnic Institute and State University

<u>Name</u>	<u>Major</u>	<u>Degree</u>	<u>Completion Date</u>
Konstantin Staschus	IEOR	Ph.D.	June 1985
Beverly Watford	IEOR	Ph.D.	December 1985
Roderick Reasor	IEOR	Ph.D.	May 1990
Gerrit Goodman	Mining Engr.	Ph.D.	June 1987
Kuo-PingHwang	Civil Engr.	Ph.D.	Spring 1986
Eddy Patuwo	IEOR	Ph.D.	May 1989
Huseyin Sarper	IEOR	Ph.D.	Summer 1988
Osman Ulular	IEOR	Ph.D.	Spring 1988
Martin Smith	Mining Engr.	Ph.D.	Winter 1988
Mustafa Gulam	Agr. Engr.	Ph.D.	August 1989
Nadim Aboud	IEOR	Ph.D.	August 1990
Philipe Reil	IEOR	Ph.D.	December 1989
S. Sivanandan	Civil Engr.	Ph.D.	December 1989
Amein Alamedine	IEOR	Ph.D.	October 1990
Sigon Kim	Civil Engr.	Ph.D.	August 1990
G. Choi	ISE	Ph.D.	Completed
M. Bouzguendo	EE	Ph.D.	Completed
Bechir Ouerdini	ISE	Ph.D.	Completed
Young-Ho Lee	ISE	Ph.D.	Completed
Min Kang Zhu	Agr. Engr.	Ph.D.	Completed
Yow-Yuh Lee	Mgmt. Sc.	Ph.D.	Completed
B. J. Kim	Civil Engr	Ph.D.	Completed
Mary-Margaret Koball Little	Mgmt Sc	Ph.D.	Continuing
Melanie Hatch	Mgmt Sc	Ph.D.	Completed
Ernest Price Smith	ISE	Ph.D.	Completed
Hunter Nichols	ISE	Ph.D.	Continuing
Stanley Tang	ISE	Ph.D.	Completed
Malay Dalal	ISE	Ph.D.	Completed
Patrick Driscoll	ISE	Ph.D.	Completed
Cihan Tuncbelik	ISE	Ph.D.	Completed
Robert Shinazi	ISE	Ph.D.	Completed
Mark Egglesham	ISE	Ph.D.	Completed
Janis Terpenny	ISE	Ph.D.	Completed

Taehyung Park	ISE	Ph.D.	Completed
Intesar Al-Loughani	ISE	Ph.D.	Completed
John Tester	ISE	Ph.D.	Completed
Robert Shinazi	ISE	Ph.D.	Completed
Allan Johnson	ISE	Ph.D.	Completed
John Allen Neal	ISE	Ph.D.	Continuing
Hanijanto Soewands	IE	Ph.D.	Completed
J. Cole Smith	ISE	Ph.D.	Completed
Poalo Dobolo	EE	Ph.D.	Completed
Ming Dong	ISE	Ph.D.	Completed
Tei Wang	ISE	Ph.D.	Completed
Barbara Fraticelli	ISE	Ph.D.	Completed
Wei Tang	ISE	Ph.D.	Completed
Pornhipa Ongkunaruk	ISE	Ph.D.	Completed
Churlzu Lim	ISE	Ph.D.	Completed
Rawee Suwandechochai	ISE	Ph.D.	Completed
Soheil Sibdari	ISE	Ph.D.	Completed
Poorna Ravula	BSE	Ph.D.	Completed
Bacel Maddah	ISE	Ph.D.	Completed
Radu Babiceanu	ISE	Ph.D.	Completed
Jitamitra Desai	ISE	Ph.D.	Completed
Weiping Chen	ISE	Ph.D.	Completed
Ahmed Ghoneim	ISE	Ph.D.	Completed
Jiangcheng Su	ISE	Ph.D.	Completed
Haisang Wu	ECE	Ph.D.	Completed
Chengbin Zhu	ISE	Ph.D.	Completed
Xiaomei Zhu	ISE	Ph.D.	Completed
Hung-da Wan	ISE	Ph.D.	Completed
Yanfeng Li	ISE	Ph.D.	Completed
Sherif Fahmy	ECE	Ph.D.	Completed
Fai Huang	ECE	Ph.D.	Completed
Kaeyong Shin	ISE	Ph.D.	Completed
Ki-Hwan Bae	ISE	Ph.D.	Completed
Evrim Dalkiran	ISE	Ph.D.	Completed
Sourish Sarkar	ISE	Ph.D.	Completed
Liu Zheng	ISE	Ph.D.	Completed
Esra Acga	ISE	Ph.D.	Completed
Jeremy Rickli	ISE	Ph.D.	Completed
Victor Pereira	ISE	Ph.D.	Completed

Darrell Davis	IEOR	M.S.	September 1984
Rajgopal Parthasarthy	IEOR	M.S.	June 1985
Mitchell Steffen	IEOR	M.S.	August 1985
Bhoopatsihn Jadeja	IEOR	M.S.	November 1985
Rajender Desai	IEOR	M.S.	June 1987
Thomas Rizzo	IEOR	M.S.	June 1987
Murli Kodialam	IEOR	M.S.	August 1987
Stanley Tang	IEOR	M.S.	June 1987
Susan Reller	IEOR	M.S.	August 1987
Hwang Li	IEOR	M.S.	August 1987
Dough Dobson	IEOR	M.S.	Completed
Fazal Khan	ISE	M.S.	Completed
Brian Plutnik	ISE	M.S.	Completed
Mike Mittlehener	ISE	M.S.	Completed
Harold Young-On	ISE	M.S.	Completed
Basant Maheshwari	ISE	M.S.	Completed
Prabhu Venkatesh	ISE	M.S.	Completed
Joe Librescu	ISE	M.S.	Completed
Naresh Hingorani	ISE	M.S.	Completed
Wade Hamilton	ISE	M.S.	Completed
Cheng-Tao Tai	ISE	M.S.	Completed
Sherry Edwards	ISE	M.S.	Completed
Namita Arora	ISE	M.S.	Completed
Jerry Hogge	ISE	M.S.	Completed
John Pastouvanous	ISE	M.S.	Completed
Rajul Tank	ISE	M.S.	Completed
Terri Lawrence	ISE	M.S.	Completed
John Evans	ISE	M.S.	Completed
Kiran Raghunathan	ISE	M.S.	Continuing
Shamil Dagestani	ISE	M.S.	Completed
Hongjie Wang	ISE	M.S.	Completed
Zafar Ansari	ISE	M.S.	Completed
Muhannad Ramahi	ISE	M.S.	Completed
Burak Ozdaryal	ISE	M.S.	Completed
John Klote	ISE	M.S.	Completed
Ying Xiang Wu	ME	M.S.	Completed
Qing Li	ISE	M.S.	Continuing
Asif Taiyabi	ISE	M.E.	Completed
Pieter Smith	ISE	M.E.	Completed
Reji Mathew	ISE	M.E.	Completed

Jim Venuto	ISE	M.E.	Completed
Gautum Vasudevan	SYSE	M.E.	Completed
Shailesh Pawar	SYSE	M.E.	Completed
Amanda Haywood	ISE	M.E.	Completed
Nagaraj Subrahmanya	ISE	M.E.	Completed
Gautam Srusti	SYSE	M.E.	Completed
Dharanjay Dhamdhere	SYSE	M.E.	Completed
Ravikumar Radhakrishanan	ISE	M.E.	Completed
Yogesh Bajaj	ISE	M.E.	Completed
Gautam Vibuthe	ISE	M.E.	Completed

In all, I have served on 74 Ph.D. committees and 51 Masters committees at Virginia Tech.

AT THE OHIO STATE UNIVERSITY

Served on over 10 M.S. and 10 Ph.D. Committees.

Service to Profession

• **Offices in Professional Organizations and Dates**

Program Chairman, for the Special Interest Group in Manufacturing of the *Operations Research Society of America* (1992-93); organized 12 sessions for the Chicago Meeting, May 16-19, 1993.

Program Chairman, for the Special Interest Group in Manufacturing of the *Operations Research Society of America* (1992-93); organized 15 sessions for the San Francisco Meeting, November 3-5, 1993.

Program Chairman, Facilities Planning Division, *Institute of Industrial Engineers*, organized all papers in this track for presentation at the Toronto Conference; 1988-89.

Research and Membership Cluster Chairman, *Operations Research Division*, *Institute of Industrial Engineers*, 1988-90.

Chairman, National Council of Engineering Examiners Questions for Professional Engineers Examination, *IIE-OR Division*, 1983-84.

Abstracter, *OR/MS Abstracts*, 1982-84.

Member, *Operations Research Society of America* Membership Committee, 1979-82, designed and conducted a national membership survey.

Secretary, *Institute of Industrial Engineers Columbus Chapter No. 1*, 1980-81.

Division Affairs Chairman, *Institute of Industrial Engineers Columbus Chapter No. 1*, 1979-1983.

- **Editorships of Journals**

  Member of Editorial Board, *International Journal of Planning and Scheduling*, 2011-present.

  Area Editor of Production Planning and Scheduling, *Computers and Industrial Engineering*, (2000-present).

  Co-editor of a special issue on "Novel Approaches for Semiconductor Manufacturing," *International Journal of Production Planning and Control*, 2009

  Member of the Editorial Advisory Board, *International Journal of Agile Management Systems*, (1999-2005).

  Associate Editor, Scheduling and Logistics, *IIE Transactions*, (1992-1998).

  Co-editor of a special issue on Scheduling and Logistics, *IIE Transactions*, 1992.

  Member of the Editorial Board, *International Journal of Production Planning and Control*, (1988-2008).

  Associate Editor, *IIE-OR Division Newsletter*, 1981-83.

- **Paper Reviewing**

  Management Science
  Operations Research
  IIE Transactions
  Naval Research Logistics Quarterly
  International Journal of Production Planning and Control
  International Journal of Production Research
  Computers and Industrial Engineering
  Canadian Journal of Operations Research and Information Processing
  Large Scale Systems Theory and Applications
  Annals of Operations Research
  International Journal of Production Economics
  European Journal of Operational Research
  Journal of Scheduling
  Decision Sciences
  Computer and Operations Research
  Kuwait Journal of Science and Engineering
  Industrial Engineering Research Conference
  International Journal of Planning and Scheduling
  Biofuels Journal

  Proposal Reviewing

  Member, National Science Foundation Panel to Review Proposals (1993).

  Member, National Science Foundation Panel to Review Proposals (2000).

  Member of Review Panel, Texas Higher Education Coordinating Board (2001).

Member, National Science Foundation Review Panel, Distinguished Teaching Scholar Program (2004).

Member, National Science Foundation Review Panel, MES CAREER Awards Program (2008).

Chairmanship of Technical Sessions at Professional Meetings

Track Chair, 8th Indian Sub-Continent Decision Sciences Institute Conference, Pune, India, January 2-4, 2015.

Invited to serve on a Panel on " Publishing in Top-tier Journals," 8th Indian Sub-Continent Decision Sciences Institute Conference, Pune, India, January 2-4, 2015.

Chair, Scheduling and Optimization Session, IFAC MIM Conference, Saint Petersburg, Russia, June 21-23, 2013.

Session Moderator for Facilities Design and Material Handling at the *17th International Conference on Production Research*, Blacksburg, VA, August 3-7, 2003.

Keynote Speaker, 5th International Conference on Production Engineering and Design for Development, Cairo, Egypt, 1998.

Chairman, Bicriteria Scheduling, *INFORMS*, Dallas, Texas, November, 1997.

Chairman, Bicriteria Scheduling Problem, *INFORMS*, Atlanta, November, 1996.

Chairman, Layout Planning, at the *13th International Conference on Production Research*, Jerusalem, Israel, August 1995.

Chairman, Scheduling and Lot Sizing, *Joint National ORSA/TIMS Meeting* in Chicago, May 16-19, 1993.

Chairman, Different Perspectives of Research in CIMS, Las Vegas, May 1990. (Organized this session and invited speakers from industry and academia.)

Chairman, Scheduling, *Joint National ORSA/TIMS Meeting*, Vancouver, British Columbia, May 1989.

Chairman, Production Scheduling 2, *EURO IX, TIMS XXVIII Joint International Conference*, Paris, France, July 1988.

Chairman, Production Planning, *EURO IX, TIMS XXVIII Joint International Conference*, Paris, France, July 1988.

Chairman, Activity Scheduling II, *First International Workshop on Project Management and Scheduling*, Lisbon, Portugal, July 1988.

Chairman, Assembly Line Balancing, *Joint National ORSA/TIMS Meeting*, New Orleans, LA, 1987.

Chairman, Scheduling and Loading Problems in Flexible Manufacturing Systems, *Joint National ORSA/TIMS Meeting*, Los Angeles, CA, 1986.

Chairman, Scheduling in FMS Session, *Joint National ORSA/TIMS Meeting*, Atlanta, GA, 1985.

Chairman, Mathematical Approaches in Automated Manufacturing, *Joint National ORSA/TIMS Meeting*, Boston, MA, 1985.

Chairman, Two Production Scheduling Sessions, *Joint National ORSA/TIMS Meeting*, Chicago, IL, 1983.

Chairman, Production Scheduling Session, *Joint National ORSA/TIMS Meeting*, San Diego, CA, 1982.

Chairman, Assembly Line Balancing Session, *Joint National ORSA/TIMS Meeting*, Detroit, MI, 1982.

External Examiner

Ph.D. Dissertation, University of British Columbia, Canada, 2012.

For a book entitled, "Algorithms for Sequencing and Scheduling," for publication consideration by the King Saud University, Kingdom of Saudi Arabia, 2012.

Ph.D. Dissertation in the School of Electrical and Electronics Engineering, Nanyang Technical University, Singapore, 2006.

Ph.D. Dissertation in the Graduate Program in Operations Research, North Carolina State University, March 1998.

Ph.D. Dissertation in the Department of Industrial Engineering, University of Windsor, Windsor, Ontario, Canada, 1996.

Ph.D. Dissertation in the Department of Industrial Engineering, University of Windsor, Windsor, Ontario, Canada, 1992.

Visiting Professor

King Mongkut's Institute of Technology, Bangkok, Thailand, 2005, (invited as an expert in Manufacturing Systems Engineering to visit several academic units in Thailand to give talks and offer advice to improve their research program).

Ain Shams University, Cairo, Egypt, June 2000.