

## CURRICULUM VITAE

**Name :** Dr Pradip Kumar Ray

1. (a) **Present Position:** Professor

Department of Industrial and Systems Engineering  
Indian Institute of Technology Kharagpur  
Kharagpur 721 302, India

(b) **Address for Correspondence:**

Professor  
Department of Industrial and Systems Engineering  
Indian Institute of Technology Kharagpur  
Kharagpur 721 302 India  
Tel +91 3222 283742 (O)  
+91 3222 283743, 278181 (R)  
Fax +91 3222 255303/282700  
e-mail : pkr@vgsom.iitkgp.ernet.in  
pkr@hijli.iitkgp.ernet.in  
pkray2010@gmail.com  
pkray25@yahoo.co.in

2. **Educational Attainments:**

- (i) Passed BE (Mechanical Engineering) in 1979 with First Class (79%) from B. E. College (under Calcutta University), Shibpur, State of West Bengal, India.
- (ii) Passed M. Tech (IE and OR) in 1981 from Indian Institute of Technology, Kharagpur, India.
- (iii) Passed 2-year Graduate Diploma in Materials Management (part-time) in 1985 with First Class from Indian Institute of Materials Management, Calcutta.
- (iv) Obtained PhD (in Engineering) in 1991 from the Department of Industrial Engineering and Management, Indian Institute of Technology, Kharagpur, India.

3. **Professional, Teaching, and Industrial Experience:**

(a) **Employment:**

- (i) Head, Department of Industrial Engineering and Management, Indian Institute of Technology, Kharagpur, India during September, 2006 to August, 2009.
- (ii) Vice-Chairman of IIT Joint Entrance Examination of the year 2006 (JEE-2006) during 2005-06.
- (iii) Professor in the Department of Industrial Engineering and Management, Indian Institute of Technology, Kharagpur, India since August, 2004.

- (iv) Associate Professor in the Department of Industrial Engineering and Management, Indian Institute of Technology, Kharagpur, India from July, 1997 to July, 2004.
- (v) Associate Professor in the Department of Industrial Engineering, Eastern Mediterranean University, Cyprus from August, 1998 to July, 2000.
- (vi) Assistant Professor in the Department of Industrial Engineering and Management, Indian Institute of Technology, Kharagpur, India from August, 1991 to June, 1997.
- (vii) Lecturer in the department of Industrial Engineering and Management, Indian Institute of Technology, Kharagpur, India from March, 1989 to July, 1991.
- (viii) Senior Industrial Engineer at the General Electric Company (GEC) of India Ltd., Calcutta from August, 1981 to February, 1989.

**(b) Teaching Experience:**

- (i) Teaching the courses of Industrial Engineering, such as Quality Design and Control, Management of Inventory Systems, Simulation, Production Design and Process Planning, Human Factors Engineering, and Engineering System Safety Design and Control (at B.Tech. level), and Work System Design, Operations Management, TQM and ISO9000, and Management and Productivity (at B.Tech. and M.Tech levels) for the students at the Department of Industrial Engineering and Management, Indian Institute of Technology, Kharagpur, India.
- (ii) Taught the courses of Industrial Engineering, such as Fundamentals of Work Study and Ergonomics, Quality Engineering, and Systems Modeling and Simulation (at BS level), and Design and Analysis of Experiments, Production Planning and Scheduling, and Inventory Theory (at MS level) for the students of Industrial Engineering at Eastern Mediterranean University, Cyprus.
- (iii) Designing and supervising practical laboratory classes on (a) Quality Design and Control, and (b) Work System Design and Human Factors Engineering with the use of a number of human modelling software, such as JACK and SIMI (at the department of Industrial Engineering and Management, Indian Institute of Technology, Kharagpur for both undergraduate and graduate levels), and Work study and Ergonomics (at the department of Industrial Engineering, Eastern Mediterranean University for undergraduate level).
- (iv) Actively engaged in the development of laboratories in the field of Industrial Engineering, in general, and Work Study and Ergonomics, and Quality Control, in particular. Experiments on Kanban Production System Simulator, Acceptance Sampling Simulator, Process Control Charting, Component Life Testing, Treadmill, Ergometer, Anaesthetic Gas Monitor, Depth Perception, Eye-Hand Coordination, Human Body Vibration, Sound/Noise level Measurements, and Automated Inspection/Quality Control. have already been developed under active guidance (at IEM department, IIT, Kharagpur). A number of exercises and experiments on Method Study, Work Measurement, and Ergonomics have been designed and included in the course on Work System Design and Ergonomics, and a number of exercises and experiments on measurement and analysis of Heat Stress, Noise,

Vibration, Illumination, etc. and on Work Measurement had been planned and implemented at IE department, of Eastern Mediterranean University).

- (v) Industrial consultancy on demand from manufacturing and other organizations in the areas of Lean Engineering and Management, Turn-Around Strategies, Techno-Economic Feasibility of New Products, Design of Material Handling System in Supply Chain, Quality Engineering and Management, Productivity Management, Industrial Ergonomics, Manpower Planning, Operations Management, Layout Planning, etc. (**A list of consulting assignments already undertaken is attached**).
- (vi) Guidance on specific IE, Management, and OR-related project assignments for the B. Tech, M. Tech, and MS students.

Number of B. Tech. Projects guided: 66 + 5 (ongoing)

Number of M.Tech./M.S. Projects guided: 107 + 6 (ongoing)

- (vii) Research in the areas of Process Optimization, Manufacturing Productivity Measurement and Evaluation, New Product Development, Supply Chain Management Quality Control and Engineering/Management, Total Quality Management, Manufacturing Flexibility, Operations Management, Knowledge Management, Railway Signaling Systems, Ergonomic Design of MMH in Construction, Ergonomic Design of Enclosed Worksystems including Work Stress Modelling for EOT crane operators,, Optimization of Healthcare Systems, Environmental Performance Measurement and Management for Industries, Service Performance Measurement and Evaluation (**guidance of PhD research work**)
- (viii) Organizing and coordinating short-term courses in the IE and related areas on request from the industries/institutes for the executives, professional managers, officers, and engineers. The following courses have been organized:

1. Short Term Course on Industrial Engineering (for Railway Officers): December 2-11, 1991.
2. Short Term Course on Industrial Engineering (for Railway Officers): November 23-December 4, 1992.
3. All India Students' Convention on Industrial Engineering: March 25-26, 1995.
4. Awareness Programme on TQM and ISO9000: September 11-12, 1995.
5. Workshop on TQM in Technical Institutions: April 25-27, 1996.
6. Awareness Programme on Operations Management for Telecom Officers, June-July, 1996.
7. Awareness Programme on Operations Management for Telecom Workers for a period of 10 days during June-July, 1996.
8. In-House Training Programme on SPC for the officials of TISCO (Bearing Division), Kharagpur for a period of 10 days during June-August, 1996.
9. In-House Training Programme on SPC Techniques for the officials of Tata-Metaliks Ltd., Kharagpur : November 7-8, 1997.

10. In-House Training Programme on Quality Assurance for the officials of Hindustan Aeronautics Ltd., Koraput Division : December 12-13, 1997.
11. Training Programme on Tools and Techniques for Quality Control and Management in Manufacturing Organizations for Managers and Officers in Industries: Calcutta, May 16-17, 1998.
12. QIP Short Course on Operations Management at IIT, Kharagpur, May, 2001.
13. Summer Programme on Advanced Engineering: Module 4-Quality Engineering, Department of ME, IIT, Kharagpur, June 21-27, 2001.
14. Training Programme on Ergonomics for TISCO Personnel at Jamshedpur for three batches during June 26-28, July 16-18, and August 19-21, 2002.
15. Ergonomics Training Programme for Management Personnel of Sukinda Chromite Mines of Tata Steel at Sukinda, Orissa during November 14-16, 2003.
16. Principal Coordinator for QIP Short-Term Course on “Ergonomics/Human Factors Engineering: Concepts and Application in Worksystem Design” at IIT, Kharagpur during February 7-11, 2005.
17. Executive Development Programme for IE Department of the Singareni Collieries Co. Ltd. at Ramagundam, Andhra Pradesh, India during October, 2005.
18. Principal Coordinator for Short-Term Course on “Six Sigma Fundamentals and Applications” for industry participants at IIT Kharagpur Extension Centre, Calcutta during December 11-15, 2006.
19. Principal Coordinator for AICTE-sponsored QIP Short-Term Course on “Total Quality Management in Service Organizations” at IIT Kharagpur during March 22-26, 2007.
20. Principal Coordinator for Indian Railways-sponsored 4-week duration Training Programme on Materials Management for Probationary Officers of Indian Railway Stores Service at IIT Kharagpur during June 11 to July 6, 2007.
21. Principal Coordinator for Tata Steel-sponsored 12-week duration Training Programme on Industrial Safety Engineering for Tata Steel Officials at IIT Kharagpur during May 12 to August 8, 2008.
22. Principal Coordinator for Training Programme on Fundamentals of Lean Engineering Concepts for IAF Officials at IIT, Kharagpur during September 1-12, 2008.
23. Principal Coordinator for Tata Steel-sponsored 12-week duration Training Programme on Industrial Safety Engineering for Tata Steel Officials at IIT Kharagpur during June 22 to September 11, 2009.
24. Principal Coordinator for Tata Steel-sponsored 9-week duration Training Programme on Industrial Safety Engineering for Tata Steel Officials at IIT Kharagpur during May 24 to July 23, 2010.
25. Coordinator for Short-Term Course on ‘Six Sigma Fundamentals and Applications’ for Industry Participants at IIT Kharagpur during November 8 to 11, 2010.

26. Principal Coordinator for Short-Term Training Programme on ‘Statistical Process Control for Industry Professionals’ at IIT Kharagpur Extension Centre, Salt Lake City, Calcutta during July 23 to 24, 2011.
27. Coordinator for Short-Term Course on ‘Industrial Safety Engineering’ for Industry Participants at IIT Kharagpur during August 11 to 13, 2011.
28. Coordinator for Management Development Programme on ‘Total Quality Management’ for Industry Participants at IIT Kharagpur Extension Centre, Salt Lake City, Calcutta during September 16 to 18, 2011.
29. Principal Coordinator, Training Programme on Safety Competence Building in Material Handling for Tata Steel Officials at Tata Steel Limited, Jamshedpur, India during January 19 to February 22, 2012.
30. Coordinator, Workshop on Total Quality Management for Industry Professionals, sponsored by The Bengal Chamber of Commerce and Industry (BCCI) in Calcutta during May 3-4, 2012.
31. Coordinator, as CI of UKIERI-sponsored Project on ‘Climate Change Issues and Environmental Performance of SMEs in India and the UK’ of the One-Day Duration Seminar on “SME Performance – Quality and Environmental Sustainability’ for SMEs at Jadavpur University, Calcutta on September 26, 2012.
32. Coordinator and Resource Person, as CI of UKIERI-sponsored Project on ‘Climate Change Issues and Environmental Performance of SMEs in India and the UK’ of the workshop on “SME Performance – Quality and Environmental Sustainability’ for SMEs at Aston Business School, Aston University, Birmingham, UK during November 5 to 9, 2012.
33. Coordinator for Short-Term Course on ‘Industrial Safety Engineering’ for Industry Participants at IIT Kharagpur Extension Centre, Salt Lake City, Calcutta during December 21 to 23, 2012.
34. Coordinator for One-Day Workshop on ‘Asset Management for Railway Systems: Opportunities and Challenges’ at the Department of IE and M, IIT Kharagpur on February 1, 2013.
35. Coordinator of One-Day Interaction Meet on ‘UKIERI-sponsored Project on Environmental Performance of Industries’ at the Department of IE and M, IIT Kharagpur on August 2, 2013.
36. Coordinator of Three-Day Duration Short-Term Course on ‘Continuous Improvement and Process Excellence’ for LMW Executives at LMW Limited, Coimbatore during September 9-11, 2013.
37. Coordinator and Resource Person, as CI of UKIERI-sponsored Project on ‘Climate Change Issues and Environmental Performance of SMEs in India and the UK’ of the workshop on “SME Performance – Quality and Environmental Sustainability’ for SMEs at Aston Business School, Aston University, Birmingham, UK during March 10 to 14, 2014.
38. Principal Coordinator of Three-Day Duration Short-Term Course on ‘Musculoskeletal Disorder and Workplace Stress Management’ for industry professionals, jointly organized by IIT Kharagpur and CII-Eastern Region at IIT Kharagpur Extension Centre, Calcutta during May 9-11, 2014.

39. Principal Coordinator, ISWT on Engineering Asset Management, IIT Kharagpur, India during June 9-20, 2014
40. Principal Coordinator, One-Day Workshop on Asset Management, organized by the Department of Industrial and Systems Engineering, IIT Kharagpur at Ramakrishna Mission Institute of Culture, Calcutta on August 25, 2014.
41. Principal Coordinator, One-Day Workshop on Exploratory Data Analysis (EDA), organized by the Department of Industrial and Systems Engineering, IIT Kharagpur on March 14, 2015.
42. Coordinator and Resource Person, as CI of UKIERI-sponsored Project on 'Climate Change Issues and Environmental Performance of SMEs in India and the UK', of the interaction meet on "Development of Environmental Performance Management Framework for Indian and UK SMEs" at Aston Business School, Aston University, Birmingham, UK during June 10 to 14, 2015.
43. Principal Coordinator of Two-Day Duration Short-Term Course on 'Musculoskeletal Disorder and Workplace Stress Management' for Industry Professionals, jointly organized by IIT Kharagpur and CII-Eastern Region at IIT Kharagpur Extension Centre, Calcutta during July 10-11, 2015.
44. Principal Coordinator (with Prof K K Ghosh) of Knowledge Dissemination Programme on 'Service Operations Management' organized at CET NKN Studio, IIT Kharagpur during September 4-6, 2015.
45. Principal Coordinator, ISWT/GIAN on Ergonomics and Human Factors Engineering, IIT Kharagpur, India during December 7-18, 2015.
46. Principal Coordinator, GIAN Course on Production and Operations Management, IIT Kharagpur, India during May 23 - June 3, 2016.

**(c) Academic Assignments and Professional Responsibilities for Academic Institutions, Organizations and Industries:**

The various assignments and responsibilities undertaken are as follows:

1. Development of Inventory Management System for Medicines in the Hospital of TELCO, Jamshedpur, India as M. Tech. Project assignment during January-June, 1981.
2. Development of work standards, incentive schemes, and synthetic company standards for the machine, fabrication, and assembly shops, employing about 1000 employees, at GEC of India Ltd., Calcutta during 1981-89.
3. Development and implementation of Productivity Management Systems for Manufacturing and Office activities of GEC of India Ltd., Calcutta as a part of Ph. D. research programme during 1988-90.

4. Development and implementation of productivity management systems for maintenance function of TISCO, Jamshedpur, India as a part of consulting work undertaken during 1988-90.
5. Work Study and Manpower Assessment of the administrative staff, including hospital personnel, of IIT, Kharagpur leading to productivity improvement in office and hospital activities during June,1992 to August,1994.
6. Productivity Studies and Manpower Assessment of production and administrative functions and activities (plant-wise, department-wise, and category of staff-wise) of IMFA, Bhubaneswar, India employing about 5000 employees as a part of consulting work undertaken during July,1992 to September,1993.
7. Participated in APO-run PROMIS training course on production management held in Tokyo, Japan during August-September,1990.
8. Completed the Lead Assessor Course for ISO9000, conducted by Quality Management International, in Calcutta during April 4-7, 1994.
9. Acted as a member of Review Committee for Manpower Structure Development for Telecom Factory, Kharagpur during September,1995 to April,1996.
10. Participated in training course on Achieving World Class Status using MBNQA Criteria, conducted by IOD, in Calcutta in February,1997.
11. Participated as a resource person in a number of training courses for working industrial personnel (of Coal India, LIC, etc) conducted by professional bodies and institutions.
12. External Examiner for a number of Graduate Projects and Theses of educational institutes of repute (like ISM, RECs, JU, etc.); and question paper setter for courses like Industrial Engineering, Production Management, Human Factors, Total Quality Management, Quality Function Deployment, etc. for universities, institutes and Institution of Engineers (India) at the undergraduate and graduate levels.
13. Training and Placement In-charge of IEM department, IIT, Kharagpur during 1996-98, and from August, 2000 to July, 2002.
14. Member, Continuing Education Committee of IIT, Kharagpur from October,1997 to August,1998.
15. Participated as a resource person in a number of entrepreneurship development programmes for small and medium scale industries.
16. Participated as a resource person at Ergonomics Facilitators' Meet Cum Seminar at Tata Steel, Jamshedpur during April 2-3, 2002.
17. Participated in workshop on IPR and Technology Transfer at IIT, Kharagpur in April, 2002.
18. Participated as an instructor and resource person on value analysis, quality control, TQM, and ISO 9000 for Small Industry Management Programme (SIMAP) at IIT, Kharagpur in April-May, 2002.
19. Participated as an instructor and resource person on business process reengineering, value engineering, productivity optimization methods, and maintenance management for Analytical Skill Development Programme for ACC Managers at IIT, Kharagpur in June-July, 2002.

20. Participated as a panel member in panel discussion on “Engineering Management Education and its Future” at 9<sup>th</sup> Asia-Pacific Conference of Engineering Management Educators held at Brisbane, Australia during October 7-8, 2002.
21. Participated as a resource person on ergonomics and quality control for the participants in Short Term Training Programme on Operations Management at BIT, Mesra, Ranchi during December 16-27, 2002.
22. Guest Speaker and Session Chair of the panel discussion on “Engineers in the present scenario of unemployment” at Jorhat Engineering College, Jorhat, Assam in April, 2003.
23. Participated as a resource person on Productivity and Method and Time Study for the participants in Short Term Course on Quality and Productivity Tools for Library Management, IIT, Kharagpur during June 26-30, 2003.
24. Participated as a resource person on Productivity and Capacity Utilization of Mining Machinery for the participants in Short Term Course on Mining Machinery: Maintenance and Capacity Utilization, IIT, Kharagpur during August 25-27, 2003.
25. Resource person on ERP for PGDIT students of IIT, Kharagpur from Spring Semester, 2004. to 2008.
26. Member, Technical Committee of Asia-Pacific Industrial Engineering and Management Systems Conference, 2004 to be held at Gold Coast, Australia during December 12-15, 2004
27. Visiting Professor for the MBA Programme at the University of the South Pacific, Laucala Campus, Suva, Fiji Islands during May-July, 2004.
28. Resource Person for QIP Short Term Course on Quality and Productivity Tools for Library Management, IIT, Kharagpur during June 21-25, 2004.
29. Resource Person for Workshop on Data Analysis and Modelling at IIT, Kharagpur during September, 2004.
30. Guest Lecturer for Worksystem Design course for M.Tech. (IE) students at Gandhi Institute of Engineering and Technology, Gunupur, Orissa, India during December 7-10, 2004.
31. Invited Lecture at Workshop on Current Advances in Productivity Management under Technical Education Quality Improvement Programme at Department of Production Engineering, Jadavpur University, Calcutta in July, 2005.
32. Resource Person for QIP Short Term Course on Forecasting Techniques in Business and Industry, IIT, Kharagpur during December 12-18, 2005.
33. Guest Lecturer for Short Course on Management of Men and Materials in Construction at Ramakrishna Vivekananda Mission-Institute of Advanced Studies, Calcutta during March 11-12, 2006.
34. Guest Lecturer for Worksystem Design course for M.Tech. (IE) students at Gandhi Institute of Engineering and Technology, Gunupur, Orissa, India during October 12-14, 2006.
35. Expert Committee Member for National Board of Accreditation of AICTE for VIT, Pune, India during October 6-8, 2006.

36. Participated as Member, Research Council of Gandhi Institute of Engineering and Technology, Gunupur, Orissa, India during October 13-14, 2006.
37. Guest Lecturer for Worksystem Design course for M.Tech. (IE) students at Gandhi Institute of Engineering and Technology, Gunupur, Orissa, India during December 17- 20, 2006.
38. Expert Committee Member for National Board of Accreditation of AICTE for Manipal Institute of Technology, Manipal, Karnataka, India during January 19-21, 2007.
39. Invited Participant to a three-day Programme on Creativity, called ALCHEMY LAB, organized by British Council in Calcutta during January 22-24, 2007.
40. Expert Committee Member for National Board of Accreditation of AICTE for Siddaganga Institute of Technology, Tumkur, Karnataka, India during April 26-28, 2007.
41. Expert Committee Member for National Board of Accreditation of AICTE for Dr Ambedkar Institute of Technology, Bangalore, Karnataka, India during June 16-18, 2007.
42. Member of Faculty Selection Committee for West Bengal University of Technology, Calcutta in July, 2007.
43. External Examiner for M.Tech. Project Work at Gandhi Institute of Engineering and Technology, Gunupur, Orissa in August, 2007.
44. Resource Person for Short-Term Course on Project Management for Management/Engineer Trainees of McNally Bharat Engineering Company Limited, Calcutta during August 27-31, 2007 in Calcutta.
45. Member of Faculty Selection Committee for West Bengal University of Technology, Calcutta in February, 2008.
46. Expert Committee Member for National Board of Accreditation of AICTE for Shri Ramdeobaba Kamala Nehru Engineering College, Nagpur during April 11-13, 2008.
47. Expert Committee Member for National Board of Accreditation of AICTE for Bapuji Institute of Engineering and Technology, Davangere, Karnataka during March 28- 30, 2008.
48. Member of Faculty Selection Committee for Indian Statistical Institute, Calcutta in April, 2008.
49. External Examiner of Ph.D. Viva Voce at National Institute of Technology, Rourkela, Orissa in May, 2008.
50. Resource Person for Short-Term Course on Advanced Reliability Engineering for DRDO officials at IIT, Kharagpur during June 16-27, 2008.
51. Resource Person for UGC-sponsored Refresher Course on Advances in Engineering Management organized at Production Engineering Department, Jadavpur University, Calcutta, India during June 26 – July 16, 2008.
52. Resource Person for Short-Term Course on Project Management for Management/Engineer Trainees of McNally Bharat Engineering Company Limited, Calcutta during August 11-16, 2008 in Calcutta.

53. Resource Person for Short Term Course on PLM and PDM for DRDO officials at IIT, Kharagpur during August 18-29, 2008.
54. Invited Guest Speaker on Industrial Safety Management on Safety Day at DRDO, Proof and Experimental Establishment, Chandipur, Balasore, Orissa in March, 2009.
55. Guest Editor, Special Issue of Int. Journal of Productivity and Quality Management on *Achieving Excellence through Quality and Productivity Improvement*, Vol. 4, No.5-6, 2009.
56. **Reviewer of Papers published in International and National Journals, such as Transactions on Neural Networks, Int. Journal of Productivity and Quality Management, Indian Foundryman Journal, Int. Journal of Reliability and Safety, Computer and Industrial Engineering, International Journal of Intelligent Manufacturing, World Applied Sciences Journal, Journal of Intelligent Manufacturing, Safety Science, International Journal of Management Science and Engineering Management, IEEE Transactions on Systems, Man and Cybernetics: Systems, Applied Mathematical Modelling, International Journal of Production Research, etc.**
57. Member of Review Committee for Faculty Promotion at Indian Statistical Institute, Calcutta in April, 2009.
58. Delegate as Paper Presenter at 22<sup>nd</sup> Int. Congress COMADEM 2009, San Sebastian, Spain in June, 2009.
59. Resource Person for UGC-sponsored Refresher Course on 'Reliability, Availability and Maintainability (RAM) Engineering in Industries' organized at Production Engineering Department, Jadavpur University, Calcutta, India during June 22 – July 11, 2009.
60. Invited Expert Speaker on "Implementation of Lean Engineering Practices in Organizations" at National Conference on Advancing Trends in Engineering and Management Technologies (ATEMT-09) at SRKN Engineering College, Nagpur, India in November, 2009.
61. External Examiner of MTech projects at GIET, Gunupur, Orissa in December, 2009.
62. Chairperson of the Session on 'Brand Bollywood' at Shastri Indo-Canadian Institute Sponsored Multidisciplinary International Seminar on Bollywood's Soft Power at IIT, Kharagpur during December 14 to 15, 2009.
63. Member of Advisory Committee for National Conference on Recent Advances in Manufacturing Technology and Management (RAMTH-10) at Jadavpur University, Calcutta in February, 2010.
64. Resource Person for Short Term Course on Reconfigurable Manufacturing Systems (RMS) for AICTE-sponsored Engineering College Teachers at IIT, Kharagpur during February 15 to 19, 2010.
65. Member of Review Committee for Faculty Promotion at Indian Statistical Institute, Calcutta in March, 2010.
66. Invited Key-Note Speaker on 'Design for Safety' and presented research seminar on 'Ergonomic Performance Management' and 'Lean Engineering Modelling and Practices' at Conference and Technical Workshop on Asset

Management and Maintenance (CAMM-2010) held at Central Queensland University, Gladstone, Australia during March 16-26, 2010. Also, participated, as a panel member, in a panel discussion on 'Future Trends of Asset Management in Industries' at the said conference.

67. Invited Speaker on 'Boost Economy – Leveraging SCM Techniques' at IIMM, Calcutta in April, 2010.
68. Invited Speaker at 25<sup>th</sup> National Convention of Production Engineers and National Seminar on 'Recent Developments in Manufacturing Technology' organized by The Institution of Engineers (India) at Agartala, Tripura during May 8-9, 2010.
69. Resource Person for UGC-sponsored Refresher Course on 'Soft Computing Applications in Decision Technology' organized at Production Engineering Department, Jadavpur University, Calcutta, India during June 28 – July 17, 2010.
70. Invited Expert Speaker on 'Optimal Output from Workforce with Ergo Interventions' at Symposium-cum-Exposition on Safety and Health, organized by Tata Steel, Jamshedpur during July 19-20, 2010.
71. Member of Faculty Selection Committee for West Bengal University of Technology, Calcutta in August, 2010.
72. Member of Review Committee for Faculty Promotion at Indian Statistical Institute, Calcutta in September, 2010.
73. Invited Expert at Review Committee Meeting for Curriculum of Production and Industrial Engineering at NIT, Agartala, India during October 8 to 9, 2010.
74. Invited Special Lecture on Safety Engineering at Safety Symposium and Exposition organized by Confederation of Indian Industry in Calcutta during November 24-25, 2010.
75. Resource Person for Industry Professional Training Programme on Lean Manufacturing at Department of IE and M, IIT Kharagpur during December 3-6, 2010.
76. Invited Special Lecture on 'Issues in Quality Design and Control in Manufacturing/Production Systems' at National Conference on Recent Trends and Advances in Eco-Friendly Operation of Plant Machineries, Automobile and Material Handling System (NCREPMA-2011) at Mallabhum Institute of Technology, Bishnupur, West Bengal during January 29-30, 2011.
77. Member of Review Committee for Faculty Promotion at Indian Statistical Institute, Calcutta in March, 2011.
78. Member of GD/PI Board for MBA admission at VGSOM, IIT, Kharagpur during March-April, 2011.
79. Nominated Member of Board of Studies as Subject Expert in Industrial Engineering for a period of two years for SRKN Engineering College, Nagpur, India in May, 2011.
80. Member of PI Board for Joint MTech/MCP-PhD programme, 2011-2012 at IIT, Kharagpur in May, 2011.
81. Member of Nomination Panel for INFOSYS Prize by Infosys Science Foundation since the year 2010.

82. Resource Person for QIP Short Term Course on Decision Modeling in Facility Planning for AICTE-sponsored Engineering College Teachers at IIT, Kharagpur during July 4 to 8, 2011.
83. Reviewer of Submitted Papers to the Second International Conference on Services in Emerging Markets (ICSEM-2011) at SJM School of Management, IIT Bombay, Mumbai during September 29 to October 1, 2011.
84. Resource Person to teach TQM module for Post-Graduate Studies Programme at Papua New Guinea University of Natural Resources and Environment, Rabaul, Papua New Guinea during November 21 to 25, 2011.
85. Member of Review Committee for Faculty Promotion at Indian Statistical Institute, Calcutta in December, 2011.
86. Chair for the session 'Lean, Agile and Flexible Manufacturing' at the International Conference in Supply Chain and Manufacturing Management (ASCMM-2011) organized by Department of Industrial Engineering and Management, Indian Institute of Technology Kharagpur, Kharagpur, India during December 16 to 18, 2011.
87. Delegate as Paper Presenter at 18<sup>th</sup> World Congress on Ergonomics (IEA 2012), Recife, Brazil, February 12-16, 2012.
88. Member of Faculty Selection Committee for Dr B R Ambedkar National Institute of Technology, Jalandhar, India in March, 2012.
89. Visiting Fellow under DSA-I (2011-16) programme on Environmental Management of University Grants Commission, New Delhi at University of Calcutta, Calcutta in March, 2012.
90. Member of Expert Visiting Committee (EVC) of AICTE for assessing MBA/MCA programmes of Management Institutes in April, 2012.
91. Member of PI Board for Joint MTech/MCP-PhD programme, 2012-2013 at IIT, Kharagpur in May, 2012.
92. Invited Seminar Talk on Ergonomics, Lean Engineering, and Injury and Accident Research at The Department of Industrial Management, National Taiwan University of Science and Technology (NTUST), Taipei, Taiwan (ROC) during May 15-18, 2012.
93. Member of Review Committee for Faculty Promotion at Indian Statistical Institute, Calcutta in May, 2012.
94. Invited Member of Technical Advisory Committee (TAC) of SQC & OR Division, Indian Statistical Institute, Calcutta in June, 2012.
95. Invited Resource Person to teach TQM module for Post-Graduate Studies Programme at Papua New Guinea University of Natural Resources and Environment, Rabaul, Papua New Guinea during June 18 to 22, 2012.
96. Invited Member of Selection Committee for JRF (Research Scholar) in SQC & OR unit of Indian Statistical Institute, Calcutta in June, 2012.
97. Invited Resource Person to teach 'Kaizen in Professional Life' for Refresher Course on 'Inner Engineering: Opportunities & Challenges' organized by Production Engineering Department, Jadavpur University, Calcutta in July, 2012.
98. Invited Resource Person to lecture on 'Design for Safety' and 'Ergonomics' for the participants to CII-sponsored Safety Management Course organized

by Mechanical Engineering Department, Jadavpur University, Calcutta in September, 2012.

99. Invited Member of Selection Committee for Faculty in School of Engineering at Indian Institute of Technology Indore, Indore in September, 2012.
100. Invited Guest of Honour at Industry Academia Leadership Summit at the Central University of Rajasthan, Bandar Sindri, Rajasthan during January 24-25, 2013.
101. Invited Talk on 'Leadership Excellence – Role of Human Asset' at Industry Academia Leadership Summit at the Central University of Rajasthan, Bandar Sindri, Rajasthan during January 24-25, 2013.
102. Invited Resource Person to lecture on 'Statistics: Concepts and Methods', 'DOE: Concepts and Methods' and 'Robust Design and Taguchi Method' for the RDSO participants to Certificate Course on 'Statistics for Practicing Engineers' at Metallurgical and Material Engineering Department, Jadavpur University, Calcutta during February 18-20, 2013.
103. Invited Prof S K Sorkhel Memorial Lecture on 'Analytics in Manufacturing/Production Systems: Opportunities and Challenges' at Production Engineering Department, Jadavpur University, Calcutta on February 26, 2013.
104. Invited National Safety Day Lecture on 'Safety Culture: Major Issues and Challenges' at PXE, DRDO, Chandipur, Balasore, Orissa on March 4, 2013.
105. Invited Member of Selection Committee for PhD candidates at Mechanical Engineering Department, Jadavpur University, Calcutta on March 5, 2013.
106. Resource Person at the Workshop on UKIERI-sponsored Project on 'Climate Change Issues and Environmental Performance of SMEs in India and the UK' at Mechanical Engineering Department, Jadavpur University, Calcutta on March 5, 2013.
107. Invited Resource Person to teach TQM module for Post-Graduate Studies Programme at Papua New Guinea University of Natural Resources and Environment, Rabaul, Papua New Guinea during March 18 to 22, 2013.
108. Member of GD/PI Board for MBA admission for VGSOM, IIT, Kharagpur during March 25-27, 2013.
109. Resource Person for the Training Programme on 'Safety Data Analytics' at the Department of IE and M, IIT Kharagpur during April 15-18, 2013.
110. Invited Delegate at CII-sponsored Conference on Workplace Stress Management held in Calcutta on April 30, 2013.
111. Resource Person for the QIP Short Term Course on 'Service Science for Teachers' at the Department of IE and M, IIT Kharagpur during July 8-12, 2013.
112. Invited Keynote Speaker on 'Performance Improvement of Asian Industries: Emerging Issues and Challenges' at International Conference on Managing the Asian Century (ICMAC-2013), organized by James Cook University, Singapore in Singapore during July 11-13, 2013.
113. Invited Lecture on 'Design and Development of Lean Engineering Practices' at the National Seminar on Production Planning Scheduling and Inventory

Control at JIS College of Engineering, Kalyani, West Bengal on August 29, 2013.

114. Invited Lecture on 'Multi-Response Optimization of Manufacturing Processes: Modelling and Application' and Session Chair at National Workshop – Optimization and its Application (NWOA-2013), organized by ORSI, Durgapur Chapter, at CMERI, Durgapur, West Bengal during September 13-14, 2013.
115. Invited Lecture on 'Workplace Stress and Safety: From MSME Perspectives' at SYNERGY MSME2013 (A Business Conclave of MSMEs), organized by Department of Micro & Small Scale Enterprises & Textiles, Government of West Bengal in Calcutta on September 19, 2013.
116. Invited Lecture on 'Research Issues in Industrial Engineering: Current Perspectives, Challenges and Approaches' and Panel Discussion on 'Higher Learning and Research Through Industry Participation' at Pre-Convention Workshop on Higher Learning through Research at 55<sup>th</sup> National Convention of IIIE and International Conference on October 24, 2013 in Nagpur, India.
117. Invited Lecture on 'Sustainability Assurance in Organizational Performance: What an Industrial Engineer Can Do' at Plenary Session of 55<sup>th</sup> National Convention of IIIE and International Conference on October 25, 2013 in Nagpur, India.
118. Coordinator of One-Day Workshop on 'Current Industrial Problems and Workplace Stress Management' for company executives of Moonlight Engineering Company, Calcutta, India on November 1, 2013.
119. Invited Member of Selection Committee for Faculty Positions (Assistant Professor) c at National Institute of Industrial Engineering (NITIE), Bombay on November 18-19, 2013.
120. Invited Keynote Speaker on 'Sustainability Assurance in Engineering Systems: Problems, Challenges and Approaches' at International Conference on Emerging Trends in Engineering and Management (ICETEM-2013), organized by SVIET, Mahaboobnagar, Andhra Pradesh, India during November 29-30, 2013.
121. Invited Speaker on 'Workplace Stress Management' at Workshop on Industrial Safety, organized by Confederation of Indian Industry (CII), Haldia Zonal Office at Haldia, West Bengal, India on December 20, 2013.
122. Invited Expert Lecture on 'Multi-Criteria Decision Making: An Overview of Methods and their Applications' at Workshop on Advances in Multi-Criteria Decision Making (MCDM) Techniques, organized by Production Engineering Department, NIT Agartala, Tripura during January 13-14, 2014.
123. Member of the Mentor Council in 'Manufacturing and Production' sector for ITI under Ministry of Labour and Employment, Government of India since January, 2014.
124. Invited Expert Lecture/Keynote Speaker on 'Integrated Approach to Manufacturing Excellence: Contemporary Issues and Challenges from Indian Perspective' at All India Seminar on 'Recent Advances in Manufacturing and its Management' (RAMM-14), organized by BIT, Sindri, Jharakhand during February 7-8, 2014.

125. Invited Participant at Workshop on 'Development of Courses for Productivity Practitioners in Institutes of Technology', organized by Asian Productivity Organization, at China Productivity Center, Taipei, Taiwan, ROC during May 13-16, 2014.
126. Invited Resource Person to teach 'Design of Experiment' at Training Programme on Advance Manufacturing Processes, organized by Mechanical Engineering Department, IIT Kharagpur during June 30 to July 11, 2014.
127. Invited Expert Lecture on 'Workplace Stress Management: An Integrated Approach for Indian Industries' at 8<sup>th</sup> Safety Symposium and Exposition, organized by CII-Eastern Region at ITC Sonar, Calcutta during September 11-12, 2014.
128. Invited Expert Lecture on 'Knowledge Management System: An Integrated Framework for Learning and Wisdom' at One-Day Seminar on Advancement of Technology and Geniuses of India', organized by IE(I) West Bengal Chapter in Calcutta on September 13, 2014.
129. Invited Session Chair and Special Lecture on 'Operational Excellence in Maintenance with Lean Engineering Practices' at 27<sup>th</sup> Congress on Condition Monitoring and Diagnostic Engineering Management (COMADEM-2014) held at Brisbane Convention and Exhibition Centre, Brisbane, Australia during September 16-18, 2014.
130. Invited Expert in the Faculty Selection Committee of NIT, Silchar, India in September, 2014.
131. Invited Resource Person to teach TQM module for Post-Graduate Studies Programme at Papua New Guinea University of Natural Resources and Environment, Rabaul, Papua New Guinea during October 6 to 10, 2014.
132. Invited Expert Lecture on 'Product Development System in Indian Manufacturing Firms: Methodologies, Research Issues and Challenges' at Two-Day Workshop on Product Development: Concepts, Methods and Applications' (WPD-2014) organized by Mechanical Engineering Department, Indian Institute of Engineering Science and Technology (IEST), Shibpur, India during October 16-17, 2014.
133. Invited Keynote Speaker on 'Total Performance Assurance in Asian Organizations: Opportunities and Challenges' at International Conference on Managing the Asian Century (ICMAC-2014), organized by International Centre for ASEANA Management, Singapore and hosted by Undhira University, Bali, Indonesia during November 26-28, 2014.
134. Invited Member of Technical Advisory Committee of SQC & OR Division, Indian Statistical Institute, Calcutta since November, 2014.
135. Invited Member of Syllabus Revision Committee of School of Management Sciences, Indian Institute of Engineering Science and Technology, Shibpur, India since December, 2014.
136. Resource Person for the Short-Term Course on 'Data Analytics with SAS' at the Department of Industrial and Systems Engineering, IIT Kharagpur during January 13-15, 2015.

137. Invited Evaluator of Research Work of the Faculty on Human Factors Engineering for Promotion to Professor level at King Abdulaziz University, Jeddah, Saudi Arabia in February, 2015.
138. Resource Person and Coordinator, as CI of UKIERI-sponsored Project on 'Climate Change Issues and Environmental Performance of SMEs in India and the UK' of the One-Day Duration Dissemination Workshop on Supply Chain Sustainability of SMEs in India and the UK at Jadavpur University, Calcutta on February 10, 2015.
139. Resource Person for Short-Term Course on 'Industrial Safety Engineering' for Industry Participants at IIT Kharagpur Extension Centre, Salt Lake City, Calcutta (on topics 'Blue-Print for Organization-wide Safety', 'Human Error and Safety Consideration, and 'Process Life Cycle and Safety by Design' and Participants' Learning) during February 16 to 18, 2015.
140. Invited Lecture on 'Ergonomic Design' and 'Workplace Issues' for the Short-Term Course on 'Organization and Management of Safety, Health and Environment' (OMSHE-2015), organized by Department of Mining Engineering, IIT Kharagpur during February 16-20, 2015.
141. Resource Person at International Symposium on Infrastructure Design and Management organized by RCG School of Infrastructure Design and Management, IIT Kharagpur at Hotel Hyatt Regency, Kolkata on February 28, 2015.
142. Invited Member of AICTE Re-Scrutiny Committee meeting at ERO, Kolkata in March, 2015.
143. Invited Member, Faculty Selection Committee, SR College of Engineering and Management, Nagpur, India in May, 2015.
144. Invited Member of CII-ER Education Sub-Committee during 2015-16, participation in the first meeting in May, 2015 in CII-ER office, Calcutta.
145. Member of Review Committee for Faculty Promotion at Indian Statistical Institute, Calcutta in May, 2015.
146. Invited Member of Technical Advisory Committee (TAC) of SQC & OR Division, Indian Statistical Institute, Calcutta in June, 2015.
147. External Examiner of ME Thesis. Viva Voce at Mechanical Engineering Department, Jadavpur University, Calcutta in June, 2015.
148. Resource Person for the Short-Term Course on 'Data Analytics with SAS' at the Department of Industrial and Systems Engineering, IIT Kharagpur during July 1-4, 2015.
149. Invited Expert in the Faculty Selection Committee of NIT, Silchar, India in August, 2015.
150. Selected Chief Expert for the APO-sponsored project on 'Research on Institutions Offering Productivity Courses' to be carried out by seven national experts of Asian countries for a period of one year, October 2015 to September, 2016.
151. Invited Evaluator of Research Work of the Faculty on Statistical Design of Experiment for Promotion to Associate Professor level at King Abdulaziz University, Jeddah, Saudi Arabia in September, 2015

152. Resource Person to teach TQM module for Post-Graduate Studies Programme at Papua New Guinea University of Natural Resources and Environment, Rabaul, Papua New Guinea during September 21 to 25, 2015.
153. Resource Person, as Chief Expert, for the APO-sponsored project on 'Research on Institutions Offering Productivity Courses' at the Coordination Meeting of National Experts held in Hanoi, Vietnam during October 6-8, 2015.
154. Invited Expert in the Faculty Selection Committee of Jadavpur University, Kolkata, India for Mechanical Engineering department in October, 2015
155. Member, Board of Governors (BOG) of NIT, Mizoram since October, 2015, attended BOG meeting in New Delhi in November, 2015.
156. Invited Expert in the Faculty Selection Committee of IIT, Indore, India in November, 2015.
157. Invited Session Chair at International Conference on Managing the Asian Century (ICMAC-2015), organized by International Centre for ASEANA Management, Singapore in Kuala Lumpur, Malaysia during November 18-20, 2015.
158. Invited Expert in the Faculty Selection Committee of Indian Institute of Engineering Science and Technology, Shibpur, India for School of Management Sciences in December, 2015
159. Session Chair, Process Excellence session at International Conference on 'E-Business and Supply Chain Competitiveness' (EBSCC-2016) held at IIT Kharagpur, India during February 12-14, 2016.
160. Member, Expert Committee for Academic Audit for the School of Management Sciences, Indian Institute of Engineering Science and Technology, Shibpur, India in March, 2016.
161. Invited Resource Person at the International Workshop on 'Product Design and Development' organized by Mechanical/Production Engineering Department, National Institute of Technology, Agartala, Tripura during March 11-12, 2016.
162. Invited Member, Faculty Selection Committee, SR College of Engineering and Management, Nagpur, India in May, 2016.
163. Resource Person for the APO-sponsored Workshop on 'Strengthening Institutions Offering Productivity Courses' held in Jakarta, Indonesia during May 16 - 19, 2016.
164. Invited Member of Technical Advisory Committee (TAC) of SQC & OR Division, Indian Statistical Institute, Calcutta in June, 2016.

#### **(d) Special Skills and Specialization**

- (i) Acquired necessary expertise and skills (through industrial work experience, teaching, research, consulting, and publications) in the field of Industrial Engineering and Management. The particular areas, where these expertise and skills, have been acquired, are : standards development and process planning for routine and non-routine jobs, financial incentive

schemes for industrial jobs, productivity measurement and evaluation models for manufacturing and service organizations, manpower planning models for blue and white collar jobs, application of quality control and improvement models, including DOE and RSM, in manufacturing and process industries, operations management techniques, including JIT, and human factors engineering/ergonomics and layout planning.

- (ii) **Ph.D. Work:** The dissertation is entitled as "**Studies on Some Aspects of Productivity Management for Manufacturing and Service Functions**". This work led to the study/development of (a) productivity measurement and evaluation model for multi-product multi-stage manufacturing firms, (b) relationship between productivity and other measures of organizational performance, (c) methodology to select an appropriate productivity measurement model under specified conditions, (d) current/future status of productivity management in manufacturing organizations (private and public) in India addressing important issues like productivity measurement models, achievement of productivity objectives as a corporate strategy, problems during implementation of productivity models, and action steps (short-term and long-term) required to overcome these problems through Delphi technique, (e) measurement and evaluation methodology for white collar personnel, and (f) a comprehensive service productivity measurement methodology. All these models and methodologies on productivity management have been applied and validated with the data obtained from direct and indirect activities/functions/departments of leading and well-established manufacturing companies in India.

- (iii) **Supervision of Ph.D.-level research work :** The Ph.D. dissertations are titled as

1. "Studies on Some Aspects of Quality Engineering in Production Plants", awarded in July, 1998 (**B M Dabade**).
2. "Studies on Some Aspects of Just-In-Time (JIT) Implementation in Indian Manufacturing Organizations", awarded in June, 1999 (**S S Mahapatra**).
3. "A study on Design and Implementation Aspects of Cellular Manufacturing", awarded in February, 2004 (**D Agarwal**).
4. "Modelling and Analysis of Supply Chains of Indian Manufacturing Companies", awarded in September, 2005 (**R K Ohdar**).
5. "Modelling and Optimization of Abrasive Metal Cutting Processes", awarded in August, 2007 (**I Mukherjee**).
6. "A Study on Signaling Systems of Indian Railways", awarded in March, 2008 (**S C Panja**).
7. "Studies on Some Aspects of New Product Development in Indian Manufacturing Firms", awarded in July, 2008 (**C M Krishna**).

8. “Studies on Total Quality Management in Indian Manufacturing Firms”, awarded in November, 2008 (**P Talapatra**).
9. “Automated Non-Contact Inspection of Engineering Products”, awarded in July, 2009 (**D Shome**).
10. “Modelling Risk of Occupational Injury”, awarded in August, 2010 (**Vivek Vilas Khanzode**).
11. “Studies on Flexibility in Production Systems”, awarded in April, 2011 (**Narayan Chandra Nayak**).
12. “Critical Success Factors for R&D in Indian Manufacturing Firms”, awarded in August, 2011 (**Sushanta Tripathy**).
13. “Modelling Robustness in Manufacturing Processes”, awarded in March, 2012 (**Subhas Chandra Mondal**).
14. “Studies on Some Aspects of Knowledge Management in Organizations”, awarded in March, 2012 (**Bhaskar Basu**).
15. “Evaluation and Design of EOT Crane Operator’s Job: A Macro-Ergonomic Approach”, awarded in July, 2013 (**O Bala Krishna**).
16. “Ergonomic Study of Manual Material Handling Tasks in Construction”, awarded in October, 2013 (**Ratri Parida**).
17. “Modelling and Analysis of Hospital Appointment Scheduling Systems”, awarded in February, 2016 (**Papiya Bhattacharjee**)

Currently, in the following areas, four research scholars are being supervised:

1. Inventory management problems in Healthcare System
  2. Climate Change and Environmental Performance Measurement for Manufacturing Organizations
  3. Service System Performance Modelling
  4. Ergonomics in Healthcare Systems
- (iv) **Supervision of M.Tech.-level project work** (in other areas of Industrial Engineering and Management): more than 98 in number.
- (v) **Supervision of B.Tech.-level project work** (in the areas of Industrial Engineering): more than 66 in number.
- (vi) **Areas of Interest:**

Ergonomics/Human Factors Engineering, Industrial Safety Engineering; Healthcare System Optimization, Process Optimization; Environmental Performance Measurement and Evaluation of Manufacturing Processes including Sustainability Modelling; Productivity/Performance Engineering and Management in service/manufacturing/white-collar jobs;

Quality Control and Improvement, including DOE, Taguchi Method, Total Quality Management;  
JIT/Lean Engineering, Inventory Management.

(vii) **Membership of Professional Bodies:**

1. Regular Member, INFORMS, USA
2. Member, Indian Institute of Materials Management (IIMM), Calcutta, India

(viii) Elected **Fellow of World Academy of Productivity Science (WAPS)**

(ix) **Fellow of The Institution of Engineers (India) (FIE)**

(x) **Member, Production Engineering Divisional Sub-Committee, The Institution of Engineers (India) for sessions 2014-15, and 2015-16.**

(xi) **Member**, Editorial Review Board of South Asian Journal of Global Business Research, Emerald Publisher

(xii) **Member**, Peer Review Board of PIRJSET (PROFICIENT International Refereed Journal of Science, Engineering and Technology), Jahanvi Publisher, Jaipur, India

(xiii) Awarded **Distinguished Scholar 2013** by International Association of Research Scholars (IARS), Australia.

## 6. List of Publications (in Chronological Order)

(i) **International/National Journals (published)**

1. **Ray, Pradip Kumar** and Sahu S, "Productivity Measurement in Multi-Product Manufacturing Firms", Engineering Costs and Production Economics, 1987, 13(4), 39-54.
2. **Ray, Pradip Kumar** and Sahu S "The Measurement and Evaluation of White Collar Productivity", Int. Journal of Operations and Production Management, 1989, 9(4), 29-47.
3. **Ray, Pradip Kumar** and Sahu S "Productivity Management in India: A Delphi Study", Int. Journal of Operations and Production Management, 1990, 10, 25-51.
4. **Ray, Pradip Kumar** and Sahu S "Productivity Measurement through Multi-Criteria Decision Making", Engineering Costs and Production Economics, 1990, 20, 151-163.
5. C Sateesh and **Pradip Kumar Ray**, "Vehicle Routing in Large Organizations: A Case Study", Int. Journal of Operations and Production Management, 1992, 12(3), 71-78.
6. **Ray, Pradip Kumar** and Sahu S "Productivity Measurement in Multi-Product Manufacturing Firms : Evaluation and Control through Sensitivity Analysis", Int. Journal of Production Economics, 1992, 28, 71-84.

7. Dabade B. M. and **Pradip Kumar Ray**, "Quality Engineering for Product and Process Performance Improvement: A Review and Reflections", *Quality and Reliability Engineering International*, 1996, 12, 173-189.
8. **Ray Pradip Kumar**, A. Bhattacharjee, S. C. Roy and B Samanta, "Human Factors Application in Mining: A Case Study", *Transactions of MGMI of India*, Vol. 93, No. 1, September, 1996, 105-116.
9. **Ray, Pradip Kumar**, A. Bhattacharjee and B Samanta, "A Statistical Approach for Evaluating the Impact of Blending", *Journal of Mines, Metals, and Fuels*, Jan-Feb, 2000, 23-28.
10. Agarwal D. and **Pradip Kumar Ray**, "Cell Formation in Cellular Manufacturing: An AHP-based Framework for Evaluation of Various Techniques", *Int. Journal of Manufacturing Technology Management*, Vol. 5, Nos. 5/6, 2003, 521-535.
11. Ohdar Rajkumar and **Pradip Kumar Ray**, "Performance Measurement and Evaluation of Suppliers in Supply Chain: An Evolutionary Fuzzy-based Approach", *International Journal of Manufacturing Technology Management*, Vol.15, No.8, 2004, pp. 723-734.
12. Doogar Gaurav and **Pradip Kumar Ray**, "Analysis of Spares Parts Management System of a Mining Company using Simulation Approach", *Industrial Engineering Journal, IIIE, Bombay, India*, Vol. XXXV No.9, September, 2006, pp.2-15.
13. Indrajit Mukherjee and **Pradip Kumar Ray**, "A Review of Optimization Techniques in Metal Cutting Processes", *International Journal of Computers & Industrial Engineering*, 50 (2006), pp.15-34.
14. Indrajit Mukherjee and **Pradip Kumar Ray**, "Metaheuristic Strategies for Non-linear Multi-Response Grinding Process Optimization", *The ICFAI Journal of Operations Management*, Vol. V, No.2, May 2006, pp. 35-56.
15. Rajkumar Ohdar and **Pradip Kumar Ray**, "Supply Chain Management Practices in Indian Manufacturing Companies: A Study", *The ICFAI Journal of Supply Chain Management*, Vol. III, No. 4, December, 2006, pp. 7-38.
16. Indrajit Mukherjee and **Pradip Kumar Ray**, "Optimal Process Design of Two-Stage Multiple Response Grinding Processes using Desirability Functions and Metaheuristic Techniques", *International Journal of Applied Soft Computing*, 8(1), 2007, pp. 402-421.
17. Indrajit Mukherjee and **Pradip Kumar Ray**, "A Modified Tabu Strategy for Continuous Variable Constrained Optimization Problem", *Vision-Journal of Management and Allied Sciences*, V. III (3), July-September 2007, 1-5.
18. Panja S C and **Ray P K**, "Reliability Analysis of 'Point-and-Point-Machine' of Indian Railway Signaling System", *Quality and Reliability Engineering International*, 23 (2007), pp.833-848.
19. Panja S. C. and **Ray P.K.**, "Reliability Analysis of Track Circuit of Indian Railway Signalling System", *International Journal of Reliability and Safety*, Vol.1 (4), 2007, pp.428-445.
20. Indrajit Mukherjee and **Pradip Kumar Ray**, "A Modified Tabu Search Strategy for Multiple-Response Grinding Process Optimization", *International Journal of Intelligent Systems Technologies and Applications (IJISTA)*, In the Special Issue on: "Advanced Evolutionary Computational Techniques for Design,

- Manufacturing, Logistics and Supply Chain Problems”, V4 (N 1/2), 2008, pp 97-122.
21. Indrajit Mukherjee and **Pradip Kumar Ray**, “A Systematic Solution Methodology for Inferential Multivariate Modelling of Industrial Grinding Process”, *International Journal of Materials Processing Technology*, 196 (2008), pp. 379-392.
  22. Krishna, C.M. and **Ray, P.K.** (2008) ‘Empirical Relationship between Product Variety, In-house Capability and Outsourcing Capability: The Case of a Watch Manufacturing Firm in India’. *International Journal of Technology Marketing*. 3(3): 223-258.
  23. Indrajit Mukherjee and **Pradip Kumar Ray**, “Quality Improvement of Multistage and Multi-response Grinding Processes: An Insight into Two Different Methodologies for Parameter Optimization”, *International Journal of Productivity and Quality Management*, 4(5-6), 2009, pp. 613-643.
  24. Panja S. C. and **Ray P.K.**, “Failure Mode and Effect Analysis of Indian Railway Signalling System”, *International Journal of Performability Engineering*, Vol. 5, No. 2, January 2009, pp.131-141.
  25. Shome, D., **Ray, P. K.** and Mahanty, B. (2009), ‘Non-contact Estimation of Surface Roughness in Turning using Computer Vision and Artificial Neural Network’, *International Journal of Industrial and Systems Engineering*, Vol. 4, No. 5, pp.349-367.
  26. Shome, D., **Ray, P. K.** and Mahanty, B. (2009), ‘Quality Improvement of Machine Vision-Based Non-Contact Inspection of Surface Roughness in Turning through Adaptive Neuro-Fuzzy Interference System’, *International Journal of Productivity and Quality Management*, Vol. 4, No. 3, pp.324-344.
  27. Maiti, J., Khanzode Vivek V. and **Ray, P. K.** (2009), “Severity Analysis of Indian Coal Mine Accidents – A Retrospective Study for 100 years”, *Safety Science*, 47, pp. 1033-1042.
  28. Indrajit Mukherjee and **Pradip Kumar Ray** (2009),”A Case-based and Practical Approach for Multivariate Modeling of Grinding Process”, *Int. Journal of Advanced Manufacturing Technology*, 45:245-260.
  29. Mondal, S. C., Maiti, J. and **Ray, P. K.** (2010), “Development of a Measurement Metric for Manufacturing Process Robustness”, *Int. Journal of Productivity and Quality Management*, Vol.6, No.2, 2010, pp. 156-181.
  30. Nayak, N. C. and **Ray, P. K.** (2010), “Flexibility and Performance Relationships: Evidence from Indian Bearing Manufacturing Firm”, *Int. Journal of Modelling in Operations Management*, 1 (1), pp. 67-82.
  31. Khanzode, V. V., J Maiti, **P. K. Ray**, and V. K. Tewari (2010), “Injury Severity Assessment for Underground Coalmine Workers”, *Applied Ergonomics*, Vol. 41, pp. 242-250.
  32. Nayak, N. C. and **Ray, Pradip K.** (2011), “Flexibility Adoption in Indian Manufacturing Firms: a Current Perspective”, *Int. Journal of Process System Engineering*, Vol. 3 (3/4), pp. 267-287.
  33. Khanzode, V. V., J Maiti, and **P. K. Ray** (2011), “Injury Count Model for Quantification of Risk of Occupational Injury”, *Int. Journal of Injury Control and Safety Promotion*, March, 2011, pp.1-12.

34. Sushant Tripathy, **Pradip Kumar Ray** and Sadananda Sahu (2011), "Performance Measurement of R&D is a Vaccine for Innovation Capability: Evidence from Indian Manufacturing Organizations", *Int. Journal of Electronic Transport*, Vol.1 (1), pp.76-95.
35. Nayak, N. C. and **Ray, Pradip K.** (2012), "An Empirical Investigation of the Relationships between Manufacturing Flexibility and Product Quality", *Int. Journal of Modelling in Operations Management*, Vol. 2 (1), pp. 26-44.
36. Chimata Murali Krishna and **Pradip Kumar Ray** (2012), "Capabilities of Product Development Process of a Firm: An Empirical Study", *International Journal of Innovation and Technology Management*. Vol. 9, No. 4, pp.(**In Press**).
37. Nayak, N. C. and **Ray, Pradip K.** (2012), "Relating Manufacturing Flexibility and Product Quality: An Empirical Investigation", *Int. Journal of Quality and Innovation* (**In Press**).
38. Sushant Tripathy, **Pradip Kumar Ray** and Sadananda Sahu (2012), "Factors Governing R&D Practices in Indian Manufacturing Firms: Structural Equation Modelling", *Int. Journal of Modelling in Operations Management*, Vol. 2(1), pp.45-68.
39. Indrajit Mukherjee and **Pradip Kumar Ray** (2012), "Ascendancy of a Modified Tabu Search for Multistage Nonlinear Multiple Response Constrained Optimization Problem", *Int. Journal of Productivity and Quality Management*, Vol.9, No.3, pp. 352-381.
40. Khanzode, V. V., J Maiti, and **P. K. Ray** (2012), "Occupational Injury and Accident Research: A Comprehensive Review", *Safety Science* (**In Press**).
41. Mondal, S C, **Ray, P K** and Maiti, J (2012), "Modelling Robustness for Manufacturing Processes: A Critical Review", *Int. Journal of Production Research*, Taylor and Francis, DOI:10.1080/00207543.2013.837588.
42. Parida, R. and **Ray, P. K.** (2012), "Study and Analysis of Occupational Risk Factors for Ergonomic Design of Construction Worksystems", *Work: A Journal of Prevention, Assessment & Rehabilitation*, Vol. 41, pp. 3788-3794.
43. Parida, R. and **Ray, P. K.** (2012), "Biomechanical Evaluation of Construction Jobs for Performance Improvement", *Work: A Journal of Prevention, Assessment & Rehabilitation*, Vol. 41, pp.5959-5965.
44. **Ray, P.K.** and Tewari, V.K.(2012), "Design and Implementation of Ergonomic Performance Measurement System at a Steel Plant in India", *Work: A Journal of Prevention, Assessment & Rehabilitation*, Vol. 41, pp. 5943-5949.
45. Tewari, V.K. and **Ray, P.K.** (2012), "Ergonomic Design of Crane Cabins: A Case Study from a Steel Plant in India", *Work: A Journal of Prevention, Assessment & Rehabilitation*, Vol. 41, pp.5972-5976.
46. Ratri Parida and **Pradip Kumar Ray** (2012), "A Comprehensive Framework for Physical Evaluation of Manual Material Handling Tasks", *Int. Journal of Manufacturing Technology and Management*, Vol. 24, No. 1/2/3/4, pp. 153-166.
47. Ohdar, Rajkumar and **Ray, Pradip Kumar** (2012), "Suppliers' Performance Evaluation and Ranking in a Supply Chain: An Analytical Hierarchy Process-Based Approach", *The IUP Journal of Supply Chain Management*, Vol. IX, No. 1, 2012, pp. 1-18.

48. Mondal, S C, Maiti, J. and **Ray, P K.** (2013), “Modelling Robustness in Serial Multistage Manufacturing Processes”, *Int. Journal of Production Research*, Taylor and Francis, DOI:10.1080/00207543.2013.798052.
49. Sushant Tripathy, **Pradip Kumar Ray** and Sadananda Sahu (2013) “Interpretive Structural Modelling for Critical Success Factors of R&D Performance in Indian Manufacturing Firms”, *Journal of Modelling in Management*, Vol.8, No.2 (**in press**).
50. Bhattacharjee, P. and **Ray, P. K.** (2013), “Modelling and Optimization of Healthcare Systems: An Overview”, *Int. Journal of Logistic Systems and Management* (**in press**).
51. Sameer Abdul Azeez, J Maiti, O B Krishna and **P K Ray** (2013), “Anthropometric Analysis of Crane Operators in Indian Steel Industry”, *Industrial Engineering Journal, IIIE*, Mumbai, India, Vol. VI, Issue 11, November, 2013, pp.26-35.
52. S Kushwaha, S Sikdar, I Mukherjee and **P K Ray** (2013), “A Modified Desirability Function Approach for Mean-Variance Optimization of Multiple Responses”, *Int. Journal of Software Science and Computational Intelligence*, IGI Global, 5(3), July-September 2013, pp. 7-21.
53. Basu, Bhaskar and **Ray, Pradip Kumar** (2014), "Measuring and Evaluating KM Capability in an Organization: An Exploratory Case Study", *VINE: The Journal of Information and Knowledge Management Systems*, Emerald, Vol.44, No.2, pp.267-294.
54. O B Krishna, J Maiti, **P K Ray** and Saptarshi Mandal (2014), “Assessment of risk of musculoskeletal disorders among crane operators in a steel plant: A data mining based analysis”, *Human Factors and Ergonomics in Manufacturing and Services*, Wiley-Blackwell, 10/2014, DOI:10.1002/hfm.20575.
55. Bhattacharjee, P. and **Pradip Kumar Ray** (2014), “Patient Flow Modelling and Performance Analysis of Healthcare Delivery Processes in Hospitals: A Review and Reflections”, *Computers and Industrial Engineering*, 78, pp.299-312.
56. Bhattacharjee, P. and **Pradip Kumar Ray** (2014), “Modelling and Optimization of Healthcare Systems: An Overview”, *Int. Journal of Logistics Systems and Management*, Vol. 19, No. 3, pp. 356-371.
57. Krishna, O B, Maiti, J, Ray, P K, B Samanta, Saptarshi Mandal and Sobhan Sarkar (2015), "Measurement and Modeling of Job Stress of EOT Crane Operators”, *Safety and Health at Work*, Elsevier (**accepted for publication**).
58. Mondal, S C, Maiti, J. and **Ray, P K.** (2015), “Modelling Process Robustness: A Case Study of Centrifugal Casting”, *Production Planning and Control*, Taylor and Francis (**in press**)
59. Nayak, N C and **Ray, P K** (2015), “Flexibility and Quality Aspects of Indian Manufacturing Management Practices: An Empirical Investigation”, *Journal of Production Engineering*, 18 (1): 81-86.
60. Papiya Bhattacharjee and Pradip Kumar Ray (2015), “Simulation Modelling and Analysis of Appointment System Performance for Multiple Classes of Patients in a Hospital: A Case Study”, *Operations Research for Health Care*, Elsevier (**in press, available online**).

61. **Pradip Kumar Ray**, Ratri Parida and Esha Saha (2015), “Status Survey of Occupational Risk Factors of Manual Material Handling Tasks at a Construction Site in India”, *Procedia Manufacturing*, Elsevier, 3 (2015):6579-6586.
62. **Pradip Kumar Ray**, Ratri Parida and Sagar Sarkar (2015), “Ergonomic Analysis of Construction Jobs in India: A biomechanical modelling approach”, *Procedia Manufacturing*, Elsevier, 3 (2015): 4606-4612.
63. Ratri Parida and **Pradip Kumar Ray** (2015), “Factors Influencing Construction Ergonomic Performance in India”, *Procedia Manufacturing*, Elsevier, 3 (2015): 6587-6592.
64. Ratri Parida and **Pradip Kumar Ray** (2015), “Biomechanical Modelling of Manual Material Handling Tasks: A Comprehensive Review”, *Procedia Manufacturing*, Elsevier, 3 (2015): 4598-4605.

**(ii) International/National Journals (under review)**

65. Agarwal D. and **Pradip Kumar Ray**, “Status and Scope of Cellular Manufacturing in Indian Manufacturing Companies: Results of a Survey”, *Int. Journal of Operations and Production Management* (**under review**).
66. Ohdar Rajkumar and **Pradip Kumar Ray**, “Models and Methodologies in Supply Chain Management: A Review and Reflections”, *Computers and Industrial Engineering* (**under review**).
67. Indrajit Mukherjee and **Pradip Kumar Ray**, “An Integrated Framework for Inferential Modelling of Multiple Response Grinding Process”, *International Journal of Manufacturing Science and Engineering (JMSE)*, ASME (under review).
68. Indrajit Mukherjee and **Pradip Kumar Ray**, “Modelling and Optimization of Multistage and Multi-response Grinding Processes”, *IIE Transactions on Quality and Reliability Engineering* (under review).
69. Indrajit Mukherjee and **Pradip Kumar Ray**, “Multivariate Regression and Neural Network Analysis in Engine Cylinder-Block Grinding Process”, *International Journal of Modelling, Identification and Control (IJMIC)* (under review).
70. Indrajit Mukherjee and **Pradip Kumar Ray**, “Multi-stage and Multi-response Grinding Process Optimization Using Artificial Neural Network and Metaheuristic Strategy”, *International Journal of Computers & Industrial Engineering* (under review).
71. Panja S. C. and **Ray P.K.**, “Fault Tree Analysis of Indian Railway Signaling Systems”, *International Journal of Reliability, Quality and Safety Engineering* (under review)
72. Krishna, C.M. and **Ray, P.K.**, ‘New Product Development Capability Measurement: A Case Study of Construction Equipment Manufacturing Firm’. *IEEE Transactions on Engineering Management* (under review).
73. Panja S. C. and **Ray P.K.**, “Reliability Analysis of ‘Colour-Lamp-Signal-Unit’ of Indian Railway Signalling System”, *International Journal of COMADEM* (under review).

74. Panja S. C. and **Ray P.K.**, “Reliability Estimation of Point-and-Point Machine of Indian Railway Signalling System by Non-Parametric Analysis”, Communicated to International Journal of Operations Research (under review).
75. Krishna C. M and **Ray P.K.**, “The Extent of Use of New Product Development Practices: Study of Indian Manufacturing Industry”, Communicated to International Journal of Product Development (under review).
76. Shome, D., **Ray, P. K.** and Mahanty, B., “Computer Vision-based On-line Inspection of Surface Roughness in Turning, Milling, and Grinding using Adaptive Neuro-Fuzzy Interference System”, Communicated to *International Journal of Computer Applications in Technology* (**under review**).
77. Nayak, N. C. and **Ray, P. K.** (2011), “Manufacturing Flexibility, Product Quality and Production System Performance Relationships: A Path Analysis Approach”, Communicated to Int. Journal of Manufacturing Technology Management (**under review**).
78. Nayak, N. C. and **Ray, P. K.** (2011), “Production System Flexibility and Product Quality Relationship in Manufacturing Firms: Evidence from India”, Communicated to Int. Journal of Process Systems Engineering (**under review**).
79. Bhaskar Basu and **Pradip Kumar Ray** (2012), "DIBAR: A Methodology for Measurement and Evaluation of KM Capability", Communicated to Journal of Knowledge Management (**under review**).
80. Krishna, O B, Maiti, J and Ray, P K (2013), “Assessment of risk of musculoskeletal disorders among crane operators in a steel plant: A data mining based analysis”, Communicated to Human Factors and Ergonomics in Manufacturing and Service Industries (**under review**).
81. Basu, Bhaskar and Ray, Pradip Kumar (2013), "Measuring and Evaluating KM Effectiveness in an Organization: An Exploratory Case Study", Communicated to the special issue on "Knowledge Acquisition, Reuse and Evaluation" of The International Journal of Knowledge and Learning (**under review**).
82. Abhik Patra, Sagar Sarkar and Pradip Kumar Ray (2014), “A Review of Environmental Performance Measurement and Evaluation Techniques”, Communicated to Journal of Cleaner Production, Elsevier (**under review**).
83. Papiya Bhattacharjee and Pradip Kumar Ray (2016), “ Scheduling Appointments for Multiple Classes of Patients in Presence of Various Patterns of Unscheduled Arrivals”, Communicated to Simulation Modelling Practice and Theory, Elsevier (**under review**).

### (iii) International Conferences/Congresses/Symposiums

1. **Pradip K Ray** and S Sahu, "An Assessment of Productivity and its Criticality with respect to Other Measures of Organizational Performance", Proceedings of IX ICPR, Cincinnati, Ohio, USA, August, 1987, 139-150.
2. **Pradip K Ray** and S Sahu, "Measurement and Evaluation of Service Productivity", Proceedings of 6<sup>th</sup> World Productivity Congress, Montreal, Canada, September, 1988.

3. **Pradip K Ray** and S Sahu, "Productivity Measurement through Multi-Criteria Decision Making", Proceedings of Int. Conference on MCDM, Bangkok, Thailand, December, 1989, 223-242 (presented at the conference).
4. **Pradip K Ray**, "Office Performance Measurement and Human Productivity: A Case Study in an Educational Institute", Proceedings of 9<sup>th</sup> World Productivity Congress, Istanbul, Turkey, June, 1995.
5. **Pradip K Ray**, "Manpower Assessment and Planning Strategies in a Process Industry: An Important Step toward TQM", Proceedings of XIII ICPR, Jerusalem, Israel, August, 1995 (presented at the conference).
6. Dabade B M and **Pradip K Ray**, "Multistage Multivariate Quality Engineering Problem in Production Plants and its Modeling", Int. Symposium on Statistical Methods for Quality and Reliability - Recent Trends in Theory and Practice, Calcutta, India, May/June, 1997 (presented at the symposium).
7. Dabade B M and **Pradip K Ray**, "Model Building for Multistage Multivariate Quality Engineering Problem", 9<sup>th</sup> Int. Conference on Management of Technology, Miami, USA, February, 2000 (presented at the conference)
8. Mohapatra, S S and **Pradip K Ray**, "Selection of JIT-based Tools and Techniques in Manufacturing Organizations: A Fuzzy Multi-Attribute Decision Making Approach", 4<sup>th</sup> Int. Conference on Multiobjective Programming and Goal Programming, Ustron, Poland, May/June, 2000.
9. Agarwal D, **Pradip K Ray** and S Sahu, "Improving the Flexibility of Cellular Manufacturing Systems", 2<sup>nd</sup> Global Conference on Flexible Systems Management, IITM, Gwalior, India, March, 2002.
10. Dabade B M and **Pradip K Ray**, "Design of an Off-line Quality Engineering System for a Production Plant: Response Surface Building Approach", 2<sup>nd</sup> International Conference on Manufacturing, Dhaka, Bangladesh, August, 2002.
11. Ohdar R K and **Pradip K Ray**, "Performance Measurement in Supply Chain: An Overview", 2<sup>nd</sup> Int. Conference on Manufacturing, Dhaka, Bangladesh, August, 2002.
12. **Pradip K Ray**, "Implementation of a TQM Programme in Research and Development of a Manufacturing Unit", 2<sup>nd</sup> Int. Conference on Manufacturing, Dhaka, Bangladesh, August, 2002.
13. **Pradip K Ray**, "A Comprehensive Quality Engineering Systems Approach for Optimal Parameter Design: A Case Study", Proceedings of 9<sup>th</sup> Asia-Pacific Conference of Engineering Management Educators (ACEME' 2002), Brisbane, Australia, October, 2002, 154-160.
14. Agarwal D. and **P K Ray**, "Use of AHP in the Evaluation of Various Cell Formation Techniques in Cellular Manufacturing", Int. Conference on Operations Research for Development (ICORD-2002), Chennai, India, December, 2002.
15. Ohdar R. K. and **P K Ray** "A Neural-Fuzzy based Supplier Selection Framework for an Effective Supply Chain", Int. Conference on Operations Research for Development (ICORD-2002), Chennai, India, December, 2002.
16. Ohdar R. K. and **P K Ray**, "A Fuzzy Logic and Genetic Algorithm based Supplier Performance Evaluation Methodology for an Effective Supply Chain", 2<sup>nd</sup> Int. Conference on Electronic Business, Taipei, Taiwan, December, 2002.

17. Agarwal D. and **P K Ray**, "Status and Scope of Cellular Manufacturing: A Survey of Select Indian Manufacturing Companies", 17<sup>th</sup> Int. Conference on Production Research, Virginia, USA, August, 2003.
18. Indrajit Mukherjee and **Pradip Kumar Ray**, A Simulated Annealing Approach to Determine Near Optimal Process Conditions for Grinding Processes, Proceedings of *International Conference on Advances in Materials, Product Design and Manufacturing Systems (ICMPM 2005)*, Eroda, Tamil Nadu, December 2005, pp 806-811.
19. Indrajit Mukherjee and **Pradip Kumar Ray**, Empirical Modeling of Multiple Response Quality Characteristics of Honing Processes by Multivariate Regression Approach, Paper Presented and published in CD Conference Proceedings of *11th International Conference on Productivity and Quality Research (ICPQR 2005)*, IIT, Delhi, Dec 2005, Abstract pp 15.
20. Indrajit Mukherjee and **Pradip Kumar Ray**, A Framework for Managing Quality by Process Optimization Methods in Metal Cutting Processes, *IX Annual International Conference of the Society of Operations Management, School of Management, Pondicherry University, Pondicherry India, Published in the book of Abstract*, Dec, 2005, p. 8.
21. Indrajit Mukherjee and **Pradip Kumar Ray**, An Integrated Approach To Determine Near Optimal Conditions for a Two-Stage CNC Grinding Processes, Paper Presented and in Conference Proceedings of *12th National Conference on Machines and Mechanisms (NaCoMM-2005)*, IIT, Guwahati, December, 2005, pp 255-260.
22. Indrajit Mukherjee and **Pradip Kumar Ray**, A Tabu Search-based Near Optimal Solution Strategy for a Two-Stage CNC Grinding Processes, Paper Presented in *National Conference Proceedings of on Advances in Mechanical Engineering (AIME-2006)*, JMI, Delhi, Jan 2006, pp. 387-393.
23. Indrajit Mukherjee and **Pradip Kumar Ray**, Neural Network Modelling and Multiple Response Optimization of CNC Grinding Process: A Case Study, Paper Presented and in Proceedings of *International workshop on Neural Network and Genetic Algorithm in Material Science and Engineering (NGMS-2006)*, BECS, Shibpur, West Bengal, Jan 2006, pp. 412-424.
24. Indrajit Mukherjee and **Pradip Kumar Ray**, Technology Management of Grinding Process using Quality Control Methods: A Multivariate Regression and Neural Network Application, Paper Presented and Published in the CD Proceedings of *International Conference of Innovation and Technology Management (ICITM-2006)*, CGCRI, Jadavpur, February, 2006, Abstract pp 68-69.
25. Indrajit Mukherjee and **Pradip Kumar Ray**, Near Optimal Grinding Process Design using Neural Network and Simulated Annealing, Published in the Proceeding of the *National Conference on Soft Computing Techniques for Engineering Applications*, NIT, Rourkela, India, March, 2006, pp 84-93.
26. Indrajit Mukherjee and **Pradip Kumar Ray**, A Tabu Search Strategy for Nonlinear Multi-Response Optimization of Two-Stage Grinding, *36<sup>th</sup> International Conference on Computers and Industrial Engineering, Taipei,, Taiwan, Presented in the Conference*, June, 2006.

27. Indrajit Mukherjee and **Pradip Kumar Ray**, Near Optimal Grinding Process Design using Neural Network and Real Coded Genetic Algorithm, *8<sup>th</sup> Biennial Conference on Engineering System Design and Analysis, ASME, Italy, Accepted for Publication*, March 2006.
28. Indrajit Mukherjee and **Pradip Kumar Ray**, A Tabu Search Strategy for Constrained Nonlinear Multivariate Grinding Optimization Problem, *International Conference On Global Manufacturing and Innovation (An Advanced Optimization Approach)*, Coimbatore, India, February, 2006.
29. Panja S. C. and **Ray P.K.**, “Operational and reliability aspects of railway signaling system: a case study of Indian railways”, Proceedings of International Conference on Reliability and Safety Engineering (INCRESE), Reliability Engineering Centre, IIT, Kharagpur, India, December 21-23, 2005, pp. 31-42.
30. Panja S. C. and **Ray P.K.**, “Fault Tree Analysis of Point and Point Machine in Indian Railway Signaling Systems”, Proceedings of National Conference on Soft Computing Techniques for Engineering Applications, NIT, Rourkela, India, March 24-26, 2006, pp. 23-30.
31. Panja S. C. and **Ray P.K.**, “Failure Mode and Effects Analysis of Indian Railway Signalling Systems”, Proceedings of 19<sup>th</sup> International Congress and Exhibition on Condition Monitoring and Diagnostic Engineering Management, Lulea University of Technology, Lulea, Sweden, Presented at the Congress during June 12-15, 2006, pp.623-633.
32. Panja S. C. and **Ray P.K.**, “Nonparametric Analysis of Point and Point Machine of Indian Railway Signaling Systems”, Proceedings of International Conference on Global Manufacturing and Innovation, to be held at Coimbatore Institute of Technology, Coimbatore, India during July 27-29, 2006, pp. 1-8.
33. **Ray, P K**, J Maiti, and Gopinath Chattopadhyay, “Six-Sigma Methodology for Maintenance Performance Improvement”, Proceedings of 20<sup>th</sup> International Congress and Exhibition on Condition Monitoring and Diagnostic Engineering Management COMADEM’07), University of Coimbra, Faro, Portugal, Presented at the Congress during June 13-15, 2007.
34. Indrajit Mukherjee and **Pradip Kumar Ray**, “Multi-Response Grinding Process Functional Approximation and its Influence on Solution Quality of a Modified Tabu Search”, The paper was selected as one of the candidate for *outstanding paper award competition* in the *IEEE International Conference on Industrial Engineering & Engineering Management (IEEM 2007)*, Singapore, December 2-5, 2007, pp. 837-841.
35. Krishna, C.M. and **Ray, P.K.** (2008). ‘Application of Fuzzy Analytic Hierarchy Technique in Development of New Product Development Competences: A Case Study of Construction Equipment Manufacturing Firm’. Proceedings of International Conference on Technology and Innovation Marketing, April 18-19, pp. 329-342, IMT, Ghaziabad; Allied Publishers Pvt.Ltd.
36. Mondal, S. C., Maiti, J. and **Ray, P. K.** (2010), “Process Capability Analysis of a Centrifugal Casting Process”, Int. Conference on Industrial Engineering and Operations Management, IUT, Dhaka, January, 2010.
37. Shome, D and **P K Ray** (2009), “Non-Contact Prediction of Surface Roughness using Computer Vision and Adaptive Neuro-Fuzzy Inference System”,

- Proceedings of 22<sup>nd</sup> Int. Congress COMADEM 2009, San Sebastian, Spain, June 9-11, pp. 245-252.
38. Parida, R. and **Ray, P. K.**, “A Comprehensive Framework for Biomechanical Modelling of Manual Material Handling Tasks”, International Ergonomics Conference (HWWE 2009) organized by University of Calcutta, Kolkata from 17<sup>th</sup> - 19<sup>th</sup> December, 2009.
  39. Chimata Murali Krishna and **Pradip Kumar Ray** (2009), “Measurement of Product Development Capabilities: A Case Study of a Construction Equipment Manufacturing Firm”, Proceedings of Int. Conference on New Product Development (NPDC09), Indian Institute of Technology Madras, Chennai, India, December 17-19, pp. 125 - 133.
  40. Chimata Murali Krishna and **Pradip Kumar Ray** (2010), “New Product Development Capabilities of Indian Manufacturing Industry: The Best vs The Rest”, Proceedings of International Conference on Advances in Industrial Engineering Applications, Department of Industrial Engineering, College of Engineering, Guindy Campus, Anna University Chennai, India, January 6-8, pp. OM 1 – 6.
  41. Parida, R. and **Ray, P. K.**, “A Comprehensive Framework for Physical Evaluation of Manual Material Handling Tasks”, 2<sup>nd</sup> International Conference on Production and Industrial Engineering (CPIE-2010) organized by NIT Jalandhar, Jalandhar from 3<sup>rd</sup> - 5<sup>th</sup> December, 2010.
  42. Ratri Parida and **Pradip Kumar Ray** (2011), “Six Sigma-based Research Framework for Biomechanical Evaluation of Human Performance in Construction-related Jobs”, Engineering Lean and Six Sigma Conference, Atlanta, Georgia, USA, September 12-14, 2011.
  43. Ratri Parida and **Pradip Kumar Ray** (2011), “Implementation of Lean Engineering Practices at an Aircraft Maintenance Unit: A Case Study”, Engineering Lean and Six Sigma Conference, Atlanta, Georgia, USA, September 12-14, 2011.
  44. Parida, R. and **Ray, P. K.**, “A Comprehensive Framework for Physiological Evaluation of Manual Material Handling Tasks”, International Conference on Ergonomics and Human Factors (HWWE 2011) organized by IIT Madras, Chennai, 15<sup>th</sup> -17<sup>th</sup> December, 2011.
  45. Bhattacharjee, P. and **Ray, P. K.**, “Modelling and Optimization of Healthcare Systems: An Overview”, International Conference on Industrial Engineering (ICIE 2011) organized by Sardar Vallabhbhai National Institute of Technology, Surat, 17<sup>th</sup> – 19<sup>th</sup> November, 2011.
  46. Parida, R. and **Ray, P. K.**, “Study and Analysis of Occupational Risk Factors for Ergonomic Design of Construction Worksystems”, 18<sup>th</sup> World Congress on Ergonomics (IEA 2012), Recife, Brazil, 12<sup>th</sup> – 16<sup>th</sup> February, 2012.
  47. Parida, R. and **Ray, P. K.**, “Biomechanical Modelling and Evaluation of Shovelling at Construction Site in India: a Case Study”, 18<sup>th</sup> World Congress on Ergonomics (IEA 2012), Recife, Brazil, 12<sup>th</sup> – 16<sup>th</sup> February, 2012.
  48. Parida, R. and **Ray, P. K.**, “Biomechanical Evaluation of Construction Jobs for Performance Improvement”, 18<sup>th</sup> World Congress on Ergonomics (IEA 2012), Recife, Brazil, 12<sup>th</sup> – 16<sup>th</sup> February, 2012.

49. **Ray, P.K.** and Tewari, V.K., “Design and Implementation of Ergonomic Performance Measurement System at a Steel Plant in India”, 18<sup>th</sup> World Congress on Ergonomics (IEA 2012), Recife, Brazil, 12<sup>th</sup> – 16<sup>th</sup> February, 2012.
50. Tewari, V.K. and **Ray, P.K.**, “Ergonomic Design of Crane Cabins: A Case Study from a Steel Plant in India”, 18<sup>th</sup> World Congress on Ergonomics (IEA 2012), Recife, Brazil, 12<sup>th</sup> – 16<sup>th</sup> February, 2012.
51. Bhattacharjee, P. and **Ray, P. K.**, “Recent Advancement in Queueing Network Analysis of Hospitals”, 16<sup>th</sup> Annual Int. Conference of Society of Operations Management (SOM), India Institute of Technology, Delhi, December 21-23, 2012.
52. Parida R. and **Ray, P. K.**, “Assessment of Occupational Risk Factors for MMH Tasks using BRIEF Technique”, International Conference on Ergonomics and Human Factors (HWWE 2012) organized by G B Pant University of Agriculture and Technology, Pantnagar, Uttarakhand, India, 6<sup>th</sup> -8<sup>th</sup> December, 2012.
53. Parag Sen, **Pradip Kumar Ray** and Sadhan Kumar Ghosh (2013), “Approaches of Environmental Performance Measurement and Evaluation for Manufacturing Organizations”, International Conference on Managing the Asian Century organized by James Cook University, Singapore, July 11 -13, 2013.
54. Papiya Bhattacharjee and **Pradip Kumar Ray** (2013), “Modelling and Managing Patient Flows in a Hospital Outpatient Environment”, International Conference on Managing the Asian Century organized by James Cook University, Singapore, July 11 -13, 2013.
55. Abhik Patra and **Pradip Kumar Ray** (2014), “Measurement and Evaluation of Service Productivity for Indian Healthcare Organizations”, Proceedings of International Conference on Managing the Asian Century (ICMAC-2014) organized by International Centre for ASEANA Management, Singapore at Undhira University, Bali, Indonesia during November 26 - 28, 2014.
56. Ratri Parida, Sagar Sarkar and **Pradip Kumar Ray** (2014), “Improving Occupational Health of Indian Construction Workers: A Biomechanical Evaluation Approach”, Proceedings of International Conference on Managing the Asian Century (ICMAC-2014) organized by International Centre for ASEANA Management, Singapore at Undhira University, Bali, Indonesia during November 26 - 28, 2014.
57. Ratri Parida, Sagar Sarkar and **Pradip Kumar Ray** (2014), “Selection of Alternate Worksystems to Improve Occupational Health of Indian Construction Workers: A Design of Experiment Based Approach”, Proceedings of International Conference on Managing the Asian Century (ICMAC-2014) organized by International Centre for ASEANA Management, Singapore at Undhira University, Bali, Indonesia during November 26 - 28, 2014.
58. Papiya Bhattacharjee and **Pradip Kumar Ray** (2014), “Appointment Scheduling in Presence of Walk-ins and Emergency Arrivals”, Proceedings of International Conference on Managing the Asian Century (ICMAC-2014) organized by International Centre for ASEANA Management, Singapore at Undhira University, Bali, Indonesia during November 26 - 28, 2014.
59. **Pradip Kumar Ray**, Ratri Parida and Esha Saha, “Status Survey of Occupational Risk Factors of Manual Material Handling Tasks at a Construction Site in India”,

- 6<sup>th</sup> International conference on Applied Human Factors and Ergonomics (AHFE 2015) and the Affiliated Conferences, AHFE 2015, July 26 - 30, 2015 (Accepted).
60. **Pradip Kumar Ray**, Ratri Parida and Sagar Sarkar, "Ergonomic Analysis of Construction Jobs in India: A biomechanical modelling approach", 6<sup>th</sup> International conference on Applied Human Factors and Ergonomics (AHFE 2015) and the Affiliated Conferences, AHFE 2015, July 26 - 30, 2015 (Accepted).
  61. Ratri Parida and **Pradip Kumar Ray** "Factors Influencing Construction Ergonomic Performance in India", 6<sup>th</sup> International conference on Applied Human Factors and Ergonomics (AHFE 2015) and the Affiliated Conferences, AHFE 2015, July 26 - 30, 2015 (Accepted).
  62. Ratri Parida and **Pradip Kumar Ray** "Biomechanical Modelling of Manual Material Handling Tasks: A Comprehensive Review", 6<sup>th</sup> International conference on Applied Human Factors and Ergonomics (AHFE 2015) and the Affiliated Conferences, AHFE 2015, July 26 - 30, 2015 (Accepted).
  63. Esha Saha and **Pradip Kumar Ray**, An Overview of Inventory Management Systems in Healthcare, International Conference for Managing the Asian Century (ICMAC 2015), ASEAN Entrepreneurship, Innovations and Technology, Kuala Lumpur, Malaysia, November 18 – 20, 2015.
  64. Abhik Patra and **Pradip Kumar Ray**, Service Productivity Measurement Methodology: Challenges and Utility, International Conference for Managing the Asian Century (ICMAC 2015), ASEAN Entrepreneurship, Innovations and Technology, Kuala Lumpur, Malaysia, November 18 – 20, 2015.

(iv) **National Conferences**

1. **Pradip Kumar Ray** and S Sahu, "Total Productivity Measurement with Intangible Factors", Proceedings of 30<sup>th</sup> National Convention of IIIE, Vishakhapatnam, India, April, 1988.
2. **Pradip Kumar Ray** and S Sahu, "Maintenance Productivity Measurement : A Brief Review", Proceedings of VII National Convention of Indian Institute of Plant Engineers, Jamshedpur, India, November, 1988.
3. **Pradip Kumar Ray** and S Sahu, "Developing a Causal Model of Service Productivity Management", Proceedings of 3<sup>rd</sup> National Conference on System Dynamics, Dhanbad, India, December, 1988.
4. **Pradip Kumar Ray**, "A Methodology for Self-Diagnosis of Quality Capacity", National Seminar on Quality and Reliability Management, B.E.College, Howrah, India, April, 1996.
5. **Pradip Kumar Ray**, B. Samanta, and A. Bhattacharjee, "Human Factors Application in Mining : A Case Study", Annual General Meeting of MGMI, UCIL, Jaduguda, India, January, 1997 (Awarded Silver Medal in July,1997).
6. D. Aggrawal and **Pradip Kumar Ray**, "Multi-objective Cell Formation in Cellular Manufacturing: A Pareto-based Genetic Algorithm Approach", Proceedings of 20<sup>th</sup> AIMTDR Conference, Ranchi, India, December, 2002.
7. **Pradip Kumar Ray**, "Design and Development of an Ergonomic Performance Assessment Tool for a Steel Plant", Proceedings of National

- Convention on Turn Around in Steel Industry, Durgapur, India, February, 2004.
8. Dabade B. M. and **P K Ray**, "Quality Engineering: Off- and On-Line Quality Control for Implementing Six-Sigma", Proceedings of National Conference on Organizational Excellence through Six Sigma (NCOESS-2006), Durgapur, India, July21-22, 2006, pp. 74-90.
  9. Indrajit Mukherjee and **Pradip Kumar Ray**, "*An Integrated Approach To Determine Near Optimal Conditions for a Two-Stage CNC Grinding Processes*", Paper Presented and in the Proceedings of 12th National Conference on Machines and Mechanisms (NaCoMM-2005), IIT, Guwahati, December, 2005, 255-260.
  10. Indrajit Mukherjee and **Pradip Kumar Ray**, "*A Tabu Search-based Near Optimal Solution Strategy for a Two-Stage CNC Grinding Processes*", Paper Presented and in the Proceedings of National Conference on Advances in Mechanical Engineering (AIME-2006), JMI, Delhi, January, 2006, 387-393.
  11. Indrajit Mukherjee and **Pradip Kumar Ray**, "*Near Optimal Grinding Process Design using Neural Network and Simulated Annealing*", In the Conference Proceeding of the National Conference on Soft Computing Techniques for Engineering Applications, NIT, Rourkela, India, March, 2006, 84-93.
  12. Nayak, N. C. and **Ray, P. K.** (2008), "Impact of Flexible Manufacturing on Performance of Supply Chain", Proceedings of Int. Conference on Issues and Challenges in Supply Chain Management, Institute of Technology, BHU, Varanasi, India, March, pp. 28-41.
  13. Nayak, N. C. and **Ray, P. K.** (2008), "An Investigation of the Impact of Flexibility on Performance of Manufacturing Firms", Proceedings of National Conference on Forecasting Financial Markets, VGSOM, IIT, Kharagpur, India, December, pp.198-212.

**(v) Continuing Education Lecture Packages:**

1. "Professionalism for Industrial Productivity Improvement": 250 pages.
2. "Just In Time": 150 pages.
3. "Total Quality Management": 150 pages.
4. "Capacity Planning" for IGNOU, New Delhi, India
5. "Supply Chain Management" for IGNOU, New Delhi, India
6. "Materials Management" for IGNOU, New Delhi, India

**(vi) Book Published (co-author: Dr R V Dukkipati, Fairfield University, USA)  
(tpublished by New Age International Publishers)**

Product and Process Design for Quality, Economy and Reliability (New Age International, ISBN: 978-81-224-2661-8)

- (vii) **Book under Review (co-author: Dr R V Dukkipati, Fairfield University, USA) (to be published by New Age International Publishers)**

Quality Control, Improvement and Management

(viii) **Book Chapters:**

1. Indrajit Mukherjee and **Pradip Kumar Ray**, “Artificial Neural Network and Metaheuristic Strategies: Emerging Tools for Metal Cutting Process Optimization” in Handbook of Computational Intelligence in Manufacturing and Production Management, Published by Information Science Reference (an imprint of IGI Global),USA, pp.366-397, 2008.
2. Indrajit Mukherjee and **Pradip Kumar Ray**, “Technology Management of Grinding Process using Quality Control Methods: A Multivariate Regression and Neural Network Application”, *Technology and Innovation Management*, Advanced Research Series, McMillan India, July, 2008.
3. Parag Sen, **Pradip Kumar Ray** and Sadhan Kumar Ghosh (2013), “Approaches of Environmental Performance Measurement and Evaluation for Manufacturing Organizations”, Proceedings of International Conference on Managing the Asian Century (ICMAC), Singapore, Springer, 2014.
4. Papiya Bhattacharjee and **Pradip Kumar Ray** (2013), “Modelling and Managing Patient Flows in a Hospital Outpatient Environment”, Proceedings of International Conference on Managing the Asian Century (ICMAC), Singapore, Springer, 2014.
5. Pradip Kumar Ray (2013), “A Research Framework for Environmental Performance Measurement and Management for Indian SMEs”, “Lean Engineering-based Technology Implementation Framework at Indian Air Force (IAF)”, and “Human-Environment Interaction-based Performance Measurement System at a Steel Plant in India” in Integrated Environmental Pollution Control Framework and Strategies: A Collection of Essays and Cases, University of Calcutta, Kolkata, India.
6. Abhik Patra and **Pradip Kumar Ray** (2014), “Measurement and Evaluation of Service Productivity for Indian Healthcare Organizations”, Proceedings of International Conference on Managing the Asian Century (ICMAC-2014) (Smart Technologies for Smart Nations), Springer, 2014.
7. Ratri Parida, Sagar Sarkar and **Pradip Kumar Ray** (2014), “Improving Occupational Health of Indian Construction Workers: A Biomechanical Evaluation Approach”, Proceedings of International Conference on Managing the Asian Century (ICMAC-2014), Springer, 2014.
8. Ratri Parida, Sagar Sarkar and **Pradip Kumar Ray** (2014), “Selection of Alternate Worksystems to Improve Occupational Health of Indian Construction Workers: A Design of Experiment Based Approach”, Proceedings of International Conference on Managing the Asian Century (ICMAC-2014), Spinger, 2014.

9. Papiya Bhattacharjee and **Pradip Kumar Ray** (2014), “Appointment Scheduling in Presence of Walk-ins and Emergency Arrivals”, Proceedings of International Conference on Managing the Asian Century (ICMAC-2014), Springer, 2014.

## **7. Copyright Granted:**

The EPI model, a unique tool for measuring and assessing the ergonomic performance for any unit of analysis in any type of organization designed for the first time, has been copyrighted. (**Registration Number: L-23080/2005**)

## **8. PhD Thesis Examined**

1. “Modelling and Analysis of Reliability and Costs for Lifetime Warranty and Service Contract Policies”, Queensland University of Technology, Brisbane, Australia, June 2007.
2. “Motivation and Job Satisfaction of Middle Level Managers in Heavy Manufacturing Industries of Public Service”, Andhra University, India, May 2007.
3. “Studies on Some Aspects of Service Quality Evaluation with Specific Relevance to Indian Service Industries”, NIT, Rourkela, India, December 2007.
4. “Critical Analysis of Work Centre Trauma Using Traction Devices”, VTU, Belgaum, Karnataka, India, October, 2009.
5. “Mathematical Modelling Using Fuzzy Sets in Cellular Manufacturing System”, NIT, Jamshedpur, India, August, 2009.
6. “Co-relationships Analysis of Anthropometric Data and Human Energy Consumption”, University of Pune, Pune, India, October, 2009.
7. “Improved Heuristics for Manufacturing Scheduling”, Jadavpur University, Calcutta, India, May, 2013.
8. “Multi-Response Optimization of Multi-Characteristic Processes”, Jadavpur University, Calcutta, India, June, 2013.
9. “Application of Preference Ranking-based Methods for Decision Making in Manufacturing Environment”, Jadavpur University, Calcutta, India, September, 2013.
10. “Design Optimization and Development of Carding Machine”, RTM Nagpur University, Nagpur, India, November, 2013.
11. “Integrated Model for the Sustainable Development of the Coal Industry in Australia”, Central Queensland University, Gladstone, Queensland, Australia, December, 2013.
12. “Materials Selection Under Fuzzy Environment”, Jadavpur University, Calcutta, India, December, 2013.
13. “Study, Analysis and Optimization of Integrated Reliability Model for Redundant Systems”, Jawaharlal Nehru Technological University, Anantapur, AP, India, March, 2014.
14. “Study on Performance Evaluation of Indian Technical Institutions”, Jadavpur University, Calcutta, India, June, 2014.
15. “Study on Some Challenging Issues in Implementing Lean Six Sigma”, Jadavpur University, Calcutta, India, July, 2014.

16. "Development of Predictive Maintenance Models – A Study on Indian Manufacturing Sector", Indian School of Mines, Dhanbad, India, September, 2014.
17. "Formulation of the Approximate Generalized Experimental Data Based Model for Oil Seed Pressure Using Human Powered Flywheel Motor as an Energy Source", RTM Nagpur University, Nagpur, India, January, 2015.
18. "Knowledge Management System in Banks – A Study of KM Practices in ICICI Bank", JNT University, Kakinada, Andhra Pradesh, India, January, 2015.
19. "Mechanical Design, Fabrication and Performance Validation of a Novel Gearbox Compatible for Process Machines Energized by Human Powered Flywheel Motor", RTM Nagpur University, Nagpur, India, July, 2015.
20. "Development and Validation of an Integrated Model of Construction Supply Chain in Indian Context", National Institute of Industrial Engineering (NITIE), Mumbai, India, October, 2015.
21. "Supply Chain Performance Metrics: An Ethiopian Experience", National Institute of Technology, Warangal, December, 2015.
22. "Developing Supply Chain Framework for Analysing Performance Index for Continuous Type and Job Shop Type Industries", BIT Sindri, Dhanbad Vinoba Bhave University, Hazaribag, Jharkhand, India, June, 2016.
23. "Efficient Algorithms for Parallel Machine Scheduling", Jadavpur University, Calcutta, India, June, 2016.

**9. List of Research and Consulting Assignments Undertaken (in Reverse Chronological Order)**

**(CI: Contributory Investigator; PI: Principal Investigator; Co-PI: Co-Principal Investigator): Total Number of Projects: 25 (till date)**

<b>Sl. No</b>	<b>Title of the Project</b>	<b>Sponsor/Funding Agency</b>	<b>Responsibility</b>	<b>Timing/Duration</b>
1	Process Improvement of 130-mm Shell Manufacturing by Analyzing the Design and its Ballistic Behaviour	Indian Ordnance Factories, Ministry of Defence, Government of India	PI	December, 2014 - November, 2015 (ongoing)
2	Climate Change Issues and Environmental Performance of Small and Medium Sized Enterprises in India and the UK	UKIERI (With Aston University, UK)	CI	March, 2012 - June, 2015 (ongoing)
3	Development of Diesel Price Escalation Formulae for HEMM Contract (DDPC)	Central Mine Planning and Design Institute Limited (CMPDI)	Co-Consultant	December, 2013 - June, 2014 ( 6 Months)
4	Hazard Identification and Risk Assessment of Industrial Activities in the ITR, Chandipur	DRDO, Chandipur	Co-Consultant	December, 2012 - May, 2014 (1Year 6 Months)
5	Pilot Project on Implementation of Lean Engineering Practices at 11BRD, AF	Indian Air Force, New Delhi	PI and Team Leader	October 2008 – June, 2010. (1 Year 8 Months)
6	Project on Preparation of Blueprint for Establishment of Indian Institute of Corporate Affairs	IICA, New Delhi	Co-PI	September, 2008 to February, 2009 (6 Months)
7	Study on Ore Losses during Transit and Material Handling for OMC-operated Mines	The Orissa Mining Corporation Ltd, Bhubaneswar	PI	August, 2007- December, 2008 (1 Year 5 Months)

<b>Sl. No</b>	<b>Title of the Project</b>	<b>Sponsor/Funding Agency</b>	<b>Responsibility</b>	<b>Timing/Duration</b>
8	Developing a Maturity Model to Transform 'Potential' Organizational Resources to Assets (based on AXELL) for Tata Consultancy Services Ltd	Tata Consultancy Services, Bangalore	Co-PI	February, 2007 – January, 2008 (1 Year)
9	Manpower Study for the Mines Division of IMFA Ltd, Bhubaneswar	IMFA Limited, Bhubaneswar	PI	January- September, 2007 (9 Months)
10	Techno-Economic Feasibility Study for Alternate Products for Hindustan Cables Limited, Calcutta	Hindustan Cables Limited, Calcutta	Co-PI	January –May, 2007 (5 Months)
11	Development and Test of a Socio-technical Model for Assessing Occupational Risk of Injuries and Illnesses to Mine Workers, Sanctioned by CSIR, Govt. of India, New Delhi	CSIR, New Delhi	Co-PI	September, 2006 - August 2008 (2 Years)
12	Ergonomics and Human Factor Engineering Laboratory Development under FIST-DST project	DST, New Delhi	PI	April, 2006 – March, 2011 (5 Years)
13	Turnaround Strategies for Hindustan Cables Limited, Calcutta	Hindustan Cables Limited, Calcutta	Co-PI	August to November, 2004 (4 Months)
14	IIT Mission Project on “Development of a high-speed sensing and detection system for automatic removal of packages with leaky seals from a high speed food processing and packaging line”	IIT Kharagpur	Co-PI	November, 2003 to October, 2004 (1 Year)
15	Upgradation and Development of Industrial Engineering Laboratory (MHRD-sponsored project)	MHRD, New Delhi	PI	May, 2003 to April, 2005 (2 Years)

<b>Sl. No</b>	<b>Title of the Project</b>	<b>Sponsor/Funding Agency</b>	<b>Responsibility</b>	<b>Timing/Duration</b>
16	Design of Ergonomic Performance Indicator (EPI) for Tata Steel, Jamshedpur	Tata Steel Jamshedpur	PI	April, 2003 to August, 2003 (5 Months)
17	Coal Net Software Application Development Project for Coal India Ltd, Calcutta, India	Coal India Limited, Calcutta	Co-PI	June,2001 to May,2002, (1 year)
18	Design of Material Handling: Inbound and Inside Logistics Systems for Tata Chemicals Ltd, Chemicals Division, Mithapur, Gujarat, India	Tata Chemicals Limited, Bombay	Co-PI	December, 2000 to March, 2002 (1 year 4 months)
19	Development of Time Standards for the Machining Operations at Flender Ltd, Kharagpur, India	Flender Limited, Calcutta	PI	December, 2000 to August, 2001 (9 months)
20	Layout Planning for a new factory producing microwave towers of Telecom, Calcutta, India	Telecom, Calcutta, (Government of India)	PI	January-June, 1994 (6 months)
21	Work Study and Manpower Assessment of the Administrative Departments and Hospital of IIT, Kharagpur, India	IIT Kharagpur	PI	January, 1992- March, 1994 (2 years 3 months)
22	Productivity Studies and Manpower Assessment of Production and Administrative Functions and Activities of IMFA, Bhubaneswar, India	IMFA, Bhubaneswar	Co-PI	January, 1992- March, 1993 (1 year 3 months)
23	Development of an Ergonomics and Product Design and Development Laboratory	MHRD, New Delhi	PI	April, 1989-March, 1993 (4 years)
24	Interdisciplinary Work System Design Laboratory	MHRD, New Delhi	PI	December, 1987- March, 1990 (2 years 3 months)

Sl. No	Title of the Project	Sponsor/Funding Agency	Responsibility	Timing/Duration
25	Development and Implementation of Productivity Management System (PMS) for Blast Furnace, SMS, and Sheet Mill Maintenance of TISCO, Jamshedpur, India	Tata Steel Jamshedpur	Co-PI	July, 1988- January, 1990 (2 years)

**10. Name, Address and Phone number of Three Referees:**

- (i) **Professor S G Deshmukh**  
 Director, ABV-IIITM Gwalior  
 Madhya Pradesh  
 Ph: 0751-2449702, 2460316  
 Email: director@iiitm.ac.in
- (ii) **Professor Kripa Shanker**  
 Department of Industrial and Management Engineering  
 IIT Kanpur  
 Kanpur 208 016, India  
 Ph: 0512-2597683/2597376, 09415042484 (m)  
 Email: [ks@iitk.ac.in](mailto:ks@iitk.ac.in)
- (i) **Professor Sadananda Sahu**  
 Emeritus Professor  
 School of Mechanical Sciences  
 IIT Bhubaneswar  
 Samantapuri  
 Bhubaneswar 751013  
 Ph:0674 2576160, 7894405919(m)  
 Email: [profssahu@gmail.com](mailto:profssahu@gmail.com)  
[sahus@mech.iitkgp.ernet.in](mailto:sahus@mech.iitkgp.ernet.in)

- 11. (a) Date of Birth:** June 25, 1956  
**(b) Marital Status:** Married with one daughter  
 (Wife: Assistant Professor in Geography at an Undergraduate College in West Bengal, India)  
**(c) Citizenship:** Indian