

## Dr. K. K. Singh



**Designation:** Assistant Professor

**Date & Place of Birth:** 08-09-1972, Bhagalpur

**Official Address:** Dr. Kalyan Kumar Singh, Department of Mechanical Engineering & Mining Machinery Engineering (ME & MME), Indian School of Mines (ISM), Dhanbad, Jharkhand.

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**Academic Qualification:** B.E (Mechanical Engineering) M.Tech. (Manufacturing Science & Engineering), Ph.D (Mechanical Engineering from UPTU, Lucknow, 2008)

**Thesis Supervisor for Ph.D-** Dr. Prashant Kumar (IIT-K), Dr. R. K. Singh (DMSRDE, Kanpur)

**Research Place for Ph.D:** IIT-Kanpur & DMSRDE (DRDO Lab) Kanpur

### **Member of professional bodies:**

Life Member of Indian Society for Technical Education (ISTE)

Life Member of Indian Society for advancement of Materials and process Engineering (ISAMPE)

Associate Member of The Institution of Engineers (India)

**Specialization:** Manufacturing Science & Technology, Polymer Matrix Composites and Impact & Failure analysis

**Research interest:** Advanced Manufacturing, Advanced Composite materials, Fracture Mechanics & Contact Mechanics

**Teaching & Research Experience:**

**Assistant Professor**, Indian School of Mines (ISM) Dhanbad, Jharkhand from 18<sup>th</sup> August 2009 to present.

**Lecturer**, Dr. B. R. Ambedkar **National Institute of Technology (NIT)** Jalandhar, Punjab from 20<sup>th</sup> August 2007 to 17<sup>th</sup> August 2009.

**Sr. Lecturer**, Hindustan College of Science & Technology, Mathura from 1<sup>st</sup> March 2006 to 19<sup>th</sup> August 2007.

**Lecturer**, Hindustan College of Science & Technology, Mathura from 17<sup>th</sup> October 2003 to 28 February 2006.

**Visiting Faculty**, Hindustan Institute of Management and Computer Studies, Mathura, from February 2005 to September 2006.

Visiting Research Associate, Department of Mechanical Engineering, IIT Kanpur, winter 2007

Visiting Research Associate, Department of Mechanical Engineering, IIT Kanpur, summer 2007

Visiting Research Associate, Department of Mechanical Engineering, IIT Kanpur, summer 2006

Visiting Research Associate, Department of Mechanical Engineering, IIT Kanpur, summer 2005

Visiting Research Associate, Department of Mechanical Engineering, IIT Kanpur, summer 2004

Research Associate, Department of Metallurgy, I.I.Sc. Bangalore, From Sept. 2002 to Oct. 2003

**Research Publications:** International journals: 11 and two (In Press)

**Conferences:** 22, **Books authored / edited:** Two and One (In Press)

**Research Guidance:** Doctoral Degree: 01 (Completed), 06 (In Progress)

**Other Responsibility @ ISM Dhanbad**

Member of working committee of TEQIP-II

Warden, Emerald Hostel

Lab-in Charge (Strength of Material Lab)

Member of M.Tech course development committee

**Course given to me@ Indian School of Mines (ISM), Dhanbad**

Engineering Mechanics

Manufacturing Process

Engineering Graphics

## **LIST OF PUBLICATION: Publications in international journals / Conference & Books**

### **INTERNATIONAL JOURNALS**

V. B. Ugale, **K. K. Singh**, N. M. Mishra & Prashant Kumar [2011], "Flexural Behavior of Thin Sandwich Panel", "Journal of Applied Composite Material", ([www.springer.com](http://www.springer.com)), (**Submitted for Publication**).

**K. K. Singh &** R. K. Singh & Prashant Kumar [2011], "Experimental study of Damage Area Extension in GFRP Composites at Different Energy Level", Journal of Engineering and Applied Sciences, **Accepted** for publication, 2011.

K. Ojha, R. K. Garg and **K. K. Singh** [2011], "Effect of chromium powder suspended dielectric on surface roughness in PMEDM Process", Journal of Tribology - Materials, Surfaces & Interfaces, Volume 5, Number 4, pp. 165-171(7), **2011**.

P. S. Shinde, V. K. Tripathi, Prashant kumar, P. K. Sarkar & **K. K. Singh** [2011], "Review paper on analysis of composite patches as a crack arrester", Journal of Engineering and Applied Sciences, **Accepted** for publication, 2011.

Kuldeep Ojha, R. K. Garg and **K. K. Singh** [2011], "Experimental Investigation and Modeling of PMEDM Process with Chromium Powder Suspended Dielectric" International Journal of Applied Science and Engineering (IJASE), ([ijase@cyut.edu.tw](mailto:ijase@cyut.edu.tw)), 9(2), pp 65-81.

**Dr. K. K. Singh &** Dr. M. K. Jha [2011], "Effect of particle size and concentration of Fly Ash on the properties of Polypropylene based Composite Materials", Journal of Engineering and Applied Sciences, **Accepted** for publication, 2011.

**K. K. Singh**, P. K. Sarkar, Farhan J & Deepak P [2011], "Review Paper on Processing Technique of Polymer Matrix Composites: Current and Future Trends" **Journal** of Engineering and Applied Sciences, 6(3), pp216-221, 2011.

Kuldeep Ojha, R. K. Garg & **K. K. Singh** [2011], "The effect of Nickel Micro Powder Suspended Dielectric on EDM Performance Measure of EN-19 Steel", **Journal** of Engineering and Applied Sciences, V-6, Issue 1, Page No.:27-37.

R. K. Garg, **K. K. Singh**, Anish Sachdeva, Vishal S. Sharma, Kuldeep Ojha & Sharanjit Singh [2010], "Review of research work in sinking EDM and WEDM on metal matrix composite materials" **International Journal of Advanced Manufacturing Technology** ([www.springer.com](http://www.springer.com)), Volume 50, Numbers 5-8, pp. 611-624(14).

Kuldeep Ojha, R. K. Garg & **K. K. Singh [2010]**, "MRR Improvement in Sinking Electrical Discharge Machining; A Review" Journal of Minerals & Materials Characterization & Engineering ([www.jmmce.org](http://www.jmmce.org)), Volume 9, Number 8, pp. 709-739.

**Kalyan Kumar Singh**, R. K. Singh & Prashant Kumar **[2009]** "Toughness of adhesive bonded interface under static and dynamic loads – An Experimental Study", "Journal of Reinforced Plastics & Composites". This Journal is published in association with American Society of Composite Material. ([www.sagepub.in](http://www.sagepub.in)), Volume 28, Number 5, Pages 601-611.

**Kalyan Kumar Singh**, R. K. Singh, P. S. Chandel & Prashant Kumar **[2008]**, "An Asymmetric FRP Laminate with a circular precrack to determine Impact-Induced Damage" **Willy Inter Science Journal; Polymer Composites**". Volume 29, Issue 12, Pages 1378-138.

#### **CONFERENCES & BOOKS**

**Kalyan Kumar Singh**, R. K. Singh & Prashant Kumar **[2011]**, "Impact Induced Damage Study on Angle Ply Laminates" **International Conference** on Advances in Materials and Materials Processing" (**ICAMMP-2011**), December 9-11, at I.I.T, Kharagpur.

**Kalyan Kumar Singh**, R. K. Singh & Prashant Kumar **[2011]**, "Damage due to Impact on Symmetric and Asymmetric Laminates of Fiber Reinforced Polymer Composites", ISAMPE National Conference on Composites, **INCCOM10**, 18-19<sup>th</sup> November at R&D Establishment (Engineers)-Pune.

V. B. Ugale, **K. K. Singh**, N. M. Mishra & Prashant Kumar **[2011]**, "Flexural Behavior of Thin Sandwich Panel", ISAMPE National Conference on Composites, **INCCOM10**, 18-19<sup>th</sup> November at R&D Establishment (Engineers)-Pune.

P. S. Shinde, **K. K. Singh**, V. K. Tripathi, P. K. Sarkar & Prashant Kumar **[2011]**, "Repair of a cracked Specimen of Acrylic Sheet through bonding GFRP Patches" ISAMPE National Conference on Composites, **INCCOM10**, 18-19<sup>th</sup> November at R&D Establishment (Engineers)-Pune.

R. N. Ladhwe, S. S. Kore, **K. K. Singh**, P. K. Sarkar & Prashant Kumar **[2011]**, "Characterization of FRP But Joint Under Flexural Loading" ISAMPE National Conference on Composites, **INCCOM10**, 18-19<sup>th</sup> November at R&D Establishment (Engineers)-Pune.

Sayantana Chattopadhyay, P. K. Sarkar & **K. K. Singh [2011]**, "Review and future trends of the production of Carbon nanotubes from coal" National Conference Cum Workshop on Recent Development in Engineering Materials, May 12-14 at B.I.T Mesra, Ranchi.

**Dr. Kalyan Kumar Singh**, Dr. R. K. Singh & Dr. Prashant Kumar **[2011]**, "Determination of Damage Area through Dissection of Impacted Glass Fiber Reinforced Polymer Matrix Composites", **International Conference** on composites for 21<sup>st</sup> Century: Current & Future Trends, (**ICC-CFT-2011**), January 4-7 at **Indian Institute of Science (IISc.)**, Bangalore.

**Dr. Kalyan Kumar Singh**, Dr. P. K. Sarkar, Farhan & Deepak **[2010]**, "Processing Technique of Polymer Matrix Composites: Current and Future Trends", Second **International Conference** on Production & Industrial Engineering (**CPIE-2010**), NIT-Jalandhar, 3-5<sup>th</sup> December 2010.

**Dr. Kalyan Kumar Singh** Dr. R. K. Singh & Dr. Prashant Kumar **[2010]**, "Damage Area Extension in Glass Fibre Reinforced Polymer Matrix Composites at Different Energy Level", Second **International Conference** on Production & Industrial Engineering (**CPIE-2010**), NIT-Jalandhar, 3-5<sup>th</sup> December 2010.

**Dr. Kalyan Kumar Singh**, Dr. R. K. Garg & Kuldeep Ojha **[2010]**, "Innovative tool electrode designs for sinking EDM process- A review", Second **International Conference** on Production & Industrial Engineering (**CPIE-2010**), NIT-Jalandhar, 3-5<sup>th</sup> December 2010.

**Dr. Kalyan Kumar Singh**, Dr. R.K. Singh & Dr. Prashant Kumar **[2010]**, "Impact Induced Damage study on Symmetric Laminates Glass Fabric Specimen" **International Conference** on Advances in Polymeric Material (**APM-2010**), CIPET, Bhubaneswar, 20-22<sup>nd</sup> February, 2010.

**Dr. Kalyan Kumar Singh**, Dr. P. K. Sarkar, Dr. R. K. Singh & Dr. Prashant Kumar **[2010]**, "Impact Induced Damage study on adhesively bonded Asymmetric and Symmetric Fiber Reinforced Polymer composites" Third **International Conference** on Advances in Mechanical Engineering (ICAME-2010), SVNIT-Surat, 4-6<sup>th</sup> January, 2010, pp.423-27.

**Kuldeep Ojha, & K. K. Singh [2010]**, "Review and Future Trends of Sinking EDM on Silicon Carbide Reinforced Metal Matrix Composites" Third **International Conference** on Advances in Mechanical Engineering (ICAME-2010), SVNIT-Surat, 4-6<sup>th</sup> January, 2010, pp.821-26.

**Dr. Kalyan Kumar Singh**, Dr. R.K. Singh & Dr. Prashant Kumar **[2010]**, "Static and Dynamic Interlaminar Fracture Toughness of Bidirectional Polymer Matrix Composites" National Seminar on Photonics and Materials (NASPAM-10), Department of Applied Physics, ISM Dhanbad, 25-27<sup>th</sup> March 2010.

**Kalyan Kumar Singh “Unconventional Manufacturing Processes” [2007]**, for Final Year B.Tech. Students of Uttar Pradesh Technical University (UPTU), Lucknow, Dhanpat Rai & Company, New Delhi.

**Kalyan Kumar Singh, Prashant Kumar & R. K. Singh [2007]**, “Toughness of adhesive bonded interface under static and dynamic loads” Diamond Jubilee Symposium 4<sup>th</sup> to 6<sup>th</sup> July 2007, Indian Institute of Science, (IISC.), Bangalore.

**Kalyan Kumar Singh, S.K.Agrahari, C.Mohan, Abhijeet & Abhishek [2007]**, “To Develop A Stress Pattern During Vibratory Drilling Of GFRP” **International Conference** at IIT-Kanpur, 12-14 Dec. 2007. This international conference is jointly organized by IIT-K and ISAMPE.

**Kalyan Kumar Singh & Dr. A.C.Niranjan “Manufacturing Science” [2006]**, for second Year B.Tech Students of Uttar Pradesh Technical University (UPTU), Lucknow, Pooja Publication, Bangalore.

**Kalyan Kumar Singh & Prof. E.S. Dwarakadasa [2006]**, “Environmental Degradation of Polymer Matrix Composites” **International Conference** on Materials Design and development (ICAMDD), 3-5 Feb 2006. IIT-Kharagpur.

**Kalyan Kumar Singh, R. K. Singh & Prashant Kumar [2005]**, “Toughness of adhesive bonded interface under static and dynamic loads” **International Conference**, 14-16 Dec.2005. IIT-Kharagpur & Georgia Institute of Technology, Atlanta, USA.

**Kalyan Kumar Singh [2004]**, “Environmental Degradation of Advanced Composites” on 26<sup>th</sup> January 2004, on the occasion of National Conference at GLA Institute of Technology, Mathura, Uttar Pradesh, India.

**Kalyan Kumar Singh, Dr. R. K. Singh & Dr. Prashant Kumar [2004]** “Detection of delamination in impacted panels of GFRP”, **International Conference**, 17<sup>th</sup> to 19<sup>th</sup> Dec.2004. IT-BHU & Sponsored by AFOSR- AOARD, USA.

**Kalyan Kumar Singh, A. C. Niranjanappa & Prof. E.S. Dwarakadasa [2003]**, “Environmental Degradation of Glass Epoxy Composites” **International Conference**, Light Metals Sc.& Technology -April 2003. I.I.Sc. Bangalore.

**Kalyan Kumar Singh**, A.C.Niranjanappa, H.B.Niranjan & Prof. E.S. Dwarakadasa [2003], “Environmental Degradation of Advanced Polymer Matrix Composites” Conference of Research Scholars on Materials Science And Engineering, August 30 –31, 2003. IIT-Kharagpur.

#### **GUEST LECTURE DELIVERED**

Invited Lecture delivered on “**Advanced Materials and Composites**” at MHRD/AICTE sponsored summer school on “**Enhancing competitiveness in Manufacturing and service organization**” 20<sup>th</sup> to 24<sup>th</sup> July 2009 at Dr. B. R. Ambedkar National Institute of Technology, Jalandhar, Punjab.

Invited Lecture delivered on “**Composite Materials**” at National Conference on Recent Trends in Manufacturing Technology” on 24<sup>th</sup>–25<sup>th</sup> January 2007 at Department of Mechanical Engineering, Hindustan College of Sc. & Technology, Mathura, UP.

Invited Lecture delivered on “**Environmental Aspects of Polymer Matrix Composites**” on 28<sup>th</sup> July-2006, Department of Mechanical Engineering, IIT-Roorkee.

Invited Lecture delivered on “**Materials & Composites**” at ADRDE, Agra on 23<sup>rd</sup> Feb.2004. ADRDE is a national laboratory of DRDO. Ministry of Defence, Government of India.

Invited Lecture delivered on “**Advanced Composites**” in March 2003 at Government Engineering College, Bagalkot, Karnataka.

#### **COURSES ORGANIZED & ATTENDED**

One-week short-term course attended on “**Emerging Trends in Carbon Nanotechnology**” in 14-18<sup>th</sup> December, 2010 at Department of Mechanical Engineering, IIT-Kanpur.

A weeklong International Workshop on “**Damage Tolerance and Fatigue in Composites**” attended during 15-17 September 2010. This workshop is conducted by Cranfield University, U.K and place of workshop is NAL (National Aerospace Laboratories) Bangalore

One-week short-term course attended on “**Perspectives of Metal Cutting: Present & Future**” in 12-16<sup>th</sup> July 2010 at Department of Industrial & Production Engineering, Dr. B. R. Ambedkar National Institute of Technology, Jalandhar.

One day lecture organized for inaugural function of ISAMPE, ISM Dhanbad Chapter on 29<sup>th</sup> October 2010 at Department of Mechanical Engineering & Mining Machinery Engineering at ISM, Dhanbad.

One day lecture organized & attended on “**Advanced Materials & their applications**” in May 2008 at Department of Industrial & Production Engineering, Dr. B. R. Ambedkar National Institute of Technology, Jalandhar.

One-week short-term course attended on “**Micro-Machining**” in June 2007 at Department of Mechanical Engineering, IIT-Kanpur.

One-week short-term course attended on “**Nano Composite Materials**” in November 2006 at Department of Mechanical Engineering, IIT-Kanpur.

One-week short-term course attended on “Advanced Processing of Composite Materials” in 24-28 July 2006 at IIT-Roorkee.

A weeklong training program organized & attended on MATLAB during February 2006 in Mechanical Engineering Department at Hindustan College of Science & Technology, Mathura, Uttar Pradesh.

Five days course organized & attended on “**CAD/CAM**” at Department of Mechanical Engineering, Hindustan College of Sc. & Technology, Farah, Mathura, U.P., 2006.

One-week short-term course attended on “**Composite Materials**” in October 2005 at Department of Mechanical Engineering, IIT-Kanpur.

#### **SOFTWARE EXPOSURE**

##### **Programming Language**

Fortran, “C”, “C++”, Java

##### **Operating Systems**

Windows, MS-DOS, UNIX

##### **Mechanical CAE/CAD/CAM Software**

I-DEAS Software, PRO-E Software, AUTO-CADD-2007

NC Part Programming

**Course taught by me: (B.Tech., M.Tech., MBA, MCA, Ph.D)**

**At Dr. B. R. Ambedkar National Institute of Technology, Jalandhar**

- Metallurgy and Heat Treatment

- Mechanics of Metal Forming
- Emerging Trends in Manufacturing Technology
- Non- Conventional Machining Techniques
- Casting and Welding Technology
- Machine Drawing
- Design of Machine Elements
- Composite Materials
- Fracture Mechanics

**Course design & Development and taught by me at NIT, Jalandhar:**

- Fracture Mechanics
- Composite Materials
- Smart Materials & Nano Technology
- Finite-Element Plasticity & Metal Forming Analysis

**At Hindustan College of Science & Technology, Mathura, UPTU, Lucknow**

- Elements of Mechanical Engineering
- Workshop Practice
- Unconventional Manufacturing Process
- Manufacturing Science I
- Manufacturing Science II
- Machine Drawing
- Dynamics of Machines
- Operations Research
- Automatic Control Systems
- Productions & Operations Management
- Supply Chain Management

**Awards and recognition:**

- Cash prize for best paper publication in international reputed journals in 2007 at Hindustan College of Sc. & Technology, Mathura.
- Cash prize for paper publication in international reputed journals in 2006 at Hindustan College of Sc. & Technology (HCST), Mathura.
- National Merit Scholarship from class 6<sup>th</sup> to class 12<sup>th</sup>.

**Referees:**

- 1. Dr. Prashant Kumar**  
Professor Emeritus at COEP (Pune)  
Department of Mechanical Engineering  
Former Professor from IIT-Kanpur  
Kanpur-208 016, India.  
E-mail: [prkumar@iitk.ac.in](mailto:prkumar@iitk.ac.in)
- 2. Dr. Bikramjit Basu**  
Associate Professor  
Department of Materials and Metallurgical Engineering  
IIT-Kanpur  
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Fax: +91-512-2597505, 0260  
E-mail: [bikram@iitk.ac.in](mailto:bikram@iitk.ac.in)
- 3. Dr. E. S. Dwarakadasa**  
Former Professor  
Department of Metallurgy  
Indian Institute of Science  
Bangalore-12  
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- 4. Dr. R. K. Singh**  
Emeritus Scientist  
Defence Materials Stores R&D Establishment  
Defence Research & Development Organization  
(DMSRE), DRDO.Government of India  
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