

Prof. (Dr.) Manoj Kumar Singla

Ph.D. (ME), M.Tech.(M/c Design) BE (Mech)
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 Civil Station Bathinda (PB)


Education Details

Ph.D.	Full-time	Mechanical Engineering	Indian Institute of Technology Ropar, 2016, with 9.0 CGPA
M.Tech.	Part-time	Machine Design	B.B.S.B.E.C., Fatehgarh Sahib, affiliated to P.T.U. Jalandhar, 2007
B.E.	Full-time	Mechanical Engineering	G.Z.S.C.E.T. Bathinda, affiliated to P.T.U. Jalandhar, 1999

Ph.D. Thesis Title : Erosion-Corrosion Studies of Nanostructured Ni-Cr Coatings on SAE 213-(T22) and SA 516 (Gr -70) Steels

Teaching and Research Experience: 21 years Administration: 12 years

Position Held	Name of Organization	Session
Professor (ME) and Head AU04	Chandigarh University, Mohali	2018-till date
Professor (ME)	Chandigarh University, Mohali	2017-18
Prof. & Head (ME)	CGC College of Engineering, Landran	2016-17
Associate Prof. (ME)	R.I.E.I.T. Railmajra	2015-16
Ph.D. Scholar (SMMEE)	I.I.T. Ropar	2011-15
Asst. Prof. and Head (ME)	R.I.E.I.T. Railmajra	2003-11
Lect. (ME)	B.R.C.M.C.E.T. Bahal (Haryana)	2000-03

Professional Interests

Research 3D Printing, Surface Engineering, Synthesis of Nano-particles; Tribology of Composites; Machine Design

Teaching Composite Materials, Design of Automotive Components, Strength of Materials (I and II), Mechanical Design (I and II), Engineering Drawing and Computer Graphics, Machine Drawing, Engineering Materials and Metallurgy, Operations Research, Advanced Machine Design, Mechatronics, Tribology

Accomplishments and Honours

- Received ISTE Section Best Teacher Award 2020 for outstanding achievements in the field of technical education and research, awarded at ISTE Section Convention hosted by Chandigarh University.
- Received appreciation certificate for the contribution to Journal of Thermal Spray Technology (Springer) as a Reviewer for the year 2019 and 2016.

Guidance of Ph.D. and M.Tech. Theses

Ph.D. : 01 (Done) – Santosh Kumar enrolled in IKG PTU Jalandhar on 05-07-21
Co-Supervisor
03 Ongoing in Chandigarh University, Mohali
Harvinder Singh, Rakesh Kumar, Satwinder Singh

M.Tech. Theses (Completed – 07, 03 ongoing):

Conferences/Workshops/Seminars Organized :10

Other Achievements

- Designed new syllabi and revised existing scheme of B.Tech. and M.Tech., Automobile Engineering Department Chandigarh University, as per the guidelines of AICTE 2018.
- Member of **Board of Studies (BOS)** of Mechanical Engineering, **Punjab Technical University** Jalandhar **for 03 years** from October 2008- October 2011
- Member of Organizing Committee of various functions held in college
- Coordinator of Major Projects in ME Department
- Co-ordinator Mechanical Engineering Students Club

Patents Filed

1. ROAD SAFETY BARRIER DEVICE, Application No.201711027335 A, Date of filing of Application :01/08/2017, Publication Date : 15/03/2019.

2. HEALTH MONITORING SYSTEM AND METHOD THEREOF Application

No.201711027334 A, Publication Date 15-03-19; The Patent Office Journal No. 11/2019

Dated 15/03/2019

Publications**Book Chapter**

M. Kumar (2020), “Study of Natural Fiber Reinforced Composites for Structural Applications”, White Falcon Publishers – Accepted

M. Kumar, H. Singh (2018), “Erosion-Corrosion Behaviour of Nanostructured Coatings”, White Falcon Publishers, pp. 46-66.

Journals**(SCI-indexed - 20) (Total Impact Factor: more than 50)****(Non-SCI indexed – Peer Reviewed - 17)****Scopus Papers :11****UGC Approved Journal Papers :02****Non-SCI/Non UGC Approved:11****Conferences*****International Conferences :22******National Conferences:12*****Poster Presentation****National**

Presented a Poster at Research Scholar’s Day held at IIT Ropar on 02-02-2012 on the topic “Synthesis of Ni-20Cr alloy powder and deposition using Cold Spraying process”.

Workshops/ Seminars Attended/Certifications (More than 30 weeks)**Countries Visited-02**

- ❖ Spain Barcelona (21 -23 May 2014 to attend ITSC 2014)
- ❖ South Korea (13-15 May 2013 to attend ITSC 2013)

Membership of Professional Bodies

- Fellow of Institution of Engineers.(**F-1250481**) elected on 31-03-19
- Life Member of Society of Materials and Mechanical Engineers (SOMME) LM-10039, India

- Life Member Indian Society for Technical Education (**LMISTE35284**)
- Life member of Indian Society for Advancement of Materials and Processing Engineering (**LMISAMPE**) membership no. L-980
- Associate Member of SAE India. (7008310117)

List of Expert Lectures delivered :06

Books Authored-02

1. **Tribology of Metal Matrix Composites** – Design and Development by M.K.Singla, published by **LAP LAMBERT Academic Publishing** GmbH and Co. KG, Heinrich-Bocking-Str.6-8,66121 Saarbrücken, **Germany**. ISBN (978-620-0-44342-7) (01-12-2011)
2. **Surface Modification Of Boiler Tubes To Combat Erosion-Corrosion – Thermal Spray Coatings**, **LAP LAMBERT Academic Publishing** Founded in Germany in 2002 (18-10-2019) ISBN 978-620-0-44342-7 ; ISBN 10: 6200443424

References

1. Prof. (Dr.) Harpreet Singh

Department of Mechanical Engineering
and Dean (Industrial Consultancy, Sponsored Research and Industry Interaction)
Room No. 109,
Room No. 227, Satish Dhawan Building
Indian Institute of Technology Ropar, Rupnagar-140001 (Punjab) INDIA
+91-98557-09052, e-mail: harpreetsingh@iitrpr.ac.in

2. Prof. (Dr.) Buta Singh Sidhu

Vice Chancellor, MRSPTU Bathinda
+91-95011-09002, e-mail: vc@mrsptu.ac.in, butasidhu@yahoo.com

Personal Profile

Date of Birth	:	17-04-1977
Gender	:	Male
Marital Status	:	Married
Children	:	02
Language Known	:	English, Hindi, Punjabi

Publication Details (July 2018 onwards) with proofs

(SCI-indexed)

1. Kumar R., **Kumar M.** and Chohan J.S. (2021), “**Material Specific Properties and Applications of Additive Manufacturing Techniques – A Comprehensive Review**” Bulletin of Material Science, Vol. 44:181, pp. 1-19 (I.F. 1.499)
2. Kumar R., **Kumar M.** and Chohan J.S. (2021), “**The Role of Additive manufacturing for Biomedical applications: A Critical Review**” Journal of Manufacturing Processes, Vol. 64, pp. 828–850 (I.F. 4.086)
3. Kumar S., **Kumar M.** and Handa A. (2020), “Erosion corrosion behavior and mechanical properties of wire arc sprayed Ni-Cr and Ni-Al coating on boiler steels in a real boiler environment” Materials at High Temperatures – DOI: 10.1080/09603409.2020.1810922 August 2020 (I.F. 1.545)
4. Kumar S., **Kumar M.** and Handa A. (2019), “**High Temperature Oxidation and Erosion-Corrosion Behaviour of Wire Arc Sprayed Ni-Cr Coating on Boiler Steel**”, Material Research Express, Vol. 6, 125533 DOI: 10.1088/2053-1591/ab5fae Accepted on 04 Dec. 2019 (IF 1.449)
5. Kumar S., **Kumar M.** and Handa A. (2019), “**Comparative Study of High Temperature Oxidation Behavior and Mechanical Properties of Wire Arc Sprayed Ni-Cr and Ni-Al Coatings**”, Engineering Failure Analysis, Vol. 106, pp.1-16. 03 Sept. 2019 (IF 2.203)
6. Kumar, S., **Kumar, M.** and Jindal, N. (2019), “**Overview of Cold Spray Coatings Applications and Comparisons: A Critical Review**”, Submitted to World Journal of Engineering (I.F. 0.5)- Accepted Dec. 2019.
7. Kant, S., **Kumar, M.** and Kumar, S. (2019), “Corrosion Behavior of Wire Arc Sprayed Ni-based Coatings in Extreme Environment”, Material Research Express Accepted on 17-08-19 (IF 1.449) <https://doi.org/10.1088/2053-1591/ab3bd8>
8. **Upadhayay R., Kumar M.** (2019), “Study of Corrosion and Wear Behavior of HVOF Sprayed WC-10CO-4Cr Coating on Geothermal Turbine Blade”, World Journal of Engineering (I.F. 0.5) DOI (10.1108/WJE-03-2019-0089) Accepted on 20 Sept. 2019

9. **S. Swaminathan, S. M. Hong, M. Kumar, W. S. Jung, D. I. Kim, H. Singh, I. S. Choi, (2019),** “Microstructural evolution and high temperature oxidation characteristics of cold sprayed Ni-20Cr nanostructured alloy coating”, Surface and Coatings Technology, Vol. 362, pp. 333-344 (I.F. 3.192) (Accepted on 31-01-19) online 25 March 2019
10. Singh S., Kaur M., **Kumar M.**, Singh H. and Singh S. (2019), “Study of microstructure evolution, mechanical properties and hot corrosion behavior of friction stir processed boiler steel ”, Material Research Express, Vol. 6(9), pp. <https://doi.org/10.1088/2053-1591/ab2e48> (IF 1.449)
11. Kumar S., **Kumar M.** and Handa A. (2018), “Combating Hot Corrosion of Boiler Tubes – A study”, **Engineering Failure Analysis**, Vol. 94, pp. 379-395 (IF 2.203)
12. Singh, S. **Kumar, M., Sodhi, G.S., Buddu, R.K. and Singh, H.** (2018), “Development of Thick Copper Claddings for In-vessel Components of Fusion Reactors and Copper-Cast Iron Canisters” **Fusion Engineering and Design**, Vol. 128, pp.126-137. (IF 1.457)

(Non-SCI indexed)

13. Singh, H., **Kumar M.** and Singh, R. (2020), “**Combating Slurry and Cavitation Erosion of Hydro turbine Blades – A study**”, **International Journal of Advanced Science and Technology**, Vol. 29 (10S), pp.5744-5755. Scopus Journal ISSN: 2005-4238 (Print)
14. Kant, S., **Kumar, M.**, Chawla, V. and Singh, S. (2020), “**Study of High Temperature Oxidation Behavior of Wire Arc Sprayed Coatings**”, Materials Today: Proceedings00 Vol. 21(4), pp. 1741-1748
15. **Kumar, M.**, Singh, H. and Singh, N., (2020), “Effect of increase in Nano-particle Addition on Mechanical and Microstructural Behaviour of HVOF and Cold-Spray Ni-20Cr Coatings on Boiler Steels”, Materials Today: Proceedings, Vol. 21(4), pp. 2035-2042.
16. Singh, S., Kaur, M. and **Kumar, M.** (2020), “A Novel Technique for Surface Modification of SA 210 Gr A1 Steel”, Materials Today: Proceedings, Vol. 21(4), pp. 1930-1936.
17. Sharma, V., Kumar, S. **Kumar M.** and Deepak, D. (2019), “High temperature oxidation performance of Ni-Cr-Ti and Ni-5Al coatings”, Material Today Proceedings, pp.1-10.

18. Sharma, M., **Kumar M.** and Deepak, D. (2019), “**Effect of Varying Reinforcement Content on the Mechanical Properties of Neem-Recycled HDPE Composites**”, International Journal of Mechanical and Production Engineering Research and Development, Vol. 9, pp. 966-975 ISSN (print) 2249-6890 July 2019 (SCOPUS Indexed).
19. Roy, A., **Kumar M.**, Deepak, D. and Singh, S. (2019), “**Effect of Abaca and Ramie Fiber Content on Mechanical Properties of Polyethylene Composites**”, International Journal of Mechanical and Production Engineering Research and Development, Vol. 9, pp.1015-1024 ISSN (print) 2249-6890 July 2019. (SCOPUS Indexed).

Details of FDP attended in CU or outside (July 2018)onwards) with proofs

1. Attended one week AICTE Training And Learning (ATAL) Academy **Online FDP** on “**3D Printing & Design for Innovative Medical Devices**” on 28 June to 02 July 2021, organized by **MNIT Jaipur**.
2. Attended one week AICTE Training And Learning (ATAL) Academy **Online FDP** on “**3D Printing & Design**” on 01-05 Feb. 2021, organized by **IIT Ropar**.
3. Attended one week AICTE Training And Learning (ATAL) Academy **Online FDP** on “**3D Printing & Design**” on 23-27 Nov. 2020, organized by **Maharshi Dayanand University**.
4. Completed “**The 3D Printing Revolution**” an online certification course authorized by **University of Illinois at Urbana-Champaign** and offered through Coursera, May 24, 2020.
5. Completed “**Materials Science: 10 Things Every Engineer Should Know**” an online certification course authorized by **University of California, Davis** and offered through Coursera, May 15,2020.
6. Attended one week FDP on “**Transforming Education with Industry 4.0**” on 15-20 June 2020, organized by Department of CSE & IT, JUIT Solan.

Details of Workshops Attended in CU or outside(July 2018 onwards) with proofs

1. Attended 02-day Workshop on “**Nanotechnology and Smart Materials**”, 15-16 May 2019, organized by IEI & Chandigarh University Mohali.

2. 05-day Workshop on “**Optimization Techniques and Its Applications**” organized by University Centre for Research and Development (UCRD), Chandigarh University, Gharuan from 25th to 29th June 2018.
3. Completed 02 days workshop on “**Outcome Based Education**”, 27-28 May 2021, organized by UITTR, Chandigarh University, Mohali.
4. Attended '**One day Workshop on R**' held at Chandigarh University, Mohali on **09 November 2019**, organized by the Teaching Learning Centre, ICT at IIT Bombay, funded by the Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNTT), MHRD, Govt. of India
5. 01-day Workshop on **Sustainable Manufacturing** March 19, 2019 at IIT Ropar.

Patents Filed

1. ROAD SAFETY BARRIER DEVICE, Application No.201711027335 A, Date of filing of Application :01/08/2017, Publication Date : 15/03/2019.
2. HEALTH MONITORING SYSTEM AND METHOD THEREOF Application No.201711027334 A, Publication Date 15-03-19; The Patent Office Journal No. 11/2019 Dated 15/03/2019

Awards Received (July 2018 onwards) with proof

1. Received ISTE Section Best Teacher Award 2020 for outstanding achievements in the field of technical education and research, awarded at ISTE Section Convention hosted by Chandigarh University
2. Received appreciation certificate for the contribution to Journal of Thermal Spray Technology (Springer) as a Reviewer for the year 2019 and 2016.

Professional Society Membership Details with proofs

1. Fellow of Institution of Engineers.(**F-1250481**) elected on 31-03-19

PhD guidance/completion July 2018 onwards

- 01 (Done) – Santosh Kumar enrolled in IKG PTU
Jalandhar on 05-07-21
Co-Supervisor
02 Ongoing in Chandigarh University, Mohali
Harvinder Singh, Rakesh Kumar

M.Tech guidance July 2018 onwards (04 done 03 ongoing)

1. A. Roy – Completed (July 2019) Effect of Abaca and Ramie Fiber Content on Mechanical Properties of Polyethylene Composites
2. Mohit Singh – Completed (July 2019) Fabrication and Study of Mechanical Properties of Neem Fiber Reinforced Composites
3. Shashi Kant – Completed (July 2018) Study of Ni-based Wire Arc Sprayed Coatings for Higher Temperature Applications
4. Vivek Sharma – Completed (Dec. 2018) Study of Ni-Cr-Ti and Ni-5Al coating on T22 and T91 Boiler Steel