

## Curriculum Vitae

**Name:** Dr. Sanjeev Kumar Shrivastava

**Designation:** Chief Operating Officer and National Coordinator

**Organisation:** Centre for Nano Science and Engineering (CeNSE),  
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### Job Responsibilities

- To invite, review and select academic/industrial researchers as participants in various INUP outreach programs i.e. Nanoelectronics/Nanotechnology Familiarization Workshops and Hands on Trainings organized periodically in CeNSE, IISc,
- To reach various research institutes and propagate about INUP, attract innovative project proposals for the execution under INUP,
- Review the research projects initially and get it in appropriate format and then get expertise advices from the Faculty members for its feasibility and approval,
- Coordinate technically with various technologists and technology managers to execute the research projects successfully for external academic users/industrial users,
- Be in touch with large number of INUP members for their feedback, get update about their progress in terms of scientific publications, patents, and device developments,
- Generate various review reports indicating progress about set targets of the program in coordination with faculty members for MeitY, Govt. of India,
- Managing administration resources of INUP office and coordinating efforts of visiting researchers with technical staff to get research plan executed within strict deadlines,
- To maintain the quality of workshops/hands on trainings/research execution visits throughout its' cycle.
- To coordinate Institutes/University and Researchers for using Indian Science Technology Engineering facilities Map (I-STEM) as a National Coordinator <https://www.i-stem.ac.in/>
- Indian Technical and Economic Cooperation (ITEC) Programme Coordinator, IISc Bangalore <http://i-step.in/>
- Officer on Special Duty to Dy. Director (P&I), Indian Institute of Science, Bangalore

### National Level Project Proposals (Submitted/Awarded)

- (i) **National Initiative on Education and Innovation in Nanotechnology** (NIEIN) supported by the Ministry of Human Resource Development, GoI:

This proposal is mainly for:

- *Development of Learning Materials (video, demo kits, books etc.)*
- *On-line courses similar to the SWAYAM program (UGC) to be developed*
- *Innovative research for technology development, with specified Deliverables*
- *Training to Researchers at Master's and PhD level*
- *Supporting facilities at CeNSE*

- (ii) **Indian Science, Technology and Engineering facilities Map (I-STEM)** supported by the office of the Principal Scientific Advisor to GoI, **Idea taken to a National Level Program “Strengthening the University System”**

[http://psa.gov.in/s\\_t\\_intervention/strengthening-the-university-system](http://psa.gov.in/s_t_intervention/strengthening-the-university-system)

*The Project entails the design and development of a web portal based on invention patented by the Dr. Sanjeev K Shrivastava et al. The invention is about sharing resources of all kinds which are dispersed geographically, narrowly or widely. This is done through a database that is accessible through a web portal. Through the portal, one can search for a desired and available resource in the nearest location, or locate the same or similar resource that is further away, but more immediately available. Though the invention uses a “geographic map” of available resources, it IS NOT GPS-based, because precise locations are not needed to utilise the invention. The web portal of the invention enables reserving time on the resource or borrowing the resource, either through a payment gateway or on a bartering basis involving “credits” accumulated in the portal. More particularly, the invention enables the sharing of publicly-funded resources, creating greater efficiency in their utilisation and greater optimisation of public investment. The invention also fosters collaboration across boundaries of geography and discipline. An integral part of the invention is the associated database of experts who can be consulted to make the best use of shared resources.*

**Patent Filled: TEMP/E-1/91/2018-CHE Application No. 201841000140 Dtd. 02/01/2018**

**Benefits to the Nation:**

- Operative/dynamic Inventory Management of public funded infrastructures
- Efficient and optimize use of the public funded infrastructures
- Sharing of scientific and technological expertise/experience through the portal
- Easy search model with detailed specifications, multiple options to use available nearby and far away facility on need basis,
- Tool to Control the expenditure of Public/Tax payer money
- Help user to implement and convert idea into product quickly without much interruptions
- Development of android/iOS Mobile app connected with portal to avoid delay in accessing the search model (pocket savvy) as and when needed.
- Cost-effective/Economic model to develop the public infrastructure, reduction of overall import budget of the country (in case of infrastructure made available from foreign agencies)

- (iii) **ITEC Course on Science, Technology and Innovation Policy: Invited by ITEC, Ministry of External Affairs**
- (iv) **Training in Nanofabrication Technologies for scientists from ITEC Nations**
- (v) **International Collaboration in Nanoscience and Engineering (ICiNE): Program for Neighbouring countries was conducted from 10-28 Sept 2018.**

**Idea Converted to International Level Scheme and Launched as “Neighbour First” at IISF-2017 IIT Chennai**

*The above-mentioned three programs (iii, iv & v) are designed for the developing nations which come under the ITEC Program of the MEA, called “ITEC Countries” are meant to train scientists from these countries in the area of Nanotechnologies, to strengthen them in the field of Science and Technology. Encouraged and prompted by the great success of INUP, and with enthusiastic support of the Ministry of External Affairs, GoI, CeNSE embarked on providing INUP-type training to scientists from our ITEC countries. The first such Training Course in Nanotechnologies was concluded in Jan 2016, and was greatly appreciated by participants from Sri Lanka, Bangladesh, Myanmar, and Maldives. The program promptly generated requests from many countries of the region and beyond, seeking opportunity to participate in similar programs, as well access to CeNSE facilities for conducting collaborative research. The MEA therefore supported another Training Course for qualified participants from Asia and Africa to be conducted in August 2017. CeNSE made a proposal to the MEA to make such training courses and collaboration a regular program. The MEA has approved the proposal, which will enable India to become an international hub and a destination for nanotechnology R&D. This is turning out to be “soft diplomacy” in human resource development.*

**(vi) DBT- INUP Project Proposal submitted to DBT, GoI,**

*This project proposal is intended to train researchers working in the area of biotechnologies. This will be similar to the INUP program designed for the researchers working in Nanotechnologies.*

**Active Participation in Other Project Proposal/Policies**

- (i) *Centre of Excellence in Nanoelectronics-Phase II*
- (ii) *Nanoelectronics Network for Research and Applications (NNetRA)*
- (iii) *Assisted in drafting the HR policies for the CeNSE Project staff*
- (iv) *Many new policies are adopted to improve the INUP, such introducing a poster session during familiarization workshop, guidance to INUP Users at each and every level during execution of research projects*
- (v) *Introduction of biometric attendance system*
- (vi) *Leading to IISc Team for organizing more courses of ITEC in other departments*
- (vii) *In-charge, Health Insurance Policy for the Group of CeNSE Project Staff*

**Handling of Financial Activities at CeNSE**

- (i) *Handling of Purchases under Projects MITO-096 and 084*
- (ii) *Handling of External Invoices generated for Researchers from External Academic and Industries*
- (iii) *Settlement of Utilization certificates and Statement of account for different funding agencies for CeNSE Projects and even for Projects funded by MeitY in other IISc departments, International Conferences and IISc Projects. This has enabled CeNSE to secure release of funds from MeitY.*
- (iv) *Time-to-time change in Quotation/Invoice format etc.*
- (v) *Implemented policy for receiving advance payment for projects sponsored by Industries, National Labs, Strategic Sectors etc..*
- (vi) *Any Govt. related help/approval needed for Centre for Nano Science and Engineering (CeNSE)*

**Handling of users' projects from external academia and industries**

- (i) *Handling of research projects under INUP*
- (ii) *Bringing more project and training requests from Industries*
- (iii) *Coordination with International Researchers for Training and Research proposals*

**Development of Management Software: Architecture and Algorithm**

- (i) **Design and Development of web portal for Indian Science Technology and Engineering facilities Map (I-STEM) <https://www.i-stem.ac.in/> *Linking Researchers and Resources***

*This is the online portal which contains the information about geographically distributed public and private funded research facilities. It will provide online reservation facilities, and payment gateways to researchers for optimal use.*

**Trade Mark Registration (I-STEM Logo with Tag Line): Temp. Ref. No. 2206320 Dtd. 28/03/2018**

- (ii) **INUP Project Management Portal to handle the external projects from different organisations such as (external academic, national labs, Industries, strategic sectors, international users etc.)**

*Centre for Nano Science and Engineering is engaged with various outreach activities and has developed a web portal for researchers working across the country as well as abroad. This web portal has many features such as the submission of applications for INUP regular events, namely, familiarization workshops; Hands-on training workshops; submission of research proposals; assignment of proposals to reviewers and discussion of proposals on a single platform without any email communications; scheduling the visit of researchers to execute finalized proposals; submission of project reports and feedback; and the intimation (to CeNSE) of outcomes such as thesis chapters, publications, and patents. The Portal was launched on 11<sup>th</sup> Sept 2017 by the PRSG for INUP (set up by the Working Group on Nano Science and Technology, MeitY).*

- (iii) **Developed Research Facilities Map with more than 2800 equipment/software's information collected from 28 states <https://www.inup.cense.iisc.ac.in/facilities-map>**

*This is the part of Project Management Portal developed for Indian Nanoelectronics Users Program (INUP).*

**(iv) Indigenous Software Developed to Handle the Projects: Execution, Purchase, Billing, Inventory etc. (I-Mantra-ERP)**

*In addition, considerable expertise has now been built up in house at INUP, CeNSE, in recent years by undertaking the specification and design of portals such as desktop-based software system, “I-Mantra”, to handle the purchases, settlement of bills, Inventory of consumables, billing for the services provided by CeNSE to external researchers from the academia and industry. This helps in reducing and preventing the waste of resources.*

**Educational Qualification**

Sl. No	Examination Passed	Year of Passing	Name of School/College	Name of Board/University	Class & % of Marks	Main Subject (s)
1.	Ph. D.	2005-2010	IDDC, IIT Delhi	IIT Delhi	--	Hybrid Nanocomposites Material
2.	M. Tech.	2004	CES, IIT Delhi	IIT Delhi	7.44/10 (CGPA)	Energy Studies
3.	M. Sc.	1998	KNPG Govt. College Gyanpur, Bhadohi, UP	Purvanchal University	69.5%	Physics with Specilisation in Electronics
4.	B. Sc.	1996	Sri MMTD College Ballia, UP.	Purvanchal University	68.5%	Physics, Maths

**Work Experience**

1. Jan 1999-Jul 2000 KNGPG College Gyanpur, Bhadohi
2. Jul 2000-Mar 2002 CBME, IIT Delhi
3. Apr 2002- Jun 2002 ERA, Gurgaon, Haryana, India,
4. Aug 2004-Feb 2005 Physics Dept. Thin Film Lab, IIT Delhi
5. Jan 2009-May 2009 University of Guelph, Guelph, Ontario, Canada,
6. Jan 2002- July 2010 Guest Faculty in various Engg. Colleges
7. July 2010- March 2012- Assistant Professor, VGI, Greater Noida
8. March 2012- March 2018 Technology Manager, INUP, CeNSE IISc Bengaluru
9. April 2018 onwards National Coordinator/Chief Operating Officer (COO), I-STEM, CeNSE, IISc Bangalore

**Area of Research: Nanotechnology (Polymer nanocomposites)**

Ph.D. Thesis on “Mechanical investigation of hybrid polymer nanocomposites”

**Online Solution Service Experience:**

Worked as a Solution Author (Part-time basis) for the Text Books of Physics for [www.cramster.com](http://www.cramster.com) in Mosaic Services, Nehru Place, New Delhi.

### ***M. Tech Thesis***

“Energy saving by radiative cooling coatings (**Thin Film Coatings of Silicon Oxynitrides by reaction evaporation methods**)” under supervision of **Prof. K. L. Chopra** (Former Director, IIT Kharagpur) and **Dr. G. B. Reddy**, Dept. of Physics IIT Delhi (Jan 2003-June 2004).

### ***Knowledge of materials fabrication and characterizations***

Fabrication of thermosetting polymer composites using VARTM, compression moulding, and hand lay-up techniques. Knowledge of FTIR technique, TEM, SEM, XRD, TGA, DMA, HDT, Tensile testing, Flexural testing, Impact testing, Delamination testing.

### ***Courses completed:***

Plastics (Polymer) Materials, Applied Elasticity, Mechanics of composites, Composite materials and processing, Finite Element Method, Heat transfer, Power plant engineering, Vacuum science and cryogenics

### ***Project Assessment***

On-the-spot assessment of multipurpose design cutting machine with safety device for techno-commercial support of invention promotion program of NRDC provided to individual inventors as an **expert** with other NRDC & Department of Science and Technology, scientists team **18<sup>th</sup> April 2006.**

### ***Software Skill***

Computer programming in C++, Windows 95/98/2000, MATLAB, XP operating environment. Skilled with MS Office and Internet. Ability to quickly learn the software.

## ***Fellowship/Awards***

1. Fellowship in middle school, 5<sup>th</sup> -8<sup>th</sup> class
2. Institute Fellowship (IIT) from Ministry of Human Resources Development (MHRD) Govt. of India.
3. Freedom of House Award for best contribution in the Hostel as a House Secretary.
4. Award for Significant Contribution to BHM 2007-08.
5. Award for Significant Contribution to SAC 2007-08
6. **Best Poster Award**, National Conference on Advanced Materials and Characterization (NCAMC 2008) **VIT, Vellore** India, 23-25 July 2008.
7. **Best Poster Award** 10th Annual University Night at the University of Guelph on 19<sup>th</sup> March 2009 by Society for Plastics Engineer, Ontario Section, Canada.

## ***Extra Curricular Activity***

1. Member of Indian Physics Association, Bombay, since July 1996.
2. Ex-vice President (Industrial Interaction) Energy Forum, Centre for Energy Studies, IIT Delhi
3. Ph D representative (SAC) in IIT Delhi. 2006-2008.
4. House Secretary, Satpura House, IIT Delhi 2007-2008.
5. Member, Society for Scientific Value (SSV) New Delhi.
6. Member, Hospital Advisory Committee, IIT Delhi 2006-07.
7. Member, Board of Post Graduate Studies and Research (BPGS &R), 2007-08.
8. Member, Board Alumni Association, IIT Delhi, 2007-08.
9. Member, Indian Science Congress, 2017-2027 (Life member)
10. Editor, News and Views, SSV since March 2017

## Research work

### Patent/Trade Mark Application Filled:02 Nos

1. *Method and Process for Efficient Use of Geographically Dispersed Resources, Patent Filled: TEMP/E-1/91/2018-CHE Application No. 201841000140 Dtd. 02/01/2018*
2. *Trade Mark Registration (I-STEM Logo with Tag Line "Linking Researchers and Resources"): Temp. Ref. No. 2206320 Dtd. 28/03/2018*

## Conference Organized (International and National)

### As an Organizing Chair:

- i. IEEE Int. Conference on Emerging Electronics (ICEE-2014) 3-5 Dec 2014
- ii. ISSS International Conference Smart Materials- 2014 & 2017 5-7 July 2017
- iii. National Symposium on Nano Science and Technology (NSNST- 2016 &2017)

### As Course Coordinator/INUP Coordinator (till June 2018):

- i. INUP Familiarization Workshop 2012-2018 15 Nos
- ii. INUP Hands on Training Workshop 2012-2018 100 modules (PV, MoS Cap, Biosensor/Gas Sensor,
- iii. MEMS)
- iv. INUP Outstation Workshops 6 Nos: at Assam (2013-14), Himachal (2014-15) Bihar (2015-16), Rajasthan (2016-17), Utrakhand (2017-18)

### As an ITEC/DST Program Coordinator

- i. ITEC Course on Nanofabrication Technologies 03 (01 Planned in Jan 2019)
- ii. ITEC Course on Science Technology and Innovation Policy 13-20 November 2018
- iii. DST Workshop on Nanofabrication Technologies for Neighbouring countries 10-28 September 2018

## Workshop/International conference/National conference: attended/presented

International Workshop on Advances in Asbestos-free Friction Composite-I, IIT Delhi, on 5<sup>th</sup> & 6<sup>th</sup> January 2006.

2<sup>nd</sup> Int. Conference on Recent Advances in Composite Materials, BHU, Varanasi U. P. Feb 20-23, 2007.

S K Srivastava and I P Singh. Particle 2008 Conference: Particle Synthesis, Characterization, and Particle-Based Advanced Materials, 10-13 May 2008, Wyndham Orlando Resort, Orlando, Florida. [www.nanoparticle.org](http://www.nanoparticle.org)

S K Srivastava and I P Singh, Development and Characterization of hybrid Polymer Nanocomposites. Science Day, 28 Feb 2008.

S K Srivastava, I P Singh and MM Misra, Review of Dispersion Mechanism of Nanoclay in Epoxy-Based Hybrid Nanocomposite Materials, National Conference on Advanced Materials and Characterization (NCAMC 2008), Vellore, TN, India, 23-25 July 2008.

Nanotechnology: The Science of the Future, FICCI, Federation House, Tansen Marg, New Delhi, 5<sup>th</sup> September 2008.

S. K Srivastava and I P Singh, Processing, Morphological Development and Mechanical Properties of Hybrid Polymer Nanomaterials. Materials Research Society (MRS) Fall Meeting Dec 1-5, 2008, Boston USA.

Poster presentation in 10th Annual University Night at the University of Guelph on 19<sup>th</sup> March 2009 by Society for plastics Engineer, Ontario Section

UGIM 2014 at Harvard University

## Journal Papers Published

Hybrid Epoxy Nanocomposites: Lightweight Material for Structural Applications, Nature: Polymer Journal, doi:10.1038/pj.2011.140.

Mechanical Properties of Glass Fibre Epoxy-based Nanocomposites, **Journal of Nano Research**, Vol. 15, 2011, p.41-49.

Review of Dispersion Mechanism of Nanoclay in Epoxy-Based Nanocomposite Materials, *Metals, Materials and Process*, Vol. 20, No. 3 2008, p. 193-202.

Effect of Laminate Configurations on Impact Properties of GFRP Composite in Seawater. **Applied Mechanics and Materials** Vol 7, 2007, p. 223.

Effect of organoclay on mechanical strength of glass fiber epoxy-clay nanocomposites. International Conference on Polymer-Polymer '09, Polymers-Changing Frontiers, Calicut, Kerala, 9-11 Jan 2009, p.349-53.

Effect of seawater on impact properties for different laminate configurations of glass fiber epoxy-clay nanocomposites. International Conference on Active/Smart Materials, Madurai, T N. 7-9 Jan 2009, p. 384.

Processing, Morphological Development and Mechanical Properties of Hybrid Polymer Nanomaterials. MRS Fall Meeting 2008, 1-5 Dec 2008, Boston MA.

Impact Properties of Different Laminate Configured Hybrid Polymer Nanocomposites. Proceed. Int. Conf. Particle 2008, 10-13 May 2008, USA

Effect of seawater on the mechanical properties of epoxy based GFRP laminates. Recent Advances in Composite Materials edited by V. K Srivastava, M. Singh, Nummular Banthia and Aftab A. Mufti Allied Publishers Pvt. Ltd. India. (2007), p. 288.

S K Srivastava and I P Singh, Development and Characterization of Polymer Nanocomposites, Bangalore Nano2007, 6 Dec 2007, p.30.

S K Srivastava, R K Saxena, A N Kumar, P K Dave, and P P Kotwal. Biomechanical and Metallurgical properties of semi-circular external Ring Fixator. Proceedings: International Conference on Biomedical Science Bangalore Dec 2001.

S K Srivastava and I P Singh, Poster Presentation on **Science Day** Feb.28, 2008

S K Srivastava and K S Upadhyaya. Mechanical and Chemical Analysis of External Ring Fixator. Jour. PAS, Vol. 11.2005, p. 35-39.

S K Srivastava, R K Saxena and K S Upadhyaya, Biomedical material investigation of semicircular external ring fixator, U. P. Govt. P.G. College Academic Society, 10<sup>th</sup> Conference Gyanpur, Bhadohi, 9-10<sup>th</sup> March 2002, p.211.

## References

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