




Dr. Vandana Khaitan

Title	Dr.	First Name	Vandana	Last Name	Khaitan (nee Gupta)	
Designation	Assistant Professor					
Address	Faculty of Mathematical Sciences Department of Operational Research University of Delhi New Delhi-110007					
Phone No	Office	011- 27666672				
	Mobile	09968060495				
Email	khaitan.vandana@gmail.com vkhaitan@or.du.ac.in					
Web-Page						
Educational Qualifications						
Degree	Institution				Year	
Ph.D. in Mathematics	IIT Delhi				2011	
M.Sc. in Applied Operational Research	University of Delhi, Delhi				2004	
B.Sc. (Hons) Physics	University of Delhi, Delhi				2002	
Any other qualification	Nil					
Career Profile						
August, 2011 – January, 2012: Assistant Professor Department of Applied Mathematics, DTU, Delhi.						
April 29, 2013 -Till date: Assistant Professor Department of Operational Research, University of Delhi, Delhi.						
Administrative Assignments						
<ul style="list-style-type: none">• Superintendent for Final Semester Examination, Dept. of Operational Research, 2019.• Member, Committee for preparing Ad-hoc Panel for the appointment of Ad-hoc Assistant Professor(s), Dept. of Operational Research, 2018-19.• Member, Academic Activity Committee, Dept. of Operational Research, 2017-19.• Member, Anti Sexual Harassment Committee, Dept. of Operational Research, 2017-19.						

- Member, **Student's Grievance Committee**, Dept. of Operational Research, 2017-19.
- Member, **M.Phil. Committee**, Dept. of Operational Research, 2017-19.
- **Deputy Superintendent** for Final Semester Examination, Dept. of Operational Research, 2018.
- Member, **Admission Grievance Committee for PG courses**, Dept. of Operational Research, 2016-17.
- Member, **Anti-Ragging Committee and Disciplinary Committee**, Dept. of Operational Research, 2016-17.
- **Deputy Superintendent** for Final Semester Examination, Dept. of Operational Research, 2017.
- Convener, **Committee for Maintenance of Stores Accounts and Physical Verification of Stores**, Dept. of Operational Research, 2015-2016.
- Member, **Admission Committee to conduct Common Entrance Test** for admission to M.Sc. Part I, Operational Research and M.A./M.Sc. Part I, Applied Operational Research for the Academic Session 2016-2017, Dept. of Operational Research.
- Member, **NAAC Committee**, Dept. of Operational Research, 2016.
- Member, **Student's Activity Committee**, Dept. of Operational Research, 2016.
- **Deputy Superintendent** for Final Semester Examination, Dept. of Operational Research, 2016.
- Member, **M.Phil. Committee**, Dept. of Operational Research, 2015-17.
- Member, **Committee for preparing Ad-hoc Panel** for the appointment of Ad-hoc Assistant Professor(s), Dept. of Operational Research, 2015-17.
- Member, **Committee of Courses and Studies for Under-Graduate Studies**, Dept. of Operational Research, 2013-15.
- Member, **Committee of Courses for Post-Graduate and Research Studies**, Dept. of Operational Research, 2013-15.
- Member, **M.Phil. Committee**, Dept. of Operational Research, 2013-15.
- Member, **Anti-Ragging Committee and Anti-Ragging Squad**, Dept. of Operational Research, 2013-14.
- **Deputy Superintendent** for Final Semester Examination, Dept. of Operational Research, 2013-14.
- Member, **Time Table Committee**, Dept. of Operational Research, 2013-14.
- Board Member, **Interview/Group Discussion** for admission to M.Sc. Part I, Operational Research and M.A./M.Sc. Part I, Applied Operational Research for the Academic Session 2013-2014.
- Member of various **Purchase Committees**, Dept. of Operational Research.

Areas of Interest / Specialization

Queueing Theory, Stochastic Modeling, Performance and Dependability Analysis of Computer and Communication Systems.

Subjects Taught

Post Graduate : M.Sc. (O.R.) and M.A/M.Sc. (A.O.R.)

- Queueing System I
- Statistics I
- Reliability and Maintenance Theory
- Mathematical Programming I
- Mathematical Programming II
- Quality Management
- Queueing System II

M.Phil./Ph.D . (OR): Queueing Systems

Research Guidance

M. Phil.

1. Rahul Kumar : Completed
2. Gulshan Chauhan: Ongoing

Ph.D.

1. K C Lalropuia : undergoing
2. Shivani Gupta : undergoing
3. Nikesh Choudhary: undergoing
4. Rachna Sain : undergoing

Publications Profile

1. Shivani Gupta and **Vandana Gupta**, “Analytical modeling of RLC protocol of LTE using stochastic reward nets”, **International Journal of Communication Systems**, 32(6), **2019**. (Wiley)
2. K C Lalropuia and **Vandana Gupta** , “Modeling cyber-physical attacks based on stochastic game and Markov processes”, **Reliability Engineering and System Safety**, 181, 28-37, **2019**. (Elsevier)
3. **Vandana Gupta** and Rahul Kumar, “An optimal rejuvenation scheme for improving VoIP service reliability in the existence of resource exhaustion and security breaches”, **International Journal of Reliability and Safety**, **2019**. (Inderscience)
4. **Vandana Gupta** and Gulshan Chauhan, “An optimum rejuvenation strategy for maximizing reliability of wireless sensor networks”, **International Journal of Advanced Scientific Research and Management**, 11-16, Special Issue II, Oct **2018**.

5. **Vandana Gupta** and Rahul Kumar, "An Optimal Rejuvenation Strategy for Increasing Service Reliability of a VOIP System with Multiple Components", **International Journal of Mathematical, Engineering and Management Sciences**, 2(4), 231-241, 2017. (IJMEMS)
6. **Vandana Khaitan**, "Operations Research in Data Science", **Evolution of Education System in Bharat**, CPDHE, University of Delhi, 2016. (New Delhi Publishers)
7. **Vandana Gupta**, S. Dharmaraja and Viswanathan Arunachalam, "Stochastic modeling for delay analysis of a VoIP network", **Annals of Operations Research**, 233, 171-180, 2015. (Springer)
8. **Vandana Gupta** and S. Dharmaraja, "Reliability and performance modeling of VoIP system with multiple component failure", **International Journal of Reliability and Safety**, 7, 58-74, 2013. (Inderscience)
9. **Vandana Gupta** and S. Dharmaraja, "Semi-Markov modeling of VoIP dependability in the presence of resource degradation and security attacks", **Reliability Engineering and System Safety**, 96, 1627 – 1636, 2011. (Elsevier)
10. **Vandana Gupta**, Mingwei Gong, S. Dharmaraja and Carey Williamson, "Analytical modeling of bidirectional multi-channel IEEE 802.11 MAC protocols", **International Journal of Communication Systems**, 24(5), 647–665, 2011. (Wiley)
11. **Vandana Gupta**, S. Dharmaraja and Mingwei Gong, "Analytical modeling of TCP flow in wireless LANs", **Mathematical and Computer Modeling**, 53, 684-693, 2011. (Elsevier)
12. Viswanathan Arunachalam, **Vandana Gupta** and S. Dharmaraja, "A fluid queue modulated by two independent birth-death processes", **Computers and Mathematics with Applications**, 60, 2433-2444, 2010. (Elsevier)

Conference Organization/ Presentations (in the last three years)

1. **Secretary, Organizing Committee**, 1st International Conference of Association of Inventory Academicians and Practitioners(AIAP) on Emerging Trends in Inventory, Supply Chain & Reliability Modeling (ETISCRM 2018), University of Delhi, Delhi.
2. **Member, Programme Committee**, 9th International Conference on Quality, Reliability and Information Technology (ICQRIT 2018), University of Delhi, Delhi.
3. **Organizing Secretary**, Workshop on Business Analytics and Intelligence, Dept. of Operational Research, February 24 -25, 2017.

4. "Modeling small cells attack in 5G wireless communication network based on Bayesian game and Stochastic reward net", K. C. Lalropuia and **Vandana Gupta**, International Conference on Network and Cryptology (NETCRYPT -2019), JNU. (Presented by KC)
5. "End-to-End Delay Bound Analysis in Hybrid VANET", Shivani Gupta and **Vandana Gupta**, 9th International Conference on Quality, Reliability, Infocom Technology and Business Operations (ICQRIT 2018), University of Delhi, Delhi. (Presented by Shivani)
6. "Analytical modeling of Session Initiation Protocol (SIP) using Stochastic Reward Nets", Nikesh Choudhary and **Vandana Gupta**, 9th International Conference on Quality, Reliability, Infocom Technology and Business Operations (ICQRIT 2018), University of Delhi, Delhi. (Presented by Nikesh)
7. "Dependability analysis of wireless sensor networks with an optimal rejuvenation scheme", **Vandana Gupta** and Gulshan Chauhan, 9th International Conference on Quality, Reliability, Infocom Technology and Business Operations (ICQRIT 2018), University of Delhi, Delhi. (Presented by Gulshan)
8. "On the reliable transmission of data packets through RLC protocol of LTE", Shivani Gupta and **Vandana Gupta**, 1st International Conference on Emerging Trends in Inventory, Supply chain, and Reliability Modelling (ETISCRM 2018), University of Delhi, Delhi. (Presented by Shivani)
9. "Analytical modelling of RLC protocol of LTE using stochastic reward net", Shivani Gupta and **Vandana Gupta**, 2nd International Conference on Frontiers of Science and Technology (ICFST – 2018), KIET Group of Institutions, Ghaziabad. (Presented by Shivani)
10. "Modeling security attack on relay in 5G wireless communication network based on stochastic game", K. C. Lalropuia and **Vandana Gupta**, 2nd International Conference on Frontiers of Science and Technology (ICFST – 2018), KIET Group of Institutions, Ghaziabad. (Presented by KC).
11. "An Optimum Rejuvenation Strategy for Maximizing Reliability of Wireless Sensor Networks", **Vandana Gupta** and Gulshan Chauhan, 2nd International Conference on Frontiers of Science and Technology (ICFST – 2018), KIET Group of Institutions, Ghaziabad. (Presented by Gulshan)
12. "An optimal rejuvenation scheme for maximizing reliability of wireless sensor networks", **Vandana Gupta**, National Conference on Advances in Applied Mathematics and Statistics (NCAAMS-2017), Mata Sundari College, University of Delhi.
13. "Reliability study of LTE-Vehicular technology (LTE-V)", Shivani Gupta and **Vandana Gupta**, National Conference on Advances in Applied Mathematics and Statistics (NCAAMS-2017), Mata Sundari College, University of Delhi. (Presented by Shivani)

14. "Predicting attacker behavior in an attacked cyber-physical system based on stochastic game approach". K. C. Lalropuia and **Vandana Gupta**, National Conference on Advances in Applied Mathematics and Statistics (NCAAMS-2017), Mata Sundari College, University of Delhi. (Presented by KC)
15. "Modeling attacker behavior in an attack cyber-physical system based on stochastic game and continuous time Markov chain (CTMC)", K. C. Lalropuia and **Vandana Gupta**, 2nd International Conference on Recent Advances in Mathematical Sciences and its Applications (RAMSA-2017), IIIT Noida. (Presented by KC)
16. "Reliability and performance analysis of LTE for Vehicular networks (LTE-V)", Shivani Gupta and **Vandana Gupta**, 2nd International Conference on Recent Advances in Mathematical Sciences and its Applications (RAMSA-2017), IIIT Noida. (Presented by Shivani)
17. "Dependability analysis of Internet of Things (IoT) under attack based on game theory and semi-Markov process", K. C. Lalropuia and **Vandana Gupta**, International Symposium on Operations Research and Game theory: Modeling and Computation (ISORGT-2018), ISI Delhi. (Presented by KC)
18. On the reliability study of secured communication in vehicular ad-hoc networks", Shivani Gupta and **Vandana Gupta**, International Symposium on Operations Research and Game Theory: Modeling and Computation (ISORGT- 2018). (Presented by Shivani)

Research Projects (Major Grants/Research Collaboration)

- **Principal Investigator**, Project on "**Analytical dependability analysis of future generation communication networks**" sponsored by Research and Development Scheme of University of Delhi, Delhi for the period October 2015-September 2016.

Awards and Distinctions

- Qualified Council for Scientific and Industrial Research (CSIR) **National Eligibility Test (NET) - Junior Research Fellowship (JRF)** of June 2005.
- Received **Junior Research Fellowship (JRF)**, CSIR India, July 2006 - July 2008.
- Received **Senior Research Fellowship (SRF)**, CSIR, India, August 2008 – July 2011.
- Awarded **NBHM Post-Doctoral fellowship**, 2011.

Association With Professional Bodies

- Life Member, Operational Research Society of India (ORSI).
- Member of Editorial Review Board, Amity Journal of Operations Management.
- Reviewer, KSII Transactions on Internet and Information Systems (eISSN: 1976-7277)
- Reviewer, OPSEARCH, Springer Verlag (eISSN : : 0975-0320)

Other Activities

- Attended **Refresher Course in Mathematical Sciences** (26th November, 2015 – 16th December, 2015) UGC Sponsored at CPDHE, University of Delhi, Delhi – 110007.
- Attended **Orientation Programme OR- 84** (20th May, 2016 – 17th June, 2016) – UGC Sponsored at CPDHE, University of Delhi, Delhi – 110007.
- Attended **Refresher Course in Mathematical Sciences** (31st May, 2019 – 14th June, 2019) UGC Sponsored at CPDHE, University of Delhi, Delhi – 110007.
- **Resource Person**, One Week FDP on “Understanding the Connection of Mathematics with the world around us: An Application Based Learning”, June 2019, Hansraj College, University of Delhi.