


## Faculty Details Performa for J.C.Bose UST,YMCA Faridabad

Title	Dr.	First Name	<b>Reena</b>	Last Name	<b>Garg</b>	Photograph
Designation		Assistant Professor(Senior Scale)				
Address		Department of Mathematics , J.C. Bose University of Science and Technology, YMCA , FARIDABAD.				
Phone No		9899390778				
Email		<a href="mailto:reenagargymca@gmail.com">reenagargymca@gmail.com</a>				
<b>Educational Qualifications</b>						
Degree	Institution				Year	
Ph.D.	Awarded				<b>2013</b>	
M.Phil	Awarded				<b>2007</b>	
M.Sc.(Mathematics)	M.D.U., Rohtak(Main Campus)				<b>2003(Gold Medalist) University Topper</b>	
B.Sc.(Comp. Sc.)	M.D.U., Rohtak				<b>2001</b>	
<b>Career Profile</b>						
<ul style="list-style-type: none"> <li>• Currently serving as Assistant Professor in the Department of Mathematics, J. C .Bose University of Science and Technology, YMCA Faridabad.</li> </ul>						
<b>Administrative Assignments</b>						
<ul style="list-style-type: none"> <li>• Have worked in various committees while serving at Manav Rachna International University ,Faridabad</li> <li>• <b>Working in the following committee in the J.C. Bose UST,YMCA Faridabad:</b>   <b>Coordinator and Member, Departmental Research Committee(DRC)(Humanities and Department), YMCA University of Science and Technology, Faridabad.</b>   <b>Coordinator, B.Sc.(H)(Mathematics), Department of Mathematics, YMCA University of Science and Technology, Faridabad.</b> </li> </ul>						

**Coordinator and Member, NAAC /IQAC/ NIRF Committee ,Department of Mathematics, YMCA University of Science and Technology, Faridabad.**

**Member, Pre.-Ph.D Seminar Committee, Department of Mathematics, YMCA University of Science and Technology, Faridabad.**

**Coordinator and Member , Board of Studies in Mathematics, Faculty of Sciences, YMCA University of Science and Technology , Faridabad.**

**Member, Departmental M.Sc.(Mathematics) Project dissertation committee, Department of Mathematics, YMCA University of Science and Technology , Faridabad.**

**Convener, Syllabus Designed Committee ( at UG Level (B.Sc(Mathematics)) Department of Mathematics, Faculty of Sciences, YMCA University of Science and Technology , Faridabad.**

**Member, Syllabus Revision Committee ( at PG,UG Level), Department of Mathematics, Faculty of Sciences, YMCA University of Science and Technology, Faridabad.**

**Coordinator, CBCS, Department of Mathematics , Faculty of Sciences, YMCA University of Science and Technology, Faridabad.**

#### Areas of Interest / Specialization

**Applied Mathematics,  
Operation Research;  
Reliability Theory.**

#### Subjects Taught

**Have taught courses related to  
Algebra ( Abstract and Linear), Analysis ( Real, Functional), Differential Equations,  
Vector Calculus, Advanced calculus, Numerical Methods ,Mathematical Statistics, Laplace  
Transform ,Mathematical Methods, Integral Equations**

#### Research Guidance

##### **PhD students**

- 1. Three Scholars are in progress**
- 2. M.Sc. Students(Project submitted) (52 students completed their dissertation till 2022)**

#### Publications Profile

##### **Publications Details.....**

- 1. A Novel Probabilistic Approach for Efficient Information Retrieval, International**

**Journal of Computer Applications, Nov. 2010 .**

**2. A Comparison of document clustering approaches for Efficient Information Retrieval, International Journal of Information Sciences & Application, Nov.2010.**

**3. Reliability Analysis for a Summer Air Conditioning System with the Aid of Boolean Function Expansion Algorithm, International Journal of Computational Intelligence and Information Security, Australia (Online), Feb 2011.**

**4. Performance Measures of a Multi-Evaporator Type Compressor with Standby Expansion Valve, International Journal of Computational Intelligence and Information Security, Australia (Online), Feb 2011.**

**5. Risk Assessment of a Hydroelectric Dam with Parallel Redundant Turbine, International Journal of Research in Engineering & Technology, Bangalore, Jan 2014 .**

**6. Reliability Assessment For A Four Cylinder Diesel Engine By Employing Algebra of Logics, International Journal of Research in Engineering & Technology, Bangalore, Jan 2014 .**

**7. Reliability Evaluation for Power Distribution System, International Journal of Research & Management, Feb 2014 .**

**8. Measurement of Reliability Parameters for a Power Plant by Using Algebra of Logics, International Journal of Research in Engg & Technology, Bangalore, Sept 14 .**

**9. Availability Analysis of Parallel Transit Fuel System in Petrol Engine under Head of Line Repair, International Journal of Research in Engg & Technology, Bangalore, Sept 14**

**10. Cost Analysis of A.T.M. (Automated Teller Machine) Employing Pre-Emptive Repair, International Journal of Research & Management, Feb 2015 .**

**11. Study of Application of Linear Programming (Assignment Problem? Using QBS & Hungarian method, International Journal of Emerging Technology & Advance Engineering, August 2017 .**

**12. Analysis of various factors of reliability using Boolean function technique in refinery unit, International Journal of Statistics and Applied Mathematics, Sept 2017 .**

**13. Comparative Study of convergence and solution of algebraic and transcendental equations using zero-finding methods, International Journal of Statistics and Applied Mathematics, Nov 2017 .**

**14. Review Article on RPGT – A General Approach, International Journal of Engineering**

**Technologies and Management Research, December 2017.**

**15. M.T.T.F. and Reliability V/s Time for a Milk Manufacturing and Processing Unit using BFT, International Journal of Engineering Sciences & Research Technology, January 18.**

**16. Reliability Measures of a two unit model in cold standby mode with Expert Repairman, International Journal of Recent Technology and Engineering, September 2019**

**17. Availability and profit analysis of two unit model with conditions on demand variation, International Journal of Science and technology research, October 2019**

**18. Cost benefit and Availability Analysis of standby system with expert repairman by using regenerative point graphical technique, Compliance Engineering Journal, November-2019.**

**19. Mathematical Modeling and Reliability Analysis of server policy of Library, Journal of Xi'an University of Architecture and Technology, November-2019**

**20. Performance Modeling & Reliability Analysis of Demand & Supply Model, Journal of Xi'an University of Architecture and Technology, December -2019**

**21. Behavioral Analysis of a single unit system Using RPGT, Journal of Xi'an University of Architecture and Technology, February-2020.**

**22. Comparative Analysis of the Reliability of the Butter-Oil Processing Plant Using CAS Mathematica & Maxima, International Journal of Recent Technology and Engineering, March-2020**

**23. Reliability Analysis of Ammonia Synthesis Unit in a fertilizer plant using CAS Mathematics, International Journal of Advanced Science and Technology, April-2020**

**24. Mathematical Modelling to Analyse the reliability of the cattle feed plant, TEST Engineering and Management, June-2020**

**25. Study of Four unit system for the measures of Reliability, Availability and MTSF International Journal of Advanced Science and Technology, June -2020**

**26. Performance Analysis of a System with Two Units Combined Hardware-Software Failures : International Journal of Advanced Science and Technology, June -2020**

**27. Application of CAS Mathematica to Analyse the Reliability of Model with Season-wise Variation : Journal of Critical Reviews, June 2020**

**28. Inspecting Briquette Machine with Different Faults: Recent Advances in computer Science and communications, 2020**

- 29. Reliability modelling and performance analysis of bio-coal manufacturing system with deviation in demand: Life Cycle Reliability And Safety Engineering,2021**
- 30. Study of a Two-Unit High-Performance Thin Layer Chromatography System with Partial Failure: Indian Journal of Forensic Medicine and Pathology,Jan,2021**
- 31. Reliability Measures Analysis of a milk Plant using RPGT: Life cycle Reliability and safety Engineering,2021**
- 32. Reliability Measures of a cold standby System Subject to refreshment: International Journal of System Assurance Engineering and Management, Sep, 2021**
- 33. Performance analysis of the briquette machine considering a neglected faults with preventive maintenance: International Journal of System Assurance Engineering and Management, 2022**
- 34. Availability Measures and profit optimization of Redundant System having single unit with Imperfect Switch - Over Device Using Hybrid Genetic Algorithm: Life Cycle Reliability and Safety Engineering, 2022.**
- 35. Reliability Analysis and Profit Optimization of Briquette Machine by Considering Neglected Faults: Reliability: Theory & Applications,2022**
- 36. Profit analysis of a cold standby computing system with Weibull failure and repair laws: International Journal of Statistics and Reliability engineering (UGC Care-List) 2022.**

Paper Presented in International / National Conferences

- 1. Reliability Forecast for a Power Plant by using Algebra of Logics, Patna University, Patna, IMST-2010, Dec 18-2010.**
- 2. Mathematical Model for efficient information retrieval, Lingaya's University Faridabad, NCAMST-2010, May 12-13 ,2010.**
- 3. Efficient Information Retrieval with Hidden Markov Model, B.S.A. Educational Institutes, Faridabad, Emerging Trend in IT & Communication Systems, August 28, 2010.**
- 4. Contemporary and Futuristic Trends in Computer Science & Engineering, Advanced Educational Institutions, Palwal, CFTCSC-2010, Nov. 27-28 ,2010.**
- 5. Study for operational readiness of parallel transit fuel system in Petrol engines under Head-of-Line Repair, Geeta Engineering College Panipat, ICETIE-2012, October 14 -2012.**
- 6. Applications of Operations Research, GLA University Mathura, CICN-2012, Nov. 03-05, 2012.**
- 7. Applications of Matrices, GLA University Mathura, CICN-2012, Nov. 03-05 ,2012.**
- 8. Vector Space & Subspace , GLA University Mathura, CICN-2012, Nov. 03-05, 2012.**
- 9. A view of queue analysis with customer behavior, balking and renegeing, YMCA University Faridabad, TAME 2012, Oct. 19-20, 2012.**
- 10. A new approach to matrices, IMS Ghaziabad, ETIT, Nov 24 ,2012.**
- 11. Mathematical Model for vector spaces, IMS Ghaziabad, ETIT, Nov 24 ,2012.**
- 12. Mathematical Modeling in Nanotechnology, YMCA University Faridabad, Symposium on Nanotechnology, Dec 12, 2012.**
- 13. Pre-emptive repair of ATM, TITS Bhiwani, AICTE-2013, Nov. 22-23 ,2013.**
- 14. Reliability Analysis for a winter air heater system with the aid of Boolean function expansion algorithm, IMS Ghaziabad, "Reinventing Management Strategy-The Design for Future" 2013, Nov. 30- 2013.**
- 15. Reliability Evaluation of air filter using Algebra of Logics, IMS Ghaziabad, "Reinventing Management Strategy-The Design for Future" 2013, Nov. 30 -2013.**
- 16. Social & Ethical Implication of Nano-Technology, DAV College Faridabad, 7-8 ,Feb 2014.**

- 17. Bays Estimation of Reliability for Bivariate Exponential Model, D J College Of Engg Modinagar, ICRTIET-2014, 30-31 August 2014.**
- 18. Result Analysis of Single Compressor Multi Evaporator type Refrigeration Plant, YMCA University Faridabad, Role of Sc & Tech towards Make in India, 5-7<sup>th</sup> March 2016.**
- 19. Study of working capabilities for Solar PV System including natural effects, YMCA University Faridabad, Role of Sc & Tech towards Make in India, 5-7<sup>th</sup> March 2016.**
- 20. Study of various parameters of solar PV system using BFT, YMCA University, SDREM-16, 26-27 ,Dec 2016.**
- 21. Analysis of Reliability parameters of Power Plant by RPGT, YMCA University, SDREM-16, 26-27 ,Dec 2016.**
- 22. Evaluation of Reliability Parameters of Rubber factory by using BFT , YMCA University, SDREM-16, 26-27, Dec 2016.**
- 23. Measurement of mean time of failure and avail- ability of unit used in oil refinery system using BFT, Aggarwal College Ballabgarh, NSMCCC-2017,18<sup>th</sup> Feb 2017.**
- 24. Comparison study of Reliability Parameters in Milk Plant, YMCA University Faridabad, NHTSEE-2017, 9<sup>th</sup>-10<sup>th</sup> March 2017.**
- 25. A Review article of RPGT – A general approach, YMCA University Faridabad, NHTSEE-2017, 9<sup>th</sup>-10<sup>th</sup> March 2017.**
- 26. Reliability Modeling & Profit Analysis of Stochastic Model with Imperfect Switching, I.I.T. Roorkee, Applied Stochastic Models & Optimization ASMO-17, 26<sup>th</sup>-27<sup>th</sup> May 2017.**
- 27. Study of App of Linear Programming (Assignment Problem) using QBS and HUNGARIAN method, YMCA University Faridabad, Advances in Mathematics & Computing, 1-2 May 2017.**
- 28. Analysis of Convergence and solving non linear equations using Newton Raphson method, YMCA University Faridabad, Advances in Mathematics & Computing, 1-2 May 2017.**
- 29. A Stochastic Analysis of system with failures related to Hardware and software, Aggarwal College, Ballabgarh, ICRAM-2018, 2018.**
- 30. Reliability modeling of a fiber manufacturing plant with variation in demand, Aggarwal College ,Ballabgarh, ICRAM-2018, 2018.**

31. Reliability and Profit Analysis of systems with variation in demand, Lingaya's Vidyapeeth, Faridabad, AMSISEMS 2018.
32. Analysis of a Stochastic System with two Modal with partial failure using RPGT, Lingaya's Vidyapeeth, Faridabad, AMSISEMS 2018.
33. A Stochastic Analysis of system of two unit system with different failures using RPGT, Lingaya's Vidyapeeth, Faridabad, AMSISEMS 2018.
34. Profit Analysis of two unit cold stand by system, Lingaya's Vidyapeeth, Faridabad, AMSISEMS 2018.
35. Cost Benefit and Availability Analysis of Stand By System With Expert Repairman By Using Regenerative Point Graphical Technique ,KIET Group of Institutions ,Ghaziabad-ICFST-2018.
36. Reliability and Availability Analysis of Four Unit System, KIET Group of Institutions,Ghaziabad-ICFST-2018.
37. Reliability and Cost Analysis of a Stochastic System with Partial Failure using RPGT, KIET Group of Institutions,Ghaziabad-ICFST-2018.
38. Analysis of a Stochastic Model or Briquette Machine Having Minor-Major fault with two types of Repair Policy, KIET Group of Institutions,Ghaziabad-ICFST-2018.

#### Awards and Distinctions

- Honor Certificate by RWA Sector 55 Faridabad, 15.08.2013
- Honor Certificate by YMCA UST, Faridabad, 2013
- Honor Certificate by Teachers Association Faridabad, Oct 2013
- Blood Donation Certificate by RWA 55 Faridabad, 17.11.2013
- Blood Donation Certificate by Red Cross Society Faridabad, 17.11.2013
- Honor Certificate by RWA Sector 55 Faridabad, 15.08.2014
- Honor Certificate by Teacher's Association Faridabad, 13/9/2014
- Honor Certificate by RWA Sec 55 Faridabad, 6/11/2015

#### Association With Professional Bodies

- Life member of
- Ramanujan Mathematical Society
  - Indian Mathematical Society



- Indian Science Congress Association
- Indian Society For Technical Education
- Indian Society For Probability & Statistics
- IAENG International Association of Engineers
- Forum of Interdisciplinary Mathematics (F I M)
- **Member Editorial Board, International Journal of Engg. & Management Research (IJEMR).**
- **Member of Reviewer Board, International Journal of Research in Engg & Technology.**

#### Other Acheivements

**Patents : 02 (published in 2021) +01(Grant in 2021)**

**Details as Below:**

- 1) **SYSTEM TO DETERMINE AVAILABILITY AND MEAN-TIME FOR SYSTEM OF A BRIQUETTE MACHINE**
- 2) **REDUNTANT SYSTEM (SINGLE UNIT WITH IMPERFECT SWITCH-OVER DEVICE) HAVING AVAILABILITY MEASURES AND PROFIT OPTIMIZATION**

**Patent Grant(2021)**

- 1) **A Novel Stochastic Model For Reliability Evaluation of Computing Machines Subject to Arrival Time of the Service Facility Upon Failure (Patent Number: 2021103990 ) by Australian Government on 9<sup>th</sup> July, 2021**

**Author of three books:**

1. **Engineering Mathematics-I, Khanna Publications, New Delhi,2015**
2. **Numerical Techniques computing with C and MATLAB, CBS Publications , New Delhi, 2018**
3. **Revised Edition Engineering Mathematics-I, Khanna Publications, New Delhi,2019**
4. **Advanced Engineering Mathematics**
5. **Mathematics-I(Calculus and Linear Algebra)(For Computer Science Engineering Branches)(AICTE Recommended) Khanna Publications, New Delhi,2022.**
6. **Mathematics-I(Calculus and Linear Algebra)(For Non-Computer Science Engineering Branches)(AICTE Recommended) Khanna Publications, New Delhi,2022.**

**Book Chapter:**

1. **The book chapter entitled “Contribution of Refreshment Provided to the Server during his Job in the Repairable Cold Standby System” in Computational Intelligence in Sustainable Reliability Engineering(CISRE) on 25<sup>th</sup> Sep, 2021**
2. **Profit Optimization of Two-Unit Briquetting System using grey wolf Optimization algorithm (Oct.2022)**

Dr. Reena Garg  
Assistant Professor  
Mathematics