

# **Faculty Performa**

Title Dr	First Name	Shobha	Last Name	Bagai	Photograph		
Designation	Professor						
Address	Rugby Sever Third Floor G C Narang	Cluster Innovation Centre Rugby Seven's Building (University Stadium) Third Floor G C Narang Road University of Delhi - 110007					
Phone No Office	011 - 27666	702	THE SAME				
Residence Mobile							
Email	shobhabaga	shobhabagai@gmail.com					
Web-Page							
Educational Qualifications							
Degree	Institution	Institution			Year		
Ph.D.	IIT, Delhi	IIT, Delhi			1993		
PG (M.Sc	IIT, Delhi	IIT, Delhi				1989	
Mathematics)							
UG	Panjab Univ	Panjab University			1987		
Career Profile							
Organisation/	Design	ation	Year	r	Role		
Institution							
Cluster Innovation Centre, Delhi Univer	Profess	or	Marc	h 2015 – Till d	ate Teaching,  Mentoring a  Administrat		
Cluster Innovation Centre, Delhi Univer		te Professor	Sept 2015	2011 – March	Teaching, Mentoring and Administration		
SPM College, Delhi University	Associa	te Professor	July 1	1995 – Sept 20	11 Teaching & Research		

Institute of Lifelong	Fellow in Mathematics	January 2008 –	Research &
Learning, Delhi University		December 2009	Administration
IIT Bombay	Visiting Assistant	July 2002 – July 2004	Research &
	Professor		Teaching
Department of	Associate Professor	August 2001 to March	Postgraduate
Mathematics, Delhi		2002, July 2004 till	Teaching
University (under		April 2011	
cooperative teaching)			
Jesus and Mary College	Lecturer	August 1993 to April	Teaching
		1995	

# Administrative Assignments

- Director, Cluster Innovation Centre, University of Delhi (April 2022 till date)
- Core member of the formulation of interdisciplinary courses, University of Delhi (Oct 2021 Jan 2022)
- Member of the NEP implementation committee, University of Delhi (2021)
- Member of the Admission Committee, University of Delhi (2021 2022)
- Dean, Admission, University of Delhi (2020 21)
- Convener, Institution's Innovation Council established under the aegis of MHRD's Innovation Cell at University of Delhi, 2018 – 2020.
- Programme coordinator of B.Tech (IT and Mathematical Innovations), Cluster Innovation Centre,
   University of Delhi (2015 2021)
- Member of the Board of Studies of Applied Mathematics, Delhi Technological University, Delhi (2018 20)
- Member of the Internal Quality Assurance Cell, Ramanujan College (2015 Till date)
- Chairperson (Acting), Delhi University Social Centre Co-Ed School (2018 19)
- Member of the Community Development Cell Committee, University of Delhi
- Member of Unnat Bharat Abhiyan, University of Delhi (2015 2023)
- Co-opted member for the Annual Report of University of Delhi (2015)
- Coordinator of the eYantra (IIT, Bombay) Nodal Centre at Cluster Innovation Centre (CIC), University of Delhi (2013 – Till date)
- Invited to be subject expert in Board of Studies, Christ University, Bangalore
- Chaired the session on "Peer Learning" at the Academic Congress, hosted by University of Delhi from September 6, 2013 to September 7, 2013.
- Invited as a member of the delegation to ESPRC/ DST Scoping Meeting in Applied Mathematics (July 12 July 13, 2012), University of Edinburgh.
- Member of the Empowered Committee of the Foundation Courses (a) Building Mathematical Ability
   (b) Information Technology at University of Delhi
- Convened and conducted orientation programmes for teachers for the foundation course "Building Mathematical Ability" at University of Delhi
- Member of Local Organizing Committee, International Conference "The Legacy of Srinivasa Ramanujan" organized by University of Delhi from 17-22 December 2012.
- Member of Jury committee of INSPIRE AWARD National Level Exhibition and Project Competition (NLEPC-2012) conducted by Department of Science and Technology (DST), Ministry of Science and Technology, Government of India held from October 21-23, 2012 at Pragati Maidan, New Delhi!
- Member in a Committee constituted by the Vice Chancellor to organize "Antardhvani 2013: Cultural Festival of Delhi University".

- Member of the Bachelor Degree Programme syllabus revision committee, IGNOU, Delhi.
- Member of the Expert Group to formulate Undergraduate Program Mathematics syllabus, Ambedkar University, Delhi.
- Member of Vice Chancellor constituted sub-committee of the BA Programme committee for the semesterisation of the BA Programme, Delhi University.
- Member of Vice Chancellor nominated Empowered Committee to formulate the syllabus of B.Sc (Hons) Mathematics, Delhi University.
- Organized workshops for the teachers of Mathematics, Delhi University.

# Areas of Interest / Specialization

- Differential Equations and Modelling
- Fluid Dynamics (Porous Media)

## **Subjects Taught**

#### **Core Mathematics papers**

- Calculus (Undergraduate)
- Differential Equations (Undergraduate and Postgraduate)
- Mechanics (Undergraduate and Postgraduate)
- Fluid Dynamics (Postgraduate)
- Probability and Statistics (Undergraduate)
- Algebra (Undergraduate)
- Discrete Mathematics (Undergraduate)
- Numerical Analysis (Undergraduate)
- Linear Algebra (Undergraduate)
- Linear Programming (Undergraduate)

#### **Teaching Pedagogies in Mathematics**

- Calculus
- Differential Equations
- Probability
- Linear Algebra
- Discrete Mathematics

# **Business Innovation**

- Business, Entrepreneurship and Innovation Management
- Business Processes and Strategic IT Alignment

# **Electronics**

• Signals and Systems (Undergraduate)

# Research Guidance

Supervision of Doctoral thesis (Degree Awarded – One, Ongoing – Two) Supervised over 50 undergraduate projects

Publications Profile (For the complete list please visit https://scholar.google.com/citations?user=NkykS9kAAAAJ&hl=en)

## **LIST OF PUBLICATIONS (Last 5 Years)**

- 1. "Balanced Number System: Application to Mathematical puzzles", Resonance: Journal of Science Education, Volume 23, Issue 12, pp 1395-1410, 2018.
- 2. "Parenting Gifted Children: Voices from India", Parenting for High Potential, Volume 7, Issue 4, pp. 24-26, 2018.
- 3. "A Numerical Study of Transient Free Convection from an Axisymmetric Body in a Porous Media Saturated by Nanofluid", Journal of Nanofluids, Vol 8, No. 6, pp 1345 1354, 2019.
- 4. "Numerical investigation of effect of variable viscosity on transient heat transfer over a non-isothermal axisymmetric body: nanoparticle volume fraction-dependent viscosity", SN Applied Sciences, Vol. 2, Issue 4, pp 1 13, 2020.
- 5. "Numerical Investigation of Effect of Temperature Dependent Viscosity on Transient Heat Transfer over a non-Isothermal Axisymmetric body", Fourrages Journal, Vol. 241, No. 1, pp 15 35, 2020.
- 6. "Unsteady Heat Transfer from a Non-isothermal Axisymmetric Body Immersed in Porous Media Saturated by Nanofluid", Advances in Fluid mechanics and Solid Mechanics, Proceedings of the 63<sup>rd</sup> Congress of ISTAM, Springer Nature, pp 27 38, 2020.
- 7. "The four-sided lid driven square cavity using stream function-vorticity formulation", Journal of Applied Mathematics and Computational Mechanics, Vol. 19, No. 2, pp 17 30, 2020.
- 8. "Application of Complex Numbers and Matrix Transformations in Pentagonal Tiling", Resonance: Journal of Science Education, Volume 25, Issue 10, pp 1369-1384, 2020.
- 9. "A Study of Crime in India through Statistical Analysis", ICT for Competitive strategies, Proceedings of 4th International Conference on Information and Communication Technology for Competitive Strategies, CRC Press, pp 361 367, 2020.
- 10. "Mixed convection in four-sided lid-driven sinusoidally heated porous cavity using stream function-vorticity formulation", SN Applied Sciences, Vol. 2, Issue 12, pp 1 24, 2020.
- 11. "Mixed Convection in a two sided and four sided lid driven square porous cavity", International Journal of Heat Technology, Vol 39, Issue 3, 711 726, 2021.
- 12. "Heat and mass transfer in a two-sided lid-driven square cavity with non-uniform sinusoidal heating on horizontal walls" European Physical Journal Plus 136, 1034, 2021 https://doi.org/10.1140/epjp/s13360-021-02040-4, 2021.
- 13. "Scrutinizing string art through a mathematical lens", PRIMUS, DOI: 10.1080/10511970.2022.2068094, 2022.

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- 1. Foundation Course Building Mathematical Ability, S Chand and Co., 2013 Author and Chief Editor
- 2. A Bridge to Mathematics, 1<sup>st</sup> Ed., New Delhi: Sage, 2017 Co-Author

## Conference Organization/ Presentations/ Refresher Courses/ FDP (in the last five years).

- 1. "Role of Students in Technology Enabled Learning Challenges and Prospects", IQAC students seminar, PSGR Krishnammal College for Women, Coimbatore, 2<sup>nd</sup> March 2018.
- 2. "Pathway from Research to Innovation", Interdisciplinary FDP Effective Learning and Teaching

- Practices, Shyama Prasad Mukherji College, 26<sup>th</sup> Sept 2018.
- 3. "Metamorphosis of Senior Secondary School Mathematics to College Mathematics: Special Emphasis on Linear Algebra", Inaugural Conference of the Mathematics Teachers Association, Homi Bhabha Centre for Science Education, Mumbai, 3<sup>rd</sup> 5<sup>th</sup> Jan 2019.
- 4. "Mathematical Modelling in Physiology", National Conference on Complex Systems in Interdisciplinary Sciences, Jamia Millia Islamia, Delhi, 11<sup>th</sup> 12<sup>th</sup> March, 2019.
- 5. "Modeling Natural Convective Flow Across Axisymmetric Bodies immersed in Porous Media saturated by Nanofluids", Conference on Algebra, Analysis and Applications, Ambedkar University Delhi, 10<sup>th</sup> May 2019.
- 6. "Innovative Teaching Pedagogy of Twenty First Century", Faculty Induction Programme, Hansraj College, 19<sup>th</sup> June 2019.
- 7. "Mathematical Models in System Biology: Biochemical Kinetics", Faculty Development Programme "Understanding the Connection of Mathematics with the world around us: An Application Based Learning", Hansraj College, 21<sup>st</sup> June 2019.
- 8. "Analysis of Dynamical Mathematical Models in System Biology", Faculty Development Programme "Understanding the Connection of Mathematics with the world around us: An Application Based Learning", Hansraj College, 21<sup>st</sup> June 2019
- 9. Delivered a lecture on "Reinventing the wheel The calculus way" at Ambedkar University of Delhi on 20th Sept 2019.
- 10. Conducted a workshop of 100+ students of Hansraj College on "Linear Algebra and its application" on 23rd Sept 2019.
- 11. "Mathematical Modelling at UG Level" Faculty Development Programme, Recent Trends in Research Methodology, E-Content, Mathematical and Statistical Methods in Open Education World, Kalindi College, 19th Dec 2019.
- 12. Expert panelist on the discussion: "Education in Today's Times for The World of Tomorrow", Education Summit on "Towards Meaningful Education: Redefining Goals and Pedagogies", K R Mangalam University, 23rd Dec 2019.
- 13. "Dynamical mathematical Models in System Biology and their Analysis", Refresher Course in **Computational and Mathematical Sciences**, Jamia Millia Islamia, 12th Feb 2020.
- 14. "Innovative Teaching Pedagogy of Twenty First Century", Refresher Course in **Computational** and Mathematical Sciences, Jamia Millia Islamia, 12th Feb 2020.
- 15. "Impact of COVID 19 Pandemic in reshaping Education", Key Speaker Webinar, Motilal Nehru College, 14<sup>th</sup> May 2020.
- 16. "An Insight into Online Teaching Learning", Key Speaker Webinar, Vivekanand College, 18<sup>th</sup> May 2020.
- 17. "Project Based Learning: A Different Way to Explore Engineering", Key Speaker Webinar, School of Engineering and Technology, Central University of Haryana, 28<sup>th</sup> May 2020
- 18. "Buoyancy induced unsteady flow across axisymmetric bodies immersed in a porous medium saturated with nanofluid", International winter school on Fluid Dynamics, Heat Transfer and Application, 22<sup>nd</sup> Jan 2021.
- 19. "Teaching Pedagogies in Mathematics: Innovative Pedagogy", Faculty Development Programme, Ramanujan College, March , 2021
- 20. "Teaching Pedagogies in Mathematics: Project Based Learning", Faculty Development Programme, Ramanujan College, March , 2021
- 21. "Application of Mathematics in Business and Social Science", Inaugural Lecture Interdisciplinary Faculty Development Programme, Miranda House, 18<sup>th</sup> March 2021
- 22. "Application of Group Theory in Solution of Rubik's Cube", Symposium on Real Life Applications of Abstract Mathematical Concepts, St Stephen's College, 9<sup>th</sup> April 2021

- 23. "New Education Policy 2020 and it's implications on Mathematics", Webinar on New Education Policy, JDM College, 16<sup>th</sup> April 2021
- 24. "Reconstructing the University Admissions in the wake of Pandemic- Decoding NEP", key panelist Speaker, Amrita Vishwa Vidyapeetham, 19<sup>th</sup> June 2021
- 25. "Application of Fourier Transform in Signal and System", Faculty Development Programme on Advances in Sensing, Information Flux and Security, Amity University, Patna, 2<sup>nd</sup> Aug 2021.
- 26. "How not to lie with Statistics: Using Statistics honestly", Faculty Development Programme on MOOCs, E-Content Development, Research Methodology and Statistical tools in Open Education World, Kalindi College, University of Delhi, 7<sup>th</sup> Aug 2021
- 27. "Decoding NEP: Redefining Goals and Pedagogies of Today's Education for the World of Tomorrow", Key speaker, Webinar organized by Daulat Ram College, University of Delhi, 24<sup>th</sup> Aug 2021.
- 28. "Mathematics Education in the Context of NEP 2020", Refresher Course in Mathematics, Ramanujan College, 6<sup>th</sup> Sept 2021.
- 29. "Project Based Learning: A Different Way to Explore Engineering", Key Speaker Webinar, Christ University, Bangalore, 17<sup>th</sup> Sept 2021
- 30. "Mathematical Models in Biochemical Kinetics and their Stability Analysis", Faculty Development Programme, Christ University, Bangalore, 28<sup>th</sup> Oct 2021
- 31. "Statistical Tools", Faculty Development Programme on Designing and Development of MOOCs and Application of Research on Digital Platforms— Hansraj College, University of Delhi, 7<sup>th</sup> March 2022
- 32. "Mathematical Teaching and Assessment using e-platform", Faculty Development Programme on Designing and Development of MOOCs and Application of Research on Digital Platforms—Hansraj College, University of Delhi, 7<sup>th</sup> March 2022
- 33. "Introduction to Keller Box Method", Faculty Development Programme on Computational Methods in Boundary Layer Theory, M.S.Ramaiah Institute of Technology, Bengaluru, 11<sup>th</sup> March 2022.
- 34. "Application of Keller Box Method to Nanofluid Flow", Faculty Development Programme on Computational Methods in Boundary Layer Theory, M.S.Ramaiah Institute of Technology, Bengaluru, 12<sup>th</sup> March 2022.
- 35. "On Road Colouring Problem", Shivaji College, 11<sup>th</sup> April 2022.
- 36. "Application of Keller Box Method to Fluid Flow and Heat Transfer", International Conference on Dynamical Systems and Numerical Methods, Jamia Millia Islamia, 21<sup>st</sup> May 2022.
- 37. "Keller Box Method and its Application to Nanofluid Flow", 5<sup>th</sup> International Conference on Frontiers in Industrial and Financial Mathematics, Central University of Haryana, 23<sup>rd</sup> Dec 2022.
- 38. "Data Analysis Using *R* Programming", 5<sup>th</sup> Refresher Course in Research Methodology, Jawaharlal Nehru University, 26<sup>th</sup> Dec 2022.
- 39. "Application of Keller Box Method to Nanofluid Flow and Heat Transfer", Refresher Course on Math, Statistics and Computing, University of Lucknow, 10 23 January 2023
- 40. "ICT Based Assessment Methods", Faculty Development Programme, CPDHE, University of Delhi, 7<sup>th</sup> February 2023
- 41. "Working woth MATHEMATICA: An Appplication Approach", FDP on Computer Algebra System, Ramjas College, 23<sup>rd</sup> March 2023

## Recorded Lectures on YouTube

- Testing of Hypothesis I (<a href="https://youtu.be/V2zjwMeae70">https://youtu.be/V2zjwMeae70</a>)
- Testing of Hypothesis II (<a href="https://youtu.be/9AT2--vE5Ns">https://youtu.be/9AT2--vE5Ns</a>)
- Testing of Hypothesis III (<a href="https://youtu.be/mi\_5glMaLmA">https://youtu.be/mi\_5glMaLmA</a>)

- Testing of Hypothesis IV (<a href="https://youtu.be/4h6cOHx524M">https://youtu.be/4h6cOHx524M</a>)
- Point Estimation of Parameters (https://youtu.be/pELvsdi2olc)
- Methods of Point Estimation (https://youtu.be/-MF8n5yjdrk)
- Orthogonal Curvilinear Coordinate System (https://youtu.be/5xYyq6R3YEM)
- Basic Equation of Fluid dynamics I (https://youtu.be/mr95j4wwJJY)
- Basic Equation of Fluid dynamics II (<a href="https://youtu.be/KCCkhbYw83U">https://youtu.be/KCCkhbYw83U</a>)
- Finite Difference Methods (https://youtu.be/vM8JdZQLZts)
- Integral Formulations and Variational methods (https://youtu.be/WOlczHsb6Vo)
- Application of Mathematics to Business and Social Science (https://youtu.be/JQ6VWL0KxME)
- Teaching Pedagogies in Mathematics: Innovative Pedagogy (https://youtu.be/DtMMKL0ovml?list=PLcQbSlMr-VBKhZhzjQ3rtMN\_ex1XpehD5)
- Teaching Pedagogies in Mathematics: Project Based Learning (https://youtu.be/ibRq5MITM60?list=PLcQbSIMr-VBKhZhzjQ3rtMN\_ex1XpehD5)

# Research Projects (Major Grants/Research Collaboration)

- 1. Creating a manuscript related to mathematics for liberal arts students funded by Ambedkar University, Delhi.
- 2. Identification and mentoring of potentially gifted children in India in Science and Mathematics funded by DST (Office of Principal Scientific Advisor to GOI)
- 3. Establishing process based identification and mentoring practices for potentially gifted children in Science and Mathematics funded by DST (Office of Principal Scientific Advisor to GOI)
- 4. 24 x 7 water supply in villages and small towns of India funded by University of Delhi
- 5. Solutions for road management from modeling and simulation of traffic flow on selected road of Delhi funded by University of Delhi
- 6. IT model for parking space management: optimal and efficient parking retrieval of vehicles funded by University of Delhi
- 7. Impact of FDI in multi-brand retail on local kirana shops funded by University of Delhi
- 8. Weaving Dreams for Destitutes Night Shelters funded by University of Delhi
- 9. Faculty Research Project 2020 21, Institute of Eminence, University of Delhi.
- 10. Faculty Research Project 2021 22, Institute of Eminence, University of Delhi.

Along with the above mentioned projects carried out number of projects with undergraduate and postgraduate students at Cluster Innovation Centre.

## **Awards and Distinctions**

- Awarded winner in the category of "Top Digital Enablers in Institute of National Importance/ Institute of National Imminence/ Public University" by Dy Chief Minister of Delhi State – New Code of Education 2021.
- Awarded Certificate of Best Poster in Research Display at the Convocation Ceremony, University of Delhi, 19<sup>th</sup> Nov 2016
- Teaching excellence award for innovation by University of Delhi, 1<sup>st</sup> May 2015.
- Gold Medallist Panjab University

#### **Association With Professional Bodies**

Life member of Ramanujan Mathematical Society Membership no 1152

Life member of ISTAM (Indian Society of Theoretical and Applied Mathematics) Membership no. L/1123 Alumini – IIT Delhi

#### Other Activities

- Participated in the workshop "The intertwining strands in Physics and Mathematics", IISER Pune, 19<sup>th</sup> – 23<sup>rd</sup> Feb 2018.
- Conducted a workshop at Shyam Lal College, University of Delhi on "Business Ideation Formulation during the Young Entrepreneurship Convection, April 29<sup>th</sup>, 2019

#### **INVITED TALKS**

- "Exploring Mathematics Through Project Based Learning", Aryabhatta College, 9<sup>th</sup> May 2023
- "From Tricks to Techniques in Mathematics", Satyawati College
- "Reinventing the Wheel The Calculus way", Ambedkar University Delhi
- "Problem Based Learning in Mathematics at UG Level", St Stephen's College.
- "Problem Based Learning in Mathematics at UG Level", MASTACOM 19, Mata Sundri College for Women
- "Mathematical Modeling in Medicine", 3 week Refresher Course in Computational and Mathematical Studies, UGC Human Resource Development Centre, Jamia Millia Islamia, New Delhi.
- "Bio-Geography: Mathematical Analysis of Wildlife Reserves", 3 week Refresher Course in Computational and Mathematical Studies, UGC Human Resource Development Centre, Jamia Millia Islamia, New Delhi.
- "Bio-Geography: Mathematical Analysis of Wildlife Reserves", B R Ambedkar College
- "Geometrical Interpretation of Eigen Values and Eigen Vectors", Daulat Ram College
- "Geometrical Interpretation of Eigen Values and Eigen Vectors", Sri Venkateshwara College
- "Geometrical Interpretation of Eigen Values and Eigen Vectors", Aryabhatta College
- "Geometrical Interpretation of Eigen Values and Eigen Vectors", Gargi College and Aryabhatta College
- "Enhancing Mathematical Ability by PBL", Christ University
- "Mathematical Modelling of Wildlife Reserves", Kalindi College.
- "Thinking Mathematically", Omicron 17, Kamla Nehru College.
- "Mathematical Modelling of Wildlife Reserves", St Stephen's College, Delhi.
- "On Road Colouring Problem", National Conference on Recent Statistical Computing Techniques and their Applications, Ramanujan College
- "Project Based Learning: Through the lens of Linear Algebra", Refresher Course, Bangalore University
- "Discrete Mathematical Modelling", Refresher Course, Bangalore University
- "Mathematical Modelling in Computational Biology I & II", Refresher Course, Bangalore University
- "Modelling Pharmokinetics", Acharya Narendra Dev College
- "Predicting future with Mathematics: Differential Equations", Deshbandhu College
- "Games and Puzzles: Discovering the art of Mathematics", Kalindi College
- "Discrete and Continuous Mathematical Modeling", Ramanujan College.
- "Mathematical Modeling in Physiology", Hansraj College.
- "Impact of the progress of science", Delhi Public School, R K Puram, Delhi.
- "Conjugate natural convection across impermeable partition imbedded in porous medium", IIT Bombay.
- "Similarity solutions of free convection problem of non-isothermal axi-symmetric body in porous medium with internal heat generation", IIT, Bombay.
- · "Buoyancy induced flow over axisymmetric bodies immersed in porous medium saturated by a

- nanofluid", Christ Univesity, Bangalore
- "Exact Methods of Differential Equations" in three week Refresher Course conducted by CPDHE, University of Delhi.
- "Women in Mathematics", St Stephen's College, University of Delhi
- "Functions of Several Variables", University of Delhi, South Campus.
- "Calculus via Graphs", B R Ambedkar College, University of Delhi
- "Applications of Graph Theory", Maitreyi College, University of Delhi
- "Population Models", Lady Sri Ram College, University of Delhi
- "Predator-Prey Models and its Analysis", Miranda House, University of Delhi
- "Mathematical Modeling", Kirorimal College, University of Delhi
- "Popular Lecture Series Building Mathematical Ability", ARSD College, University of Delhi
- "Mathematical Fallacies", Hindu College, University of Delhi
- "Foundation Courses in FYUP Building Mathematical Ability", Inaugural Lecture, Daulat Ram College, University of Delhi
- "Mathematical Modelling in School Curriculum", S D Public School, Delhi

# Undergraduate Summer Internship/ Semester Long Projects (Last five years)

## 2017 - 18

- 1. UNITY 3D Game Development
- 2. Statistical Learning
- 3. Solving Rosetta Code Problems in MATLAB
- 4. Solving Rosetta Code Problems in JAVA
- 5. Autonomously Indoor Mapping Quadcopter
- 6. Gesture Controlled Robotic Arm
- 7. Self balancing Skateboard
- 8. Optimizing and Automating Digital Marketing Campaigns
- 9. A statistical report on child sex abuse
- 10. Approximation algorithm for NP complete problems

## 2018 - 19

- 1. Movie Recommendation Engine
- 2. EPL Data Analysis using Machine Learning
- 3. IMBD Review System Analysis
- 4. Train a Robot to navigate using a single camera using reinforcement learning
- 5. Android Applications Hopzy, Guess the Number and MyNotes App
- 6. Detection of Pneumonia using Machine Learning
- 7. A Social Networking Web Application
- 8. Visualising Science with Augmented Reality

# 2019 - 20

- 1. Analysis of the Orbital Motion with emphasis on Chandrayaan
- 2. Developing the Server side of the application Hopzy
- 3. Extending Lights Out game to Higher Dimension
- 4. AI powered application for the visually impaired to navigate
- 5. Content Based Video Retrieval System
- 6. Animation in Android Using Interpolation

- 7. Traffic Decongestion Analysis: A study of Traffic Simulation in DU and it's extension to Delhi NCR
- 8. Integrated Augmented reality into Yoga Experience

# 20<u>20 - 21</u>

- 1. SECRET Discord BOT
- 2. Digital Marketing
- 3. Application of Flutter
- 4. Keyword Extraction using Hyperbolic Embedding
- 5. Admission Guidance Website
- 6. Artificial Intelligence-Powered Tech For The Visually Impaired To Navigate -I
- 7. Application of Group Theory to Rubik Cube
- 8. Artificial Intelligence-Powered Tech For The Visually Impaired To Navigate II

#### <u>2021 - 22</u>

- 1. Robolab Management System Flutter App Development
- 2. JoyCoin ICO (Cryptocurrency coded on the Ethereum blockchain)
- 3. Integrating skills of IT and management for business development
- 4. AI-based innovative 2-player board game
- 5. Making Mathematical kits for Visualisation of UG Mathematics
- 6. Fair Clustering
- 7. Stock Market Analysis
- 8. AgriBot

#### 2022 - 23

- 1. Exploring Ethical hacking and Methods of Cyber Security
- 2. Curio: A platform for dubbing YouTube Videos
- 3. Violator: A mobile App for traffic violation
- 4. Dhamni: Application to connect blood donord with recepients
- 5. A community platform for school children: Market Exploration
- 6. Understanding Algorithms: Visualise them in action
- 7. Frieze Pattern: Generation and Recognition
- 8. Changing the shopping experience using WEBVR

Signature of Faculty Member

(Updated in July 2023)