

# A Brief Profile and Progress Report (2020-2025)



**Department of Mathematics**  
**Dayalbagh Educational Institute (Deemed University)**  
**Dayalbagh, Agra**

[https://www.dei.ac.in/dei/science/index.php/  
about-department](https://www.dei.ac.in/dei/science/index.php/about-department)

# Outline

- 1 Establishment and Staff Details
- 2 1. Curricular Aspects
- 3 2. Teaching, Learning & Evaluation
- 4 3. Research, Innovation and Extension
- 5 5. Student Support and Progression
- 6 6. Governance, Leadership & Management
- 7 7. Future Plan of Action

# Establishment and Staff Details

## Year of Establishment

- 1955 (as part of REI, Affiliated to Agra University)
- 1981 (as part of DEI (Deemed University))

## Staff Details

- Teaching Staff :  
13
  - 100% Ph.D.
  - 76.9%  
Women

Designation	No.
Professors	4
Associate Professors	1
Assistant Professors	7
Guest Faculty	1
Total	13

Gender	No.
Women	10
Men	3
Total	13

- Non-Teaching Staff : 1

# Faculty Profile

S. No.	Name	Designation	Qualification	University	Area of Specialization
1.	Prof. Gunjan Agarwal	Professor and Head	D.Phil.	University of Allahabad	Topology, Math. Physics, Alge. Topology, Linear Algebra
2.	Prof. Gursaran	Professor	Ph.D.	DEI	Software Engineering
3.	Prof. Kamal Srivastava	Professor	Ph.D.	MDS University, Ajmer	Graph Theoretic Optimization,
4.	Prof. Shambhu Sharma	Professor	Ph.D.	Patna University	Optimization
5.	Dr. Agam Tyagi	Associate Professor	Ph.D.	DBRA University, Agra	Fluid Dynamics
6.	Dr. Richa Bansal	Assistant Professor	Ph.D.	DEI	Graph Theory, Soft Computing Techniques, Fuzzy Graph Theory
7.	Dr. Antika Thapar	Assistant Professor	Ph.D.	DEI	Fuzzy Optimization , Soft Computing Techniques
8.	Dr. Soumya Sinha	Assistant Professor	Ph.D.	DEI	Mathematical Modelling
9.	Dr. Suchi Agarwal	Assistant Professor	Ph.D.	DEI	Fluid Dynamics, Soft Computing
10.	Dr. Nivedita Sharma	Assistant Professor	Ph.D., Post Doc.	NIT Hamirpur, HP and Post Doc from IIT Mumbai	Math. modeling, Computational oriented numerical techniques, Differential equations
11.	Dr. Dharna Satsangi	Assistant Professor	Ph.D.	DEI	Graph Theory, Soft Computing Techniques, Machine Learning
12.	Dr. Yogita Singh Kardam	Assistant Professor	Ph.D.	DEI	Graph Theory, Soft Computing Techniques, Optimization
13.	Dr. Soami Pyari Sinha	Guest Faculty	Ph.D.	DEI	Topology, Mathematical Physics

# Programmes Offered

## Programmes Offered

- UG Level: B.Sc.
- PG Level:
  - M.Sc. Mathematics
  - M.Sc. Mathematics with Specialization in Computer Applications
- PG Diploma: P.G. Diploma in Big Data, Logistic and Operations Research
- Doctoral: Ph.D.

## Additional Contribution

- Department caters to the need of Mathematics courses offered by Faculty of Engineering, Faculty of Arts and Faculty of Social Sciences.

# Strength of Curriculum



# NEW INITIATIVES

## New Course Structures

- Framing of B.Sc. I to B.Sc. IV Year course structure according to NEP
- Framing of PG course structure according to NEP (Proposals for 2025-26)

## New Courses

- SIC501: Summer Internship
- MAW201: Mathematical Skills
- MAW301: Mathematical Applications
- Reshuffling of B. Tech. courses according to GATE
- DBD105: Data Science with R in PGDBDLOR

## New Topics

- Revision of 80% of the courses of B.Sc., M.Sc. and B. Tech.
- Total change of syllabus of ancillary courses MAH101: title, MAH102, MAW101

## e-Resources Developed

- 10 experiments of linear algebra developed for virtual lab (available online)

# Teaching Methods

- Lecture Method aided with continuous black board work and other audio visual aids like projector, LCD TV and microphone



- Group Discussions via students intraction and teacher for each course to improve subject knowledge as well as to enhance the personality of students

- ICT Enabled Courses: On Vidyaprasar Web Portal, e.g. <http://vp.dei.ac.in/vp/#course:vid:166>

# Evaluation

Continuous Evaluation as per the Institute norms

Open Book Class Assignments , Class Tests etc - To foster higher cognitive abilities rather than cramming

Daily Home Assignments, Laboratory Assignments related to the topic

Research Orientation at PG Level

Self Study, M.Sc. Synopsis and M.Sc. Dissertation Presentations and Viva-Voce

Weekly Research Colloquium and Discussion for Research Scholars

Online Viva –Voce Exams through Video Conferencing

# Schemes for Slow Learners



Extra Classes



Tutorial Classes



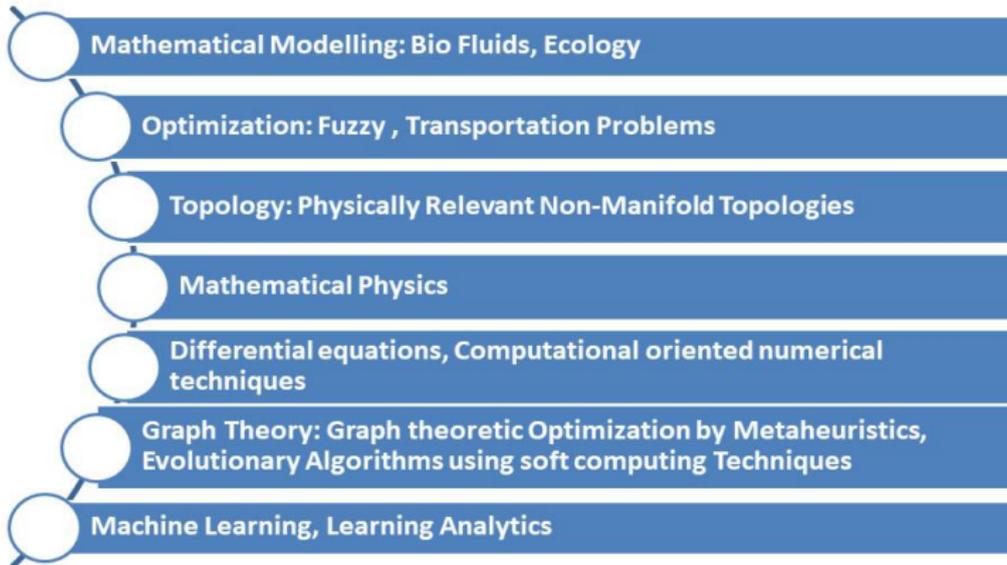
Discussions Outside the Class



Peer Group Learning

# Research

## Research Areas



# Research

## Thrust Areas

- Topology, Non-Manifold Topologies
- Mathematical Physics
- Algebraic Topology
- Graph Theory, Graph Algorithms
- Optimization
- Fuzzy Theory
- Mathematical Modelling, Fluid Dynamics
- Computational Methods, Differential Equations

# Research Collaborations

## International

- Prof. Rafael Marty, University of Valencia, Spain (Evolutionary Computation)
- Prof. Anand Srivastava, University of Kiel, Germany (Evolutionary Computation)

## National

- Dr. Pallavi Jain, IIT Jodhpur (Evolutionary Computation)

## Inter- Departmental

- Department of Botany (Statistical Analysis, Mathematical Modeling)
- Department of Economics (Statistical Analysis, Mathematical Modeling)

# Members of Review Boards

## Reputed International Journals

- Knowledge based Systems (Elsevier), Impact Factor 4.396
- IEEE Access (IEEE), Impact Factor 3.577
- Computers & Operation Research (Elsevier), Impact Factor 2.962.
- Engineering Optimization (Taylor & Francis), Impact Factor 1.622.
- Journal of Heuristics (Springer), Impact Factor 1.129.
- Mathematical Reviews (American Mathematical Society).
- Open Physics (De Gruyter), Impact Factor 0.799
- Discussiones Mathematicae Graph Theory, De Gruyter, Impact Factor 0.74

# List of SCI Journals

S.No.	Journal	Impact Factor
1.	Swarm and Evolutionary Computation	6.330
2.	Information Sciences	5.524
3.	Applied Soft Computing	4.873
4.	Applied Mathematics and Computations	3.092
5.	Computers & Mathematics with Applications	2.811
6.	Memetic Computing	2.674
7.	Journal of Systems and Software	2.559
8.	Journal of Heuristics	1.392
9.	Journal of Mathematical Physics	1.355
10.	Engineering Computations	1.246
11.	Int. Journal of Nonlinear Sciences and Numerical Simulations	1.033
12.	Open Physics	1.005
13.	Reports on Mathematical Physics	0.989
14.	Electronic Journal of Linear Algebra	0.579
15.	American Journal of Operational Research	0.45
16.	Topology and its Applications	0.416

# List of Ph. D. Students 2020-2025

S.No.	Scholar Name	Title	Supervisor	Co-Supervisor
1.	Yogita Singh Kardam	Metaheuristic Techniques for Solving Optimization Problems in Graph Theory	Prof. Kamal Srivastava	
2.	Vijay Laxmi Tiwari	Some Investigations on Fuzzy Relational Optimization Models and Their Possible Solutions	Dr. Antika Thapar	Dr. Richa Bansal
3.	Pradeep Kumar	Optimization Techniques for the Quadratic Assignment Problems	Prof. Shambhu Sharma	
4.	Aditi Khandelwal	A STUDY OF SOLUTION STRATEGIES FOR SOME GRAPH EMBEDDING PROBLEMS	Prof. Gur Saran	Prof. Kamal Srivastava
5.	Stuti Srivastava	METAHEURISTICS FOR SOME GRAPH THEORETIC OPTIMIZATION PROBLEMS IN CRISP AND FUZZY ENVIRONMENT	Dr. Richa Bansal	Dr. Antika Thapar
6.	Rani Kumari	Application of Metaheuristics for Solving Travelling Multitasker Problem and its Variants	Prof. Kamal Srivastava	
7.	Smriti Saxena	SOLVING FUZZY GRAPH COLORING PROBLEM USING CODED AND UNCODED TECHNIQUES	Dr. Antika Thapar	Dr. Richa Bansal
8.	Kapil Shekhar	Modelling and Analysis of the Mechanism of Human Joint Function Effects of Accumulation of Ha Molecules During Motion	Dr. Agam Prasad Tyagi	
9.	Pankaj Kumar	Modelling And Analysis of Mucus Transport in Diseased Airways Effects of Constriction of Airway Diameter	Dr. Agam Prasad Tyagi	
10.	Yogendra Singh	Mathematical Models Involving Mutualism Among Species	Prof. Ravinder Kumar	

# List of Ph. D. Students 2020-2025

S.No.	Scholar Name	Title	Supervisor	Co-Supervisor
11.	Tanuj Kumar Rawat	Modelling and Analysis of Bile flow in Human Biliary System	Dr. Agam Prasad Tyagi (Administrative Supervisor)	Prof. S. P. Singh
12.	Roma Pathak	Lorentz Manifolds A Topological Study	Prof. Gunjan Agrawal	
13.	Pinky Lawaniya	A Study of Effect of Pollution on the Dynamics of Predator Prey Interactions	Dr. Soumya Sinha	Prof. Ravinder Kumar
14.	Aditi Singh	Numerical Solutions of Nonlinear Partial Differential Equations Using B Spline Collocation Methods	Dr. Agam Prasad Tyagi (Administrative Supervisor)	Dr. Sumita Dahiya
15.	Deepanshi	Some Topological Aspects of Spacetime Metrics	Prof. Gunjan Agrawal	
16.	Shivangi Kumari	A Study of Influence of Various Flow Parameters of Bile in Human Biliary System	Prof. S. P. Singh	
17.	Himanshu Agrawal	OPTIMIZING TECHNIQUES FOR TIME MINIMIZING TRANSSHIPMENT PROBLEM AND ITS VARIANT	Prof. Shambhu Sharma	

# List of Ph. D. Students persuing

S.No.	Scholar Name	Title	Supervisor	Co-Supervisor
1.	Pushkar Singh	ALGORITHM ENGINEERING FOR COVERING PROBLEMS IN HYPERGRAPHS	Prof. Gur Saran	
2.	Urvashi	A STUDY ON APPROXIMATION ALGORITHMS FOR MATCHING IN GRAPHS AND HYPERGRAPHS	Prof. Gur Saran	
3.	Shruti Sinha	A Study of Causal Curves and Singularities in Lorentz Manifold with Path Topology	Prof. Gunjan Agarwal	
4.	Atul Kumar	Efficient Numerical Schemes for Solving Fractional Order Differential Equations	Prof. Gunjan Agrawal (Administrative Supervisor)	Dr. Agam Prasad Tyagi (Administrative Co-Supervisor)
5.	Mohit Katara	FUZZY RELATIONAL OPTIMIZATION AND ITS APPLICATIONS	Dr. Antika Thapar	

# List of Ph. D. Students & Their Placements

## Placement of Research Scholars (2020-2025)

S.No.	Name of Student	Ph. D Awarded (year)	Name of Institution
1.	Aditi Singh	2024	R.B.S College, Agra, U.P
2.	Pushker Singh	Pursuing	Paliwal (PG) College, Shikohabad, U.P
3.	Pinky Lawania	2024	Pt. Jawaharlal Nehru Mahavidyalaya Banda, U.P
4.	Deepanshi Goyal	2024	Acharya Institute of technology, Delhi
5.	Tanuj Rawat	2024	G.L.A University, Knowledge Park, Greater Noida
6.	Pradeep	2023	Lovely Professional University, Phagwara, Punjab
7.	Kapil Shekhar	2023	Gautam Buddha University, Greater Noida, U.P
8.	Yogita Kardam	2021	Dayalbagh Educational Institute, Agra

# Extension Activities

## Winter Camp

- Primary School Children



## Free Voluntary Tutorial Services

- Students of Classes VI- XII of a day boarding school
- Engineering Entrance Tests Training Programme



# Outreach Activities

- Participation in
  - Medical Camps
  - Regular Field Work
  - Registration, Lodging Arrangements, etc. for pilgrims coming to Dayalbagh
  - e-Transmission Team

# Others

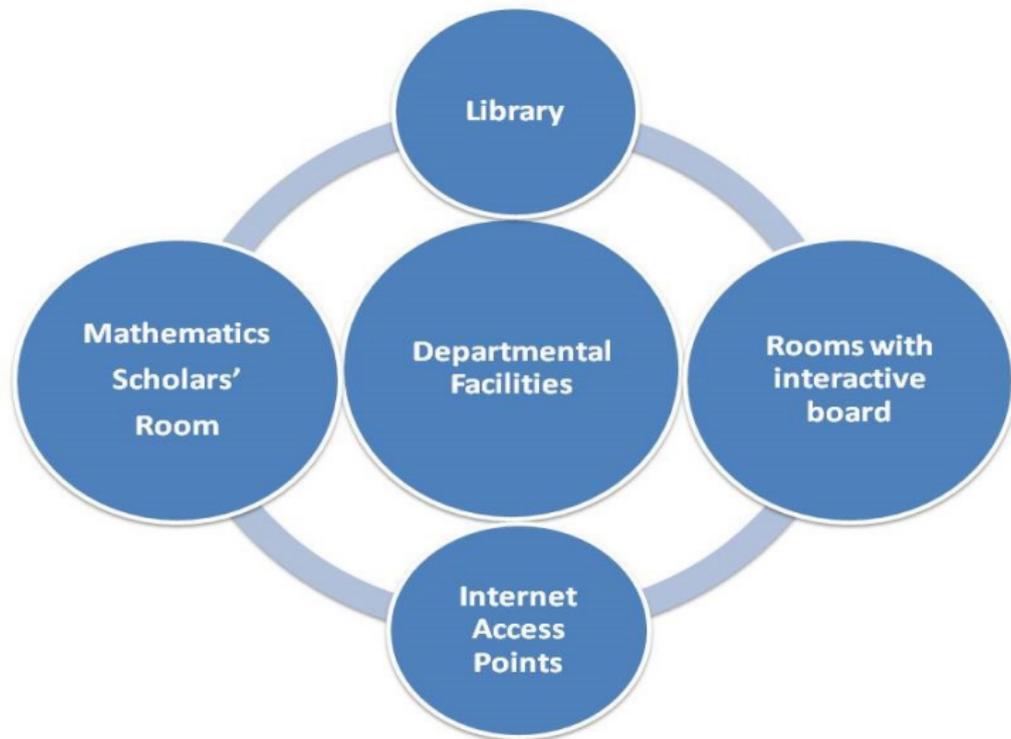
## NEW INITIATIVES

A Workshop on MATLAB was conducted in the Department of Mathematics on 28th August 2024 in collaboration with MATHWORKS for B.Sc. (Hons.) and M.Sc. Students.

Maths club named MATHSOCIOUS introduced on 24 Feb 2025 (for the students, by the students) which aims to have excellence in various fields of mathematics and increase understanding of the subject through discussions and activities.

A Lecture on “ABRIEF OVERVIEW OF HISTORY OF PROGRESS OF MATHEMATICS IN INDIA” was organized on 19<sup>th</sup> April 2025 by Maths club.

# Others



# Student Support

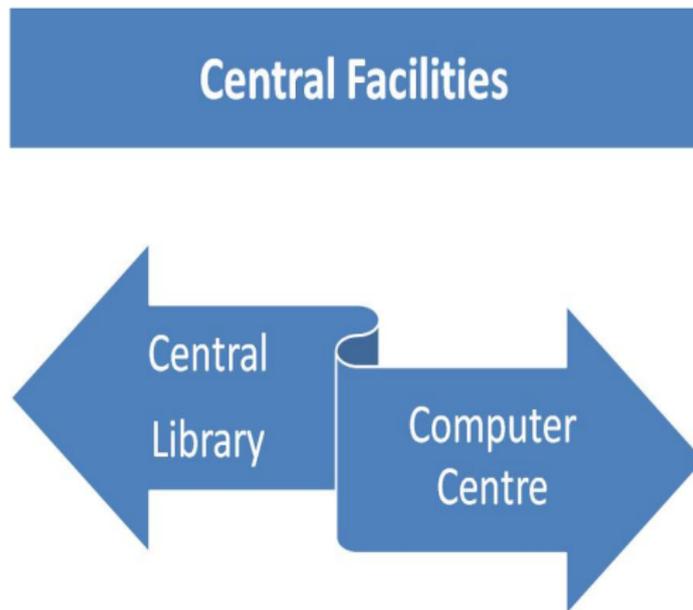
## Class Committee Meeting



## Proctorial Meeting



# Student Support



# Student Support

## Founder's Day-Open Day

- **Mathematical Fun Games:** Tower of Hanoi, Logical Questions, Calendar Problems etc.
- **Posters:** Topics such as Solvability of Polynomial Equations, Fermat's Last Theorem etc
- **Models**



# Student Support



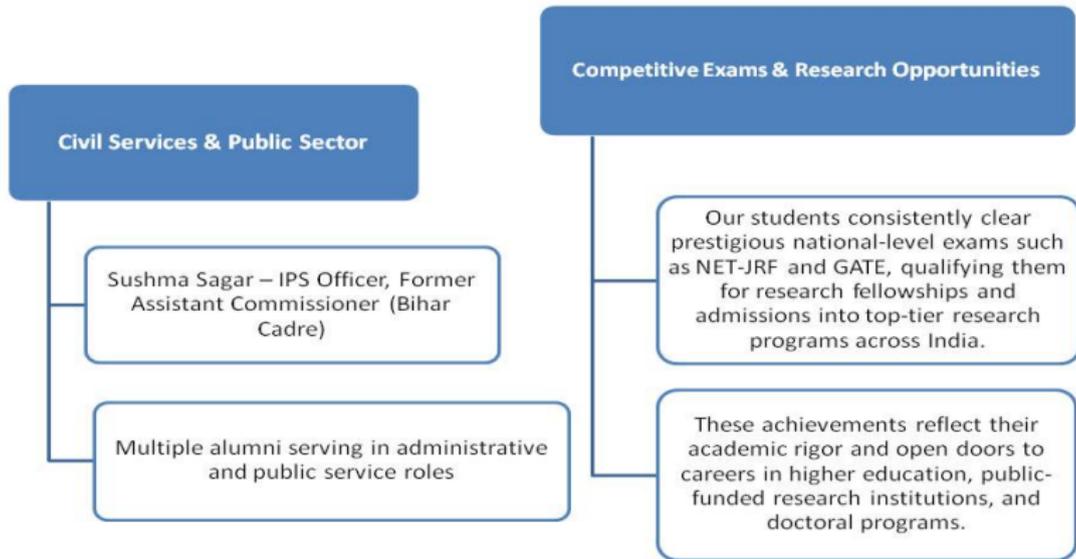
# Placements

## ALUMNI PLACEMENT HIGHLIGHTS

Academic Excellence	Corporate Careers	Entrepreneurship & Innovation
<ul style="list-style-type: none"> <li>• Assistant Professors at: IIT Jodhpur, JNU, IISER Mohali, University of Mumbai</li> <li>• Teaching positions in: Government and self-financed universities</li> <li>• State PG &amp; Degree Colleges (via Higher Education Commissions)</li> <li>• Kendriya Vidyalayas and Intermediate Schools</li> <li>• National Defense Education Roles: Indian Navy Training Academy</li> </ul>	<ul style="list-style-type: none"> <li>• Our alumni thrive in global corporations such as: Infosys, CS, Wipro, SAP Labs, Adobe Systems, Accenture, Genpact, AC Nielsen, MFilterIT, Blazar Software Solutions, Authbridge</li> <li>• Diverse roles: Engineering, Data Science, Consulting, Regional Management</li> </ul>	<ul style="list-style-type: none"> <li>• Rakhi Chawla – Founder of Ed3D, STEM Education</li> <li>• Ravindra Saxena – Head of Business, Pro Automation (USA)</li> <li>• Alumni-led ventures in USA, Finland, Australia, and India</li> </ul>

# Placements

## ALUMNI PLACEMENT HIGHLIGHTS



## Distinguished Alumni



Amit Kulshreshtha  
Associate Professor, IISER Mohali



Manoj Diwakar  
Assistant Professor, JNU, New-Delhi



Rajesh Kumar Singh  
Sr Data Scientist at OLA



Amboo Srivastava  
Senior Lead Software Engineer  
at Adobe Systems India



Ravindra Saxena  
Head, Global Reference Data,  
Millenium Partners, North America



Sampada Shrivastava  
Assistant Professor,  
SIWS College, Wadala, Mumbai

## Distinguished Alumni



Ashish Sethia  
VP, Marketing & Communications Accenture,  
Bangalore



Paresh Mishra  
Cloud Practice Lead, Asia Pacific Japan,  
SAP Australia Pvt Ltd, Australia



Ravi Kumar  
Business Head, South East Asia,  
Infosys



Sonali Kohli  
Sub-Lieutenant, Indian Navy

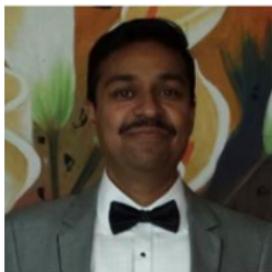
# Distinguished Alumni- Entrepreneurs



Surat Pyari  
Blazar Software Solutions, New Delhi



Sumitra Tyagi  
North Carolina, Founder Spark Info Tech (TG) Ltd



Amar Verma  
Data Genius Software Labs Ltd.



Nikhil Pratap  
Business Owner and Consultant.

## Institution Level Committees

- Dean, ICT Delhi
- In charge, Multimedia Laboratory
- Convener, Sub-committees of Admission Committee
- Convener, Sub-committees of Convocation Committee
- Convener, Institute Cricket Committee
- Convener, Institute Athletic Committee
- Coordinator, University Placement Cell
- Convener, Committee of the DEI Web site, Course Management System and Admission System

## Institution Level Committees

### Members of

- Independence Day Celebration Committee
- Open Day Celebration Committee
- Counselor to DOSA
- Institute Examination Committee
- DEI Magazine Committee
- Planning Committee
- Women Grievance Cell
- Founder's Medal Committee

## Faculty Level Committees

- Coordinator, Training & Placement Cell
- Programme Officer, National Service Scheme
- Chief Proctor
- Proctors
- Member, Faculty Cultural Committee
- Member, Faculty Board

## Departmental Committees

- Class Committees
- Moderation Committee
- Board of Studies
- Curriculum Development
- M.Sc. Term Paper
- M.Sc. Dissertation
- Research Colloquim
- Time-Table
- Student Feedback

## Best Practices

- ICT Enabled Teaching
- Emphasis on skill development & entrepreneurial courses
- Department library
- Interdisciplinary collaborative research
- Encourage students to participate in conferences
- Encourage students to attend training programmes
- Encourage students for higher studies
- Research colloquia
- Research orientation at PG level
- Student Interaction
- Departmental Meeting
- Extensive participation in extension & outreach activities

# Best Practices

## Departmental Meeting & Student Interaction



# Best Practices

## Student Interaction



# VISION

- To contribute to Institute's Vision by making significant involvement in consciousness studies and other objectives
- To strengthen international research collaborations
- To initiate joint supervision of PhDs
- To run courses jointly with prestigious Institutes
- To introduce new programmes and courses
- To increase extra mural funding

# THANKYOU