Department of Mathematics
Maharshi Dayanand University Rohtak
(NAAC Accredited 'A' Grade)

Strategic Plan (2018-2023)

About the Department

The Department of Mathematics is one of the oldest departments of the M.D. University, Rohtak and was established in the year 1976 under Faculty of Physical Science. The Department is housed in an independent building having good infrastructural facilities with three Computer Labs, two Research Labs; NBHM funded departmental Library, a Seminar Hall and Wi-Fi Connectivity. Over the years, the department has made rapid strides in academics and at present it has over 550 students distributed over several programs such as M.Sc. Mathematics, M.Sc. Mathematics with Computer Science, 5-Year integrated M.Sc.(Hons) Mathematics, M.Phil. and Ph.D. The department has 16 teachers and 9 supporting staff members. The Department of Mathematics was awarded the level of DRS-I under Special Assistance Program for its excellent research and academic activities by UGC in 2012. The Department keeps on organizing conferences/seminars frequently.

Vision

To strive to become a nationally recognized department for academic and research excellence by imparting in-depth quality education and perusing quality research in the subject of Mathematics.

Mission

- To create an ambience to flourish undergraduate, postgraduate, and doctoral programmes with nationwide impact and recognition.
- To undertake educational outreach and community engagement that increases mathematical and computing literacy nationally and globally.
- To inculcate in students the ability to apply mathematical, computational and research skills to model, formulate and solve real life problems.
- To pursue collaboration with the public and private sectors in the form of research, project, and consultancy.
- To engage in different mathematical problems through industry-academia interaction and to undertake collaborative projects for long term development.
- To organize various national/international academic and research oriented programmes such as workshops, extension lectures, seminars and conferences.
- To make the students capable of discharging professional, social and economic responsibilities ethically.

Strategic Goals

To achieve its Vision and Mission, the Department will endeavor to improve -

- Smart classrooms and revision of syllabi.

- Research outcome by publishing good quality of research papers in recognized journals. The faculty members will apply for research grants from different funding agencies

- Course employability by revising syllabi as per the need of industries and institutions

- Inclusiveness and social impact by organizing outreach programmes for societal awareness

- Extension and collaboration by organizing invited lectures, seminars, conferences and workshops. The faculty members will collaborate with co-supervisor and co-investigators of other departments and institutions.

SWOC Analysis

➢ Strength

- Highly-experienced, well-qualified, passionate and dedicated faculty members.
- Good coordination between individual research groups, academic and administrative staff.
- Brilliant, hardworking, disciplined and multi-talented students.
- Mentor-Mentee relationship with strong bonding among faculty and students.
- Hard working, sincere and highly co-operative non-teaching staff.
- Major and minor UGC sponsored projects.
- Quality work in thrust areas of research of the Department.
- Large number of research papers in reputed SCI/SCOPUS/WOS and ICI indexed UGC approved Journals.
- Departmental Library with good collection of quality books with sufficient seating capacity.
- Teaching as per latest scheme and syllabus in the subject of Mathematics.
- Engagement in various social, moral and cultural activities.

➢ Weakness

- Shortage of teaching and non-teaching staff.
- Lack of ICT equipped classrooms.

➢ Opportunities

- Innovative methods of teaching using Smart Boards.
- Departmental Library with more quality books and seating capacity for reading.
- ICT equipped class rooms.
- Strengthen the course content of the existing programmes.
- Introduce new demanding programmes.
- Establish linkage with various institutes for research.

- Organize international workshops, seminars and conferences.

➢ **Challenges**

- To establish centre for excellence in Mathematics
- To train the students for excellence in both academic and competitive examinations.
- To strengthen communication skills among students coming from rural background.
- To improve moral and ethical values in students.
- To provide facilities for specially abled students.
- To have close contact and cooperation with industries.
- To get all teaching positions filled.
- To strengthen leveraging financial and other resources of the alumni.

Action Plan

Academic year 2018-19

- ✓ To design syllabi of UG programmes and 5-Year Integrated PG programme as per CBCS.
- ✓ To organize a Workshop of at least one-week duration on use of various software like MATLAB, MATHEMATIKA, SPSS, R, etc. for computational work relating to teaching & research in Mathematical Sciences.
- ✓ To organize one/two day Seminar/Workshop to develop skills and to promote placement activities of the students.
- ✓ To apply for UGC-SAP (DRS-II).
- ✓ To make the newly extended building functional for classes and other activities for growth of the Department.
- ✓ To establish a smart class room.
- ✓ To arrange at least three extension lectures to enhance academic/ research standard. Alumni will be invited for delivering some of these lectures.
- ✓ To do new/extended research work in the varied areas of mathematical sciences and to get it published in the Scopus/WoS/ICI indexed UGC approved Journals.
- ✓ To make efforts at the departmental level to establish linkages with various institutions/industries for research and extension.
- ✓ To arrange educational tours to various places in India for wider exposure of the students in various domains and understand the emerging areas in the society, in general, and Mathematics, in particular.

- To arrange trips to IT/Software industries and/or to arrange interactive lectures of the IT personnel for the students.
- To organize "blood donation" and/or "pledge to eye donation" camp.
- To organize cultural programmes.
- To organize other extracurricular/co-curricular activities in collaboration with other agencies/NGOs (such as Rotary/Lions etc.).
- To arrange visits to Orphanages, Institutes of Mentally Challenged persons, Old age homes, etc. to inspire the students to serve the society and the community.
- To strengthen the Alumni database by making efforts of keeping the record of each and every alumnus of the Department to enhance guidance and placement. The eminent alumni, preferably belonging to industries/corporate/research institutes/Govt. agencies/foreign institutes, may be involved as special invitees in its Board of Studies.
- To strengthen the Departmental Library.
- To organize University/State level Quiz Contest in Mathematics.

Academic year 2019-20

- To implement new syllabi of UG programmes and 5-Year Integrated PG programme as per CBCS.
- To install LCD/LED Projectors in all the Lecture Theaters.
- To introduce M.Sc. (Actuarial Sciences) and to propose Faculty of Actuarial Sciences.
- To organize an international conference.
- To organize one/two day Seminar/Workshop to develop skills and to promote placement activities of the students.
- To enhance infrastructural and research standards through UGC-SAP (DRS-II).
- To apply for research projects funded by UGC, CSIR or other agencies.
- To arrange at least three extension lectures to enhance academic/ research standard. Alumni will be invited for delivering some of these lectures.
- To make provisions of lifts and ramps for differently abled students/employees.
- To do new/extended research work in the varied areas of mathematical sciences and to get it published in the Scopus/WoS/ICI indexed UGC approved Journals.
- To make efforts at the departmental level to establish linkages with various institutions/industries for research and extension.
- To arrange educational tours to various places in India for wider exposure of the students in various domains and understand the emerging areas in the society, in general, and Mathematics, in particular.
- To arrange trips to IT/Software industries and/or to arrange interactive lectures of the IT personnel for the students.

- ✓ To organize "blood donation" and/or "pledge to eye donation" camp.

- ✓ To organize cultural programmes.

- ✓ To organize other extracurricular/co-curricular activities in collaboration with other agencies/NGOs (such as Rotary/Lions etc.).

- ✓ To arrange visits to Orphanages, Institutes of Mentally Challenged persons, Old age homes, etc. to inspire the students to serve the society and the community.

- ✓ To establish two ICT equipped research Labs with all kinds of software to be used for research in mathematical sciences.

- ✓ To strengthen the Alumni database by making efforts of keeping the record of each and every alumnus of the Department to enhance guidance and placement. The eminent alumni preferably belonging to industries/corporate/research institutes/Govt. agencies/foreign institutes may be involved as special invitees in its Board of Studies.

- ✓ To strengthen the Departmental Library.

- ✓ To organize University/State level Quiz Contest in Mathematics.

- ✓ To give consultancy services formally and to generate revenue from it.

Academic year 2020-21

- ✓ To organize a Workshop of at least one-week duration.

- ✓ To organize one/two day Seminar/Workshop to develop skills and to promote placement activities of the students.

- ✓ To continue M.Sc. (Actuarial Sciences) 1st year as well as 2nd year.

- ✓ To arrange at least three extension lectures to enhance academic/ research standard. Alumni will be invited for delivering some of these lectures.

- ✓ To establish another smart class room.

- ✓ To install LCD/LED Projectors in all other Class Rooms.

- ✓ To enhance infrastructural and research standards through UGC-SAP (DRS-II).

- ✓ To apply for research projects funded by UGC, CSIR or other agencies.

- ✓ To do new/extended research work in the varied areas of mathematical sciences and to get it published in the Scopus/WoS/ICI indexed UGC approved Journals.

- ✓ To make efforts at the departmental level to establish linkages with various institutions/industries for research and extension.

- ✓ To arrange educational tours to various places in India for wider exposure of the students in various domains and understand the emerging areas in the society, in general, and Mathematics, in particular.

- ✓ To arrange trips to IT/Software industries and/or to arrange interactive lectures of the IT personnel for the students.

- ✓ To organize "blood donation" and/or "pledge to eye donation" camp.

- ✓ To organize cultural programmes.

- ✓ To organize other extracurricular/co-curricular activities in collaboration with other agencies/NGOs (such as Rotary/Lions etc.).

- ✓ To arrange visits to Orphanages, Institutes of Mentally Challenged persons, Old age homes, etc. to inspire the students to serve the society and the community.

- ✓ To strengthen the Departmental Library.

- ✓ To strengthen the Alumni database by making efforts of keeping the record of each and every alumnus of the Department to enhance guidance and placement. The eminent alumni preferably belonging to industries/corporate/research institutes/Govt. agencies/foreign institutes may be involved as special invitees in its Board of Studies.

- ✓ To organize University/State level Quiz Contest in Mathematics.

- ✓ To give consultancy services formally and to generate revenue from it.

Academic year 2021-22

- ✓ To organize National/International conference.

- ✓ To organize one/two day Seminar/Workshop to develop skills and to promote placement activities of the students.

- ✓ To arrange at least three extension lectures to enhance academic/ research standard. Alumni will be invited for delivering some of these lectures.

- ✓ To enhance infrastructural and research standards through UGC-SAP (DRS-II).

- ✓ To apply for research projects funded by UGC, CSIR or other agencies.

- ✓ To do new/extended research work in the varied areas of mathematical sciences and to get it published in the Scopus/WoS/ICI indexed UGC approved Journals.

- ✓ To make efforts at the departmental level to establish linkages with various institutions/industries for research and extension.

- ✓ To arrange educational tours to various places in India for wider exposure of the students in various domains and understand the emerging areas in the society, in general, and Mathematics, in particular.

- ✓ To arrange trips to IT/Software industries and/or to arrange interactive lectures of the IT personnel for the students.

- ✓ To organize "blood donation" and/or "pledge to eye donation" camp.

- ✓ To organize cultural programmes.

- ✓ To organize other extracurricular/co-curricular activities in collaboration with other agencies/NGOs (such as Rotary/Lions etc.).

- ✓ To arrange visits to Orphanages, Institutes of Mentally Challenged persons, Old age homes, etc. to inspire the students to serve the society and the community.

- ✓ To strengthen the Alumni database by making efforts of keeping the record of each and every alumnus of the Department to enhance guidance and placement. The eminent alumni preferably belonging to industries/corporate/research institutes/Govt. agencies/foreign institutes may be involved as special invitees in its Board of Studies.
- ✓ To strengthen the Departmental Library.
- ✓ To organize University/State level Quiz Contest in Mathematics.
- ✓ To give consultancy services formally and to generate revenue from it.

Academic year 2022-23

- ✓ To organize a Workshop of at least one week duration.
- ✓ To organize one/two day Seminar/Workshop to develop skills and to promote placement activities of the students.
- ✓ To arrange at least three extension lectures to enhance academic/ research standard. Alumni will be invited for delivering some of these lectures.
- ✓ To enhance infrastructural and research standards through UGC-SAP (DRS-II).
- ✓ To apply for research projects funded by UGC, CSIR or other agencies.
- ✓ To do new/extended research work in the varied areas of mathematical sciences and to get it published in the Scopus/WoS/ICI indexed UGC approved Journals.
- ✓ To make efforts at the departmental level to establish linkages with various institutions/industries for research and extension.
- ✓ To arrange educational tours to various places in India for wider exposure of the students in various domains and understand the emerging areas in the society, in general, and Mathematics, in particular.
- ✓ To arrange trips to IT/Software industries and/or to arrange interactive lectures of the IT personnel for the students.
- ✓ To organize "blood donation" and/or "pledge to eye donation" camp.
- ✓ To organize cultural programmes.
- ✓ To organize other extracurricular/co-curricular activities in collaboration with other agencies/NGOs (such as Rotary/Lions etc.).
- ✓ To arrange visits to Orphanages, Institutes of Mentally Challenged persons, Old age homes, etc. to inspire the students to serve the society and the community.
- ✓ To give consultancy services formally and to generate revenue from it.
- ✓ To strengthen the Alumni database by making efforts of keeping the record of each and every alumnus of the Department to enhance guidance and placement. The eminent alumni preferably belonging to industries/corporate/research institutes/Govt. agencies/foreign institutes may be involved as special invitees in its Board of Studies.
- ✓ To organize University/State level Quiz Contest in Mathematics.
- ✓ To strengthen the Departmental Library

ACHIEVEMENTS OF THE DEPARTMENT IN LAST FIVE YEARS

Publications   :   *178*

Research Project Completed   :   *05*

Ph.D. Completed   :   *40*

Conference/ Workshops Organized   :   *02*

Books/Chapters/ Conference Proceedings   :   *13 (Proceedings) + 09(Books)*

Invited Lectures in Conferences   :   *35*

THRUST AREAS OF THE DEPARTMENT OF MATHEMATICS

- *Non-linear Functional Analysis and Fuzzy Mathematics*

- *Theoretical Seismology and Fluid Dynamics*

- *Reliability Engineering*

- *Graph Theory*

- *Information Theory*

- *Queuing Theory*

Year Wise Plan at a Glance

Year \ Plan of Action	2018-19	2019-20	2020-21	2021-22	2022-23
Making the Extended Block Functional for Classes and Other Activities	■				
Designing Syllabi as per CBCS for UG and 5-Year Integrated Programmes	■				
Implementation of Syllabi as per CBCS for UG and 5-Year Integrated PG Programmes		■			
To Launch/Start "M.Sc. (Actuarial Sciences)"		■	■		
Extension Lectures	■	■	■	■	■
National/International Conference		■		■	
Workshops/Seminars to develop skills and to promote placement activities	■	■	■	■	■
SAP (DRS-II)	■	■	■	■	■
Research projects		■	■	■	■
Tours/Trips	■	■	■	■	■
Linkages/Collaborations	■	■	■	■	■
Revenue through consultancy services		■	■	■	■
Extra Curricular/Co-Curricular Activities	■	■	■	■	■
Visits for Community services	■	■	■	■	■
Establishing Smart Class Rooms	■		■		
Installing LCD/LED Projectors		■	■		
Strengthening Library	■	■	■	■	■
Strengthening Alumni database	■	■	■	■	■
Strengthening labs		■			
University/State Level Quiz Contests	■	■	■	■	■

Activity Calendar (2018-19)

S. No.	Activities	Time
1.	Induction Programme	August, 2018
2.	Meetings of Mentor-Mentee	September, 2018
3.	Teacher Day Celebration	September 5, 2018
4.	Lecture on Swachta Abhiyaan	September 22, 2018
5.	Seminar/Extension Lectures through Alumni	November, 2018
6.	Quiz Contest	January, 2019
7.	Blood Donation and Eye Donation Pledge Camp	February, 2019
8.	Mathematics Alumni Meet	February, 2019
9.	Visit to Orphanages, Institute of Mentally Challenged Persons and Old Age Homes	February, 2019
10.	Education Tours	March, 2019
11.	Seminar/Extension Lectures through Alumni	March, 2018
12.	Parents-Teacher Meeting	March, 2019
13.	Obtaining Students' Feedback	March, 2019
14.	Workshop	March, 2019