

Internal Quality Assurance Cell (IQAC) SGT University

Annual Report (Aug 2016- July 2017)
Department of Mathematics

Edited by: Dr. Sandeep Mogha
Department of: Mathematics

The Department of Mathematics strives to establish excellence among academics in India by providing quality education to the students through the comprehensive curriculum at under graduate and post graduate levels. The department has well qualified faculty members to strengthen and enhance the academics and research work. We welcome all new entrants looking to pursue a career in Mathematics.

Department at a Glance (2016-17)

Name of the Department: **Mathematics**

Year of establishment: **2014**

1. List of Faculty with designations (Table)

S.N	Name of Faculty	Designation	Educational Qualifications	Area of Specialization	Exp.	Publications (Total)
1	Dr. K. S. Bhamra	Professor & HOD	Ph.D(1974) IIT, KGP	Applied Mathematics General Theory of relativity	39 Years	Papers = 25 Books = 04
2	Dr. Santosh Dixit	Associate Professor	M.Sc. Ph.D.	Pure Mathematics	17	Nil
3	Dr. Rakesh Yadav	Assistant Professor	M.Sc. Ph.D (2004), Dr. RML Avadh University	Mathematical Modeling	16 Years	Papers = 11 Books = 03
4	Dr. Resham Vinayak	Assistant Professor	Ph.D	Stochastic modeling for performance and dependability analysis of communication systems	5 years	5
5	Dr. Sandeep Mogha	Assistant Professor	M.Sc., M.Phil, Ph.D (2014) (IIT, Roorkee) NET-JRF	Data Envelopment Analysis	03	15
6	Dr. Zuber Akhter	Assistant Professor	M.Sc. M.Phil, Ph.D (2016) AMU, Aligarh	Order Statistics, Records and Generalized Order Statistics	01	10

7	Mr. Naveen Kumar	Assistant Professor	M.Sc., M.Tech., M.Phil.	Pure Mathematics	12	Nil
8	Mrs. Minni Ruhil	Assistant Professor	M.Sc, CSIR - NET	Pure Mathematics	05	Nil
9	Mrs. Namita	Assistant Professor	M.Sc, CSIR – NET	Pure Mathematics	02	Nil
10	Ms. Shivani Yadav	Assistant Professor	M.Sc, CSIR – NET	Pure Mathematics	01	Nil
11	Ms. Mamta	Assistant Professor	M.Sc.	Nil	06	Nil

2. Names of programmes offered (UG, PG, M.Phil., Ph.D., M.Sc., etc.)

Course	Program	Duration	Intake	Specialization
UG	B.Sc. (Non Medical)	3 Years (6 semesters)	50	Mathematics, Physics Chemistry
	B.Sc. (Hons.) Mathematics	3 Years (6 semesters)	30	Mathematics
Ph.D.	Mathematics			

3. Education:

a). Hours of teaching in each subject

Under graduation: 84 hours/year

Other trainings.....NIL...

b). Continued Education (workshop, seminar, symposium, conferences)

i) Summary of the above, department wise (Total No.)

Event	Attended	Organized	Paper / poster presented	Guest lecturers delivered	Keynotes delivered
Conference national	1	-			
Conference International	3	-			

Conventions		-			
Symposium	1	-	1		
Workshops		-			
Others	1	-			
Total	6	-	1		

ii). Details of above, Faculty member wise...

Dr. K.S. Bhamra

- Attended an International Conference on 'Innovative Developments in Science, Technology and Management (IDSTM-2017)' held at Ganga Technical Campus, Bahadurgarh, Haryana on 29th January 2017.

Dr. Rakesh Yadav

- Presented a paper entitled "A MATHEMATICAL MODEL RELATED TO A FAMILY GROWTH", in Recent Advances in Mathematics and it's Computational Aspects", (NSRAMCA -2016), held in Nov. 12-13, 2016, Shaheed Mangal Pandey Govt. Girls P.G. College Madhavpuram, Meerut.

Dr. Sandeep Mogha

- Presented a paper entitled "Performance Measurement of Academic Departments: Case of a Private Institution", Int. Conf. on Soft Computing: Theories and Application (SoCTA-2016), (Proceedings by Springer) held in Dec. 28-30, 2016 at Amity University, Jaipur.
- Presented a paper entitled "Technical Efficiency of Academic Departments: Case of Government PG college", Int. Conf. on Soft Computing: Theories and Application (SoCTA-2016), (Proceedings by Springer) held in Dec. 28-30, 2016 at Amity University, Jaipur.
- Presented a paper entitled "Re-visiting the impact of Euro on trade flows: New evidence using gravity equation with Poisson count-data technique", Int. Conf. on Soft Computing for Problem Solving, (SocPros-2016) (Proceedings by Springer) held in Dec. 24-26, 2016 at Thapar University, Patiala, Panjab.
- Presented a paper entitled "Efficiency and Sensitivity Analysis in Healthcare: Case of India", Recent Advances in Mathematics and it's Computational Aspects", (NSRAMCA - 2016), held in Nov. 12-13, 2016, Shaheed Mangal Pandey Govt. Girls P.G. College Madhavpuram, Meerut.
- Chaired a Session in the International Conference on Soft Computing: Theories and Application (SoCTA-2016) held in Dec. 28-30, 2016 at Amity University, Jaipur.

Dr. Zuber Akhter

- Presented a research paper entitled “Some results on relation between moments of generalized order statistics” in ISSAC-2016-VIII- International Symposium on Statistics & Optimization in Conjunction with XXXVI-Annual convention of Indian Society for Probability & Statistics (ISPS) and Seminar on Statistical Inference, Sampling & Optimization Techniques & related Areas under SAP-DRS-II organized by the Department of Statistics & Operations Research, Aligarh Muslim university, Aligarh, India- December 17-19, 2016.

4. Publications:

i) Journal articles

a). Summary of publication department wise (Total No.):

S. no.	Type	Total no. Of Articles	National	International	Others
1	Indexed	-	-	-	-
2	Non indexed	-	-	-	-
3	Peer reviewed	01	01	-	-
4	Non peer reviewed	-	-	-	-

b) Details of the above (to be furnished faculty member wise).

(Papers published in peer reviewed journals (national/international, listed in National/International Database (For e.g. Web of Science, Scopus, Humanities International Complete, Dare Database, International Social Sciences Directory, EBSCO or any other indexing agency, Citation Index (source) Google Scholar, Research Gate, Scopus, SNIP, SJR Impact Factor ... range / average, h-index)

Dr. Zuber Akhtar

S. no.	Article in Vancouver style	National/ international	Database	Citation index Range/ average	SJR / SNIP	h-index	Impact factor
1.		National	Google Scholar, Research Gate, Zentralblatt Math, Digital Mathematics Registry of AMS and STMA-Z Statistical Theory	-	-	-	-

- Non -indexed publications
- Popular press writings / others

ii) Abstracts published in conference proceedings. (faculty member wise)

iii) Books with ISBN with details (faculty member wise)

- a) Chapters in Books
- b) Edited Books
- c) Books publishers
- d) Monographs

5. Details of patents and income generated

NA

6. Awards and Honours

Awards / recognitions received at the national and international level by (in Table. format...)

- Faculty
- Others
- Doctoral / post doctoral fellows
- Students

NA

7. Consultancy and Participation as expert, income generated, (brief note on each) NA

8. Research

i). Details of the Funded projects department wise:

S.no.	Name of the faculty/ department	Name of PI	Funding agency	Indian agency / WHO / International / SGT University	Project title	Grants received	Completed/ ongoing/ new project submitted
1.	-	-	-	-	-	-	-
2.	-	-	-	-	-	-	-
3.	-	-	-	-	-	-	-
4.	-	-	-	-	-	-	-
5.	-	-	-	-	-	-	-

ii) Details of other non funded / self funded projects: department wise (list only) NA

iii) Student projects:

Sno.	Name of the student	Name of Guide	Course PhD, MD, MDS, MSc, JRF, SRF	Funded/ self funded	Indian agency / WHO / International / SGT University	Project title	Grants received	Completed / ongoing
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1.	-	-	-	-	-	-	-	
2.	-	-	-	-	-	-	-	
3.	-	-	-	-	-	-	-	
4.	-	-	-	-	-	-	-	
5.	-	-	-	-	-	-	-	

- Percentage of students who have done in-house projects including inter-departmental projects : NA
- Percentage of students doing projects in collaboration with other universities /industry / institute : NA

9. Patient Care, please provide detail in enumerative figures during the year of consideration. (Write NA if not applicable)

Facilities available	NA
Operations / procedures	NA
ICU details	NA
Emergency Duties	NA
OPD clinics	NA

10. Other Significant Events

TRIP TO SURAJKUND MELA (Faridabad)

The Undergraduate and Postgraduate students of Faculty of Physical Sciences visited **SURAJKUND MELA** on 14.02.2017. The 31st Surajkund International Crafts Mela-2017 is organized by the Authority & Haryana Tourism in collaboration with Union Ministries of Tourism, Textiles, Culture and External Affairs. The students met a number of renowned national and international folk artistes and cultural groups and enjoyed their performances. The Mela is a custodian of a large number of heritage crafts involving use of traditional skills. The multi-cuisine Food Court at mela provides ethnic cuisines from all over the world, which provided culinary excitement to the students.

1. TRIP TO CHAMBA HILL STATION

A trip to Chamba Hill Station for the scholar's students of undergraduate was organized by the SGT University from **6th April to 9th April 2017**. The main aim of the trip was to motivate and encourage each and every student towards study and to give the chance

to build closer bonds with their collegemate. During the trip, students and faculty Ms. Minni Ruhil visited Tehri dam, Surkhanda Mata ka Mandir, Dhanaulti Eco Park and the DJ night. The three day trip tends to be the most memorable moments of a student's career. Since the trip was organized after the exams it helped them to experience new environments and enjoy day away from the classroom.

2. GOLD MEDAL AWARDS TO MERITORIOUS STUDENTS

The university organized its 4th Convocation on 18.03.17 to provide the degrees to the students of different courses, during this program our students awarded with the Gold Medals. This is one of the best moment for the students, in such away the management encouraging the students to achieve their goals.

3. FAREWELL PARTY - "LAMHE"

Faculty of Physical Sciences, SGT University organized a farewell party "LAMHE" on 16th May, 2017 at TV Studio, 3rd Floor, Dental building. The Farewell began with Lamp lighting by the Associating Dean, Dr Ravi Rana, and all HOD's. The dance performances of Ms Deepshikha, Ms Kritika and Mr Deepak and the songs sung by **Ms Anju and Ms Meenaz** were much appreciated. Titles were given to the outgoing students of B Sc and M.Sc. by their juniors. Students of final year participated in **Ramp Walk** and Question round which was judged by Mr Harsh Upreti (FHTM), Dr Ruchika Yadav (Forensic Sciences) & **Ms Shivani Yadav** (FPS). The Batch was presented mementos by the faculty members and wished them good luck for their future. Some exciting games were also arranged for the students and were enjoyed by all.

Different tags were awarded to the students. Ms Chetna (M Sc Physics) was crowned with the title of Ms. Farewell and Mr. Rajat (M Sc Physics) was awarded the title of Mr. Farewell. There was a tie for the title of Mr Handsome and Ms Candy Crush. Mr. Raman (M Sc Physics) and **Mr Prateek (BSc Non-Medical)** won the title of Mr Handsome and Ms Drishti (M Sc Physics) and Ms Nitika (M Sc Chemistry) were given the title Ms Candy Crush. The function was concluded with cake cutting ceremony followed by lunch.

11. Courses in collaboration with other universities, industries, foreign institutions, etc.

NA

12. Details of programmes discontinued, if any, with reasons

NA

13. Examination System: Annual/Semester/Trimester/weekly

Semester

14. Choice Based Credit System –Give brief note

NA

15. Participation of the department in the courses offered by other departments, courses in collaboration with other universities, industries, foreign institutions, etc.

16. Faculty selected nationally / internationally to visit other laboratories / institutions / industries in India and abroad (e.g. Commonwealth fellowships, WHO fellowships, UNESCO fellowships etc)

17. Faculty serving in
a) National committees
b) International committees
c) Editorial Boards
d) any other (please specify)

18. Faculty recharging strategies (Capacity Building programmes) (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs). (give details)

19. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance (updated till date)

Name	Qualifications	Designation	Specialization	No. of years of Experience	No. Of thesis/ dissertations guided till now (Ph.D. / M.Phil./ PG/ UG/Students)
Dr. Santosh Dixit	M.Sc. Ph.D.	Associate Professor	Pure Mathematics	17	Nil
Dr. Sandeep Mogha	M.Sc., M.Phil, Ph.D (2014) (IIT, Roorkee) NET-JRF	Assistant Professor	Data Envelopment Analysis, Operations Research	03	01
Dr. Zuber Akhter	M.Sc. M.Phil, Ph.D (2016) AMU, Aligarh	Assistant Professor	Order Statistics, Records and Generalized Order Statistics	01	Nil
Dr. Sudhakar Chaudhary	M.Sc., M.Phil. Phd. (IIT Delhi) NET-JRF	Assistant Professor	Numerical Solution for Partial Differential Equations	Research Exp 03 Teaching 01	Nil

Mr. Naveen Kumar	M.Sc., M.Tech., M.Phil.	Assistant Professor	Pure Mathematics	12	Nil
Mrs. Minni Ruhil	M.Sc, CSIR - NET	Assistant Professor	Pure Mathematics	05	Nil
Mrs. Namita	M.Sc, CSIR – NET	Assistant Professor	Pure Mathematics	02	Nil
Ms. Shivani Yadav	M.Sc, CSIR – NET	Assistant Professor	Pure Mathematics	01	Nil
Ms. Mamta	M.Sc.	Assistant Professor	Nil	06	Nil

- **Pooja Sharma**, (M.Sc. Student, The NorthCap University, Gurgaon) “Efficiency Measurement of Private Sector Hospitals in India Through Data Envelopment Analysis Technique” Jan-June, 2017.

20. List of senior Visiting Fellows, adjunct faculty, emeritus professors

1. Guest Lecture by Dr. J.K.Chhabra, Ex – consultant Professor, IIT Allahabad, Ex – Scientist F and Deputy Director, Photonics Group, Central Scientific Instruments Organisation on topic Fibre Optics (27-28 March 2017)
2. Guest Lecture by Dr. Vepa Kameswara Rao, DRDO Gwalior on topic Fundamental and Applications of Bio sensors (March 15, 2017).

21. Programme-wise Student Teacher Ratio (Table)

S.No.	Program	No. of Student	No. of Teachers	Teacher Ratio
1.	B.Sc.(Hons)	22	9	32
2.	B.Sc.(Non Medical)	42		
3.	B.Tech. (Engg. Mathematics)	286		

22. Number of academic support staff (technical) and administrative staff: (in Table form)

S.No.	No. of Technical Staff	No. of Administrative Staff
1.	Nil	NA

23. Establishment of Research facility / centre (during the year of consideration)

24. Student profile programme-wise (No. only):

Name of the Programme	Applications	Selected		Pass percentage	
	Received wherever known	Male	Female	Male	Female
B.Sc. (Hons) 1 st Semester	12	7	5	1 (14.28%)	1 (20.00%)
B.Sc. (Hons) 2 nd Semester	11	6	5	RA	RA
B.Sc. (Hons) 3 rd Semester	12	6	6	0 (0.0%)	4 (66.66%)
B.Sc. (Hons) 4 th Semester	7	2	5	0 (0.0%)	4 (80.00%)
B.Sc.(NM) 1 st Semester	32	23	09	3	3
B.Sc.(NM) 2 nd Semester	19	11	8	4 (36.36%)	6 (75.00%)
B.Sc (NM)3 rd semester	9	5	4	0 (00.00%)	2 (50.00%)
B.Sc.(NM)4 th Sem.	6	3	5	RA	RA
B.Sc.(NM)5 th Sem	8	3	5	1 (33.33%)	4 (80.00%)
B.Sc.(NM)6 th Sem	7	2	5	1 (50%)	5 (100%)

25. Diversity of Students (No. only):

Name of the Programme	% of Students from the Same University	% of students from other Universities within the State	% of students From Universities outside the State	% of students From other countries

26. Student progression (No. Only)

Student progression	Percentage against enrolled
UG to PG	-
PG to M.Phil.	-
PG to Ph.D.	-
Ph.D. to Post-Doctoral	-
Employed	-

<input type="checkbox"/>	Campus selection	-
<input type="checkbox"/>	Other than campus recruitment	-
	Entrepreneurs	-

27. Diversity of staff (No. Only):

Percentage of faculty who are graduates of the	
Same University	Nil
From other Universities within the State	2
From University from other State	7
From Universities outside the Country	Nil

28. Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt.

29. Present details of departmental infrastructural facilities regarding

- a) Library (no. of Books and Journals)
- b) Internet facilities for staff and students
- c) Total number of class rooms
- d) Class rooms with ICT facility
- e) Students' laboratories
- f) Research laboratories

30. List of doctoral, post-doctoral students and Research Associates

- a) from the host institution/university
- b) from other institutions/universities

31. Number of post graduate students getting financial assistance from the university.

32. FEEDBACK System (Brief note)

Students are encouraged to talk to batch-in-charges and mentors to address the issues.

The faculty provides feedback to student directly through faculty member dealing with them in the class, through the mentors and HoD and the Dean.

IQAC of the SGT University started auditing lectures and providing direct feedback to the faculty member without involving the management.

33. Student enrichment programmes [give details of (special lectures / workshops / seminar) involving external experts.]

EDUCATIONAL VISIT TO ASOLA WILD LIFE SANCTUARY (New Delhi)

On 21st February, 2017, UG and PG students of the Faculty of Physical Sciences were taken on an educational tour to Asola Bhatti **Wildlife Sanctuary**, which lies at the southern edge of Delhi at **Asola** near **Tughlakabad** in the Delhi National Capital Region. There has been a history of

illegal mining within the sanctuary for **red badarpur sand and stone**. The surrounding area is also known as **Bhatti mines**. There are large open and deep pits in the ground all over the sanctuary, lying abandoned for years. It is a very good centre for **conservation education** and **nature interpretation programs**.

34. Changes in Teaching Guidelines. (List the teaching methods adopted by the faculty for different programmes.)

1. Problem based learning.
2. Power point Presentation
3. Student seminars
4. Conventional Method (White Board)

In the reported period, faculty members had undergone training in new andragogic methods, but they are supposed to be tried in new academic semesters starting in July 2017. They have been adopted now.

A demo lecture series was arranged where faculty members were asked to provide model lecture with emphasis on interactive delivery, adoption of new teaching methodologies and use of technologies in teaching.

35. Changes adopted in monitoring learning outcomes

1. Formative assessment techniques have been adopted.
2. Lot of emphasis on internal assessment and non-didactic teaching.

36. Extension activities.

The following new course is initiated and the curriculum, ordinance, scheme of examination and syllabus were formulated.

- M.Sc (Applied Mathematics)) – 2 Years (4 Semesters)

37. “Beyond syllabus scholarly activities” of the department

Conducting FDP within Faculty of Physical Sciences.

Submitted one research proposals in the reported period to DST for funding and are still submitting new proposals.

38. Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.

Strengths:

1. faculty with good academic background
2. commitment for delivery
3. teamwork
4. research mindset
5. availability of multi-disciplinary skills

Weaknesses:

1. lack of access to reputed scientific journals for research
2. lack of adequate number of copies of text and reference books in the library
3. lack of opportunities among faculty members for attending academic/administrative trainings
4. no internal grant for supporting research

39. Best Practices of the department

1. Audit of lectures by HoD and senior faculty members for ensuring quality.
2. Enforcement of IQAC advocated andragogic methods.
3. Encouragement for using technology for improving quality of teaching delivery.
4. Research-oriented mindset.

40. Future plans for the department

1. Encouraging UG students to attend summer and winter schools.
2. Encouraging students to participate in Technofest projects.
3. Submission of research proposals for funding.
4. Emphasis on quality of teaching delivery.