

**Department of Mathematics
Banaras Hindu University**

Report for NAAC Assessment and Accreditation

1. Name of the Department	: <i>Department of Mathematics</i>
2. Year of establishment	: <i>1916</i>
3. Is the Department part of a School /Faculty of University	: <i>Yes, of Faculty of Science</i>
4. Names of programmes offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., D.Sc., D.Litt., etc.)	<ul style="list-style-type: none"> • <i>6-Semester B.Sc (Hons.) Mathematics.</i> • <i>6-Semester B.A (Hons.) Mathematics.</i> • <i>3 year B.Sc./B.A(Hons.) Mathematics</i> • <i>4-Semester M. Sc./ M.A. Mathematics.</i> • <i>Ph.D. Programme in Mathematics with Course Work.</i>
5. Interdisciplinary courses and departments involved	: <i>Collaborative research work with DST Centre for Interdisciplinary Mathematical Sciences</i>
6. Courses in collaboration with other universities, industries, foreign institutions, etc.	: <i>Nil</i>
7. Details of programmes discontinued, if any, with reasons	: <i>Nil</i>
8. Examination System: Annual/ Semester/ Trimester/ Choice Based Credit System	: <i>Annual and Semester system with choice based elective credit system</i>
9. Participation of department in courses offered by other departments	<i>Providing</i> <ul style="list-style-type: none"> • <i>Ancillary Courses in Mathematics at UG level</i> • <i>Three minor elective courses at PG level</i> • <i>Partial support in teaching at Department of Computer Science</i>
10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/others)	

	Sanctioned	Filled	Actual (including CAS & MPS)
Professor	<i>05</i>	<i>03</i>	<i>10</i>
Associate Professors	<i>10</i>	<i>07</i>	<i>07</i>
Asst. Professors	<i>16</i>	<i>08</i>	<i>01</i>
Others	<i>Nil</i>	<i>---</i>	<i>---</i>

i. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance

Name	Qualification	Designation	Specialization	No. of year of experience	No. of Ph.D. Student guided in last four years	
1	Dr. A.K. Srivastava	Ph.D.	Professor	Category Theory, Fuzzy Topology, Automata Theory	Over 37 years	01
2	Dr. Naveen Kumar	Ph.D.	Professor	Hydromechanics, Numerical Analysis, Differential Equations	40 years	03
3	Dr. S.D. Singh	Ph.D.	Professor	Differentiable Manifolds	Over 35 years	03
4	Dr. Abdussattar	Ph.D.	Professor	General Relativity, Gravitation and Cosmology	Over 38 years	01
5	Dr. S. R. Singh	Ph. D.	Professor	Neuro fuzzy Computing, Computational Mathematics	Over 25 years	03
6	Dr. A.K. Singh	Ph.D., D.Sc.	Professor	Fluid Dynamics And Numerical Analysis	32 years	05
7	Dr. Shyam Lal	Ph.D. D.Sc.	Professor	Summability, Approximation Theory, Wavelet Analysis	20 years	04
8	Dr. M.M. Tripathi	Ph.D.	Professor	Differential Geometry.	Over 25 years	01
9	Dr. R.N. Singh	Ph.D.	Professor	Geometry of Manifolds	Over 30 years	01
10	Dr. Harish Chandra.	Ph.D.	Professor	Functional analysis	25 years	03
11	Dr. S. Bhattacharya	Ph.D.	Associate Professor	Functional Analysis	Over 25 years	Nil
12	Dr. P.C. Bhardwaj	Ph.D.	Associate Professor	Algebra	Over 25 years	01
13	Dr. A.M. Tripathi	Ph.D.	Associate Professor	Algebra	Over 25 years	Nil
14	Dr. D.R. Sahu	Ph.D	Associate Professor	Operator Theory, Fixed Point theory.	14 years	Nil
15	Dr. A.K. Misra	Ph.D.	Associate Professor	Mathematical Modeling	Over 15 years	01
16	Dr. B.S. Bhadauria (On lien)	Ph.D.	Associate Professor	Fluid Mechanics	Over 20 years	03
17	Dr. S.K. Mishra	Ph.D., D.Sc.	Associate Professor	Theory of Optimization: Variational Inequalities	15 years	04
18	Dr. Arvind Kumar Singh	Ph.D.	Assistant Professor	Numerical Analysis	Over 6 years	Nil
12. List of Senior visiting Fellows, faculty, adjunct faculty, emeritus professors				:NIL		
13. Percentage of classes taken by temporary faculty – programme wise information				:NIL		
14. Programme-wise Student Teacher Ratio				:110:1		

15. Number of academic support staff (technical) and administrative staff: sanctioned, filled and actual

	Position	Sanctioned	Filled
	Technical		
1	<i>Semi Professional Assistant</i>	01	01
2	<i>Jr. Lab Assistant</i>	01	01
3	<i>Lab Attendant</i>	01	01
	Administrative		
4	<i>Section Officer</i>	01	01
5	<i>Sr. Assistant</i>	01	01
6	<i>Jr. Clerk</i>	01	00
7	<i>Peon</i>	03	03(01 in re-engagement)
	Contractual Staff		
8	<i>Office Assistant – cum – Computer Personal</i>	01	01
9	<i>Office Assistant</i>	01	01

16. Research thrust areas recognized by funding agencies : *Analysis & Its Appls.*

17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise. : *Nil*

18. Inter-institutional collaborative projects and associated grants received National collaboration b) International collaboration : *Nil*

19. Departmental projects funded by DST-FIST,UGC-SAP/CAS,DPE,DBT,ICSSR etc. total grants received

NBHM (Scheme No.

2007-08 5,85,913/-

2008-09 8,50,000/-

2009-10 10,50,000/-

2010-11 12,22,400/-

2011-12 09,00,000/-

DST-PURSE

2009-12 25.87 Lacs

UGC grant to DRS Departments for strengthening infrastructure:

40.00 Lacs (Scheme No. 4004, NR-Infrastructures)

20. Research facility / centre with

- state recognition
- national recognition
- international recognition

None of the stated type

21. Special research laboratories sponsored by / created by industry or corporate bodies : *None*

22. Publications

- Number of papers published in peer reviewed journals(national/international) : More than 200
- Monographs : 01
- Edited Books : 02
- Books with ISBN with details of publishers: 04

23. Details of patents and income generated	: Nil
24. Areas of consultancy generated	: None formally
25. Faculty selected nationally / internationally to visit other laboratories / institutions / industries in India and abroad	: 03
26. Faculty serving in a) National Committees b) International Committees c) Editorial Boards etc d) Any other	1 (Ind. Math Soc Council Member) --- 02 ---
27. Faculty recharging strategies (UGC, ASC, Refresher /orientation programs, workshops, training programs and similar programs).	Sabbatical / Study leave
28. Student Projects • percentage of students who have done in-house projects including inter-departmental projects • percentage of students doing projects in collaboration with other universities / industry / institute	: 100% (UG/PG students) : Nil
29. Awards / recognition at national and international level by a. Faculty : b. Doctoral/Post Doctoral fellows c. Students	: Nil : NBHM / Dr. D.S. Kothari Post Doctoral Fellowship : SPM fellowship to one M.Sc. student
30. Seminars/ Conferences/Workshops organized and the source of funding (national / international) with details of outstanding participants, if any	: 17 (UGC/DST)
31. Code of ethics for research followed by departments.	: No tolerance for plagiarism

32. Student profile programme wise (at present)

Name of the Programme (refer to question no. 4)	Applications received	Selected			Pass percentage		
		Male	Female	Total	Male	Female	Total
Ph.D. Mathematics	---	31	6	37	---	---	---
M.Sc./ M.A. 1 st Yr. (I/II Sem.) (2013)	3092	95	35	130	---	---	---
M.Sc./ M.A. 1 st Yr. (I/II Sem.) (2012)	2671	92	38	130	73.9%	78.9%	75.3
M.Sc./ M.A. 2 nd Yr. (III/IV Sem) (2013)		68	30	98			
B.Sc. 1 st Yr. (I/II Sem) (2013)	---	510	66	576	---	---	---
B.Sc. 2 nd Yr. (III/IV Sem) (2013)	---	456	56	512	---	---	---
B.Sc./B.A. 3 rd Yr. (V/VI Sem) (2013)	---	98+6*	10+27*	141	---	---	---
B.A. 1 st Yr. (I/II Sem) (2013)		47+18	---	65	---	---	---
B.A. 2 nd Yr. (III/IV Sem) (2013)		32+43	---	75	---	---	---

* Students from the Faculty of Arts/ Social Science/MMV

33. Diversity of Students: From almost all states of India

Name of the Programme (refer to question no. 4)	% 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
<i>Ph.D.</i>	<i>56.75</i>	<i>29.72</i>	<i>13.51</i>	<i>Nil</i>
<i>M.Sc./ M.A.(2012)</i>	<i>91.5%</i>		<i>7.69%</i>	<i>0.7%</i>

34. How many students have cleared Civil Services and Defence Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise.

During last five years

NET : 20

GATE : 45

RGNF : 04

DS Kothari : 02

NBHM PDF : 03

NBHM PG Fellowship : 06

35. Student Progression

Student progression	Percentage against enrolled
UG to PG	90%(approx.)
PG to M.Phil.	---
PG to Ph.D.	40% (approx.)
Ph.D. to Post-Doctoral	40% (approx.)
Employed	---
• Campus selection	---
• Other than campus recruitment	85% (approx.) Ph.D. students
Entrepreneurs	---

36. Diversity of Staff

Percentage of faculty who are graduates	
of the same university	<i>66%</i>
from other universities within the State	<i>17%</i>
from universities from other States	<i>17%</i>
from universities outside the country	<i>Nil</i>

37. Number of the faculty who are awarded M.Phil., Ph.D., D.Sc., D.Litt during the assessment period

D.Sc.: 01

38. Present details of infrastructural facilities with regard to

a. Library	: About 4200 Books and several research journals (on exchange basis).
b. Internet facilities for staff and students:	Every faculty has been provided with Desktop, Laptop, Scanner, Printer with internet facility Internet access laboratory with 15 PC and networked printer.
c. Total number of classrooms	: 07 (including 3 small class-rooms of about 35 persons capacity)
d. Classroom with ICT facility:	Classrooms - 02 Committee Room – 01
e. Students laboratories:	Computer Laboratory with 30 PC's and a server equipped with MATHEMATICA some Compilers.
f. Research laboratories	Computational Mathematics Laboratory with MATLAB with a network printer
List of Doctoral, post doctoral students and Research Associates	
a. From the host university b. From other universities	: (List attached
40. Number of Postgraduate students getting financial assistance from the University	: Nil
41. Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology.	: No
42. Does the Department obtain feedback from	
a. faculty on curriculum as well as teaching learning evaluation? If yes, how does the department utilize the feedback? :	: For updating/revision of course-curriculum
b. students on staff, curriculum and teaching learning evaluation and how does department utilize the feedback?	: No
c. alumni and employers on programmes offered and how does the department utilize feedback?	: for revising/updating the syllabi.

43. List of distinguished alumni of the department(maximum 20)	
<ol style="list-style-type: none"> 1. Prof. V.K. Patodi, TIFR, Mumbai. 2. Prof. D.N. Verma, TIFR, Mumbai. 3. Prof. S. P. Singh, Deptt. of Physics & Astronomy, Univ. of Western Ontario, Canada. 4. Prof. H.P. Joshi, Deptt. of Mathematics, York University, Canada 5. Dr. L.S. Dube, Math Deptt, Concordia University, Montreal, Canada 6. Prof. J.N. Pandey, Math Dept, Carleton Univ, Ottawa, Canada 7. Dr. Uma Nath Tiwari, Math, St. Abbot's College, Montreal, Canada 8. Prof. Bishun Pandey, Math, Ohio State Univ., USA 9. Prof. S.N. Singh, Math Univ. of Transkei, UMTATA, South Africa 10. Prof. SRK Iyenger (Retd. from Dept of Math, IIT Delhi). 	
44. Give details of students enrichment programmes (special lectures /workshops/seminar involving external experts)	:Several (sponsored) training programmes & workshops have been organized at UG, PG, and Research levels, with funding from DST, Ind. Math. Soc., often in collaboration with the DST Centre for Interdisciplinary Mathematical Sciences, BHU
45. List the teaching methods adapted by the faculty for different Programmes	: Mostly Traditional Methods
46. How does the department ensure that programme objectives are constantly met and learning outcomes are monitored?	: Through Class-Tests
47. Participation of students and faculty in extension activities	: Most of the research scholars help in organizing academic activities other than normal teaching.
48. Give details of “beyond syllabus scholarly activities” of the department	: Organization of Training programmes / Workshops/ Seminars/Conferences
49. State whether the programme / department is accredited/ graded by other agencies? If yes, give details	: No
50. Briefly highlight the contributions of the department in generating new knowledge, basic or applied	: High research activities
51. Detail any five Strength, Weakness, Opportunities and Challenges (SWOC) of the department	
Strength:	
<ol style="list-style-type: none"> 1. Updated Curriculum: the Department periodically (after every five years) updates course curriculum in tune with the emerging national and international trends. It also provides diversity and academic flexibility to students for their career orientation and multi-skill development. 2. Quality teaching to the students, together with exposure to good computing facilities and relevant computational mathematics software. The department also provides variety of learning experiences and updated knowledge of subject by organizing guest lectures by external experts in the department and/or DST CIMS. 3. Promoting research culture among students and faculty by facilitating participation in research and related activities. It also encourages interdisciplinary research. 4. Students are encouraged to use ICT facilities and learning resources, e.g.: books and journals available in the departmental library and computational lab. 5. Promotes ambience of creativity and innovation through project-work for both UG and PG students. 	

Weakness:

1. Lack of adequate working / sitting space for faculty.
2. Lack of working space for research scholars
3. Heavy teaching load due to unfilled faculty positions, leading to unbalanced student-teacher ratio.
4. Lacking space for extending the laboratory facility.
5. Lacking space for extending other learning resources/ e-learning facility in department library.

Opportunities:

1. To develop some course programmers in emerging areas like financial mathematics and computational mathematics.
2. Promote team research activities in some frontier areas in Mathematics and Mathematical sciences.
3. Developing knowledge management strategy in Mathematics and Mathematical Science.

Challenges:

1. Need of adequate professional development grant for faculty members.
2. Catering to diverse needs of students.
3. Increasing employability in the subject Mathematics.
4. Developing interdisciplinary and applicable research activities in mathematics.
5. Identifying and nurturing mathematical talents in all sections of the students and society nearby..

52. Future plans of the department

Starting New PG Programme:
M.Sc. in Mathematics & Computing
Science (4 semester programme)

LIST OF RESEARCH SCHOLARS ADMITTED THROUGH VARIOUS TERMS

S. No.	Term and year of Admission	Name	Supervisor	Ph.D. Status	e-mail Address
1	Sept 2009	Abhishek Kumar Mishra	Prof. Shyam Lal	Ongoing	abhi87mangal@gmail.com
2	Sept 2009	Shailesh Trivedi	Dr. Harish Chandra	Ongoing	shic.lu.shailesh@gmail.com
3	Sept 2009	Vidya Sagar	Dr. D.R. Sahu	Ongoing	mathsagar@gmail.com
4	Sept 2009	Krishan Kumar Jaiswal	Dr. D.R. Sahu	Ongoing	kumarkrishna.bhu@gmail.com krishnakumar94510@gmail.com
5	Sept 2009	Kusum Lata	Dr. A.K. Mishra	Ongoing	kusum41@gmail.com
6	Sept 2009	Vishal Singh	Dr. A.K. Mishra	Ongoing	shivavishalshiva@gmail.com singhvishal_bhu@yahoo.com
7	Sept 2009	Anupama Sharma	Dr. A.K. Mishra	Ongoing	anupama_bhu@yahoo.com
8	Sept 2009	Vinod Kumar Gupta	Prof. A.K. Singh	Ongoing	vinodguptabhu@gmail.com
9	Sept 2009	Alok Kumar Srivastava	Prof. A.K. Singh	Ongoing	srivastavaalok0311@gmail.com
10	Sept 2009	Monika Jaiswal	Dr. S.K. Mishra	Ongoing	monikajsmj@gmail.com
11	Sept 2009	Vivek Laha	Dr. S.K. Mishra	Ongoing	laha.vivek@yahoo.com
12	Sept 2009	Amod Kumar (Part time)	Dr. S.K. Mishra	Ongoing	
13	Sept 2009	Balendu Bhooshan Upadhayay	Dr. S.K. Mishra	Ongoing	bhooshanbhu@gmail.com
14	Sept 2009	Shubhash	Dr. A.K. Singh	Ongoing	
15	Sept 2010	Rana Noor	Prof. A.K. Srivastava	Ongoing	noor356@gmail.com rananoor4@gmail.com
16	Sept 2010	Sheo Kumar Singh	Prof. A.K. Srivastava	Ongoing	sheomathbhu@gmail.com
17	Sept 2010	Sanjay Kumar	Prof. S.R. Singh	Ongoing	
18	Sept 2010	Anil Kumar Nishad	Prof. S.R. Singh	Ongoing	anil.k.nishad16@gmail.com
19	Sept 2010	Shailendra Kumar Bharati	Prof. S.R. Singh	Ongoing	sk.bhu35@gmail.com
20	Sept 2010	Rajendra Prasad	Prof. A.K. Singh	Ongoing	rajendrabhu108@gmail.com
21	Sept 2010	Sadhana pandey	Prof. A.K. Singh	Ongoing	sadhana.bhu20@gmail.com
22	Sept 2010	Vipin Kumar Singh	Dr. D.R. Sahu	Ongoing	vipinkumarsingh66@yahoo.in vipinbhumath@gmail.com
23	Sept 2010	Maitri Verma	Dr. A.K. Mishra	Ongoing	maitri.verma9@gmail.com

24	Sept 2010	Pankaj Kumar Tiwari	Dr. A.K. Mishra	Ongoing	pankajmathematics@gmail.com
25	Sept 2011	Ajeet Kumar	Prof. M.M. Tripathi	Ongoing	ajeetsingh622@gmail.com
26	Sept 2011	Sarveshanand	Prof. A.K. Singh	Ongoing	anand3_sarvesh@gmail.com
27	Sept 2011	Manoj Kumar	Prof. Shyam Lal	Ongoing	mkrail.bhuphd@gmail.com
28	Sept 2011	Yogendra Kumar Pandey	Dr. S.K. Mishra	Ongoing	pandeyiitb@gmail.com
29	March 2012	Dilip Kumar	Dr. Harish Chandra	Ongoing	
30	March 2012	Satyendra Kumar	Dr. D.R. Sahu	Ongoing	saty.math1986@gmail.com
31	Sept 2012	Yadvendra Singh	Dr. S.K. Mishra	Ongoing	ysinghze@gmail.com
32	Sept 2012	Shyam Lal Yadava	Prof. A.K. Singh	Ongoing	slyadav4884@gmail.com
33	Sept 2012	Susheel Kumar	Prof. Shyam Lal	Ongoing	sushee122686@rediffmail.com
34	Sept 2012	Alok Gupta	Dr. A.K. Misra	Ongoing	alokmaths12345@gmail.com
35	March 2013	Vinod Kr. Bharati	Prof. N.K. Singh	Ongoing	vinodkmr418@gmail.com
36	March 2013	Mr. Abhishek Sanskritiyan	Prof. N.K. Singh	Ongoing	abhibhu2008@gmail.com
37	March 2013	Jibraill Ali (Part Time)	Dr. Arvind Kr. Singh	Ongoing	zibrailali@gmail.com