ACADEMIC
AND
ADMINISTRATIVE AUDIT
REPORT

(Session 2017-18 to Session 2021-22)

DEPARTMENT OF MATHEMATICS
INDIRA GANDHI UNIVERSITY, MEERPUR
REWARI-122502 (HARYANA)

29.10.22

INDIRA GANDHI UNIVERSITY, MEERPUR

PROFORMA FOR ACADEMIC AND ADMINISTRATIVE AUDIT (AAA) OF UNIVERSITY TEACHING DEPARTMENTS

1. Name of the Department : Mathematics

2. Name of the Faculty : Faculty of Physical Science

3. Session of Academic Audit : Session 2017-18 to Session 2021-22

4. Composition of Academic Audit Committee:

a. **Dean of Faculty** 2017-18 : Dr. Manju Pruthi

2018-19 : Dr. Manju Pruthi

2019-20 : Dr. Manju Pruthi

2020-21 : Dr. Manju Pruthi, and Dr. Mamta Kamra

2021-22 : Dr. Mamta Kamra

b. **Outside Expert - 1 : Dr. Rajeev Kumar**, Professor, Department of Mathematics, MDU, Rohtak

c. **Outside Expert - 2 : Dr. Rajesh Kumar Gupta**, Professor, Department of Mathematics, Central University of Haryana, Mahendergarh-123031, Haryana, India

Section A: Academic Audit

1. Programs offered by the Department

Session	Program Name	Program Code	Program Year of start	Approved intake as per prospectus	Actual intake
2017-18	M.Sc. Mathematics	03	2013-14	60	60+1*
	M.Sc. Mathematics with CS	04	2015-16	60	60
2018-19	M.Sc. Mathematics	03	2013-14	60	60
	M.Sc. Mathematics with CS	04	2015-16	60	57
2019-20	M.Sc. Mathematics	03	2013-14	50+1*	50
	M.Sc. Mathematics with CS	04	2015-16	40	40
2020-21	M.Sc. Mathematics	03	2013-14	50	50
	M.Sc. Mathematics with CS	04	2015-16	40	40

2021-22	M.Sc. Mathematics	03	2013-14	50	50
	M.Sc. Mathematics with CS	04	2015-16	40	40
2017-18	Ph.D.	-	-	-	-
2018-19	Ph.D.	-	-	-	-
2019-20	Ph.D.	-	-	06	-
2020-21	Ph.D.	-	-	10	-
2021-22	Ph.D.	-	-	02	-

* (One seat reserved for students of village Meerpur)

2. Approval of regulatory bodies (if applicable) If yes, then provide the following details

Name of the regulatory body	UGC
Status of approval	Approved
Reason for non-approval of regulatory agency (If applicable)	NA

3. Faculty-student Ratio:

2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Teacher: Students	Teacher: Students	Teacher: Students	Teacher: Students	Teacher: Students
1:13	**1:15**	**1:13**	**1:13**	**1:13**

4: Mentor-Mentee ratio: 1:13

2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Teacher: Students	Teacher: Students	Teacher: Students	Teacher: Students	Teacher: Students
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5. Regular Mentor-Mentee meetings (Yes/No): Yes

6. Program-wise distribution of students admitted under various categories:

Session		General		BC		SC		EWS/ ESM		PH/FF		Students out of states		International Students		Total
2017-	Program	M	F	M	F	M	F	M	F	M	F	M	F	M	F	

18	M.Sc. Mathematics	6	28	6	8	3	7	0	2	-	-	-	-	-	-	60
	M.Sc. Mathematics with CS	3	15	5	26	3	8	-	-	-	-	-	-	-	-	60
2018-19	M.Sc. Mathematics	6	18	8	18	2	8	-	-	-	-	-	-	-	-	60+2 M=16 F=46
	M.Sc. Mathematics with CS	6	9	10	27	2	3	-	-	-	-	-	-	-	-	60 M=18 F=40
2019-20	M.Sc. Mathematics	6	9	7	20	4	5	-	-	-	-	-	-	-	-	50+1
	M.Sc. Mathematics with CS	3	3	7	22	2	3	-	-	-	-	-	-	-	-	40
2020-21	M.Sc. Mathematics	9	19	3	9	2	7	-	1	-	-	-	-	-	-	50
	M.Sc. Mathematics with CS	8	14	3	9	3	2	1	-	-	-	-	-	-	-	40
2021-22	M.Sc. Mathematics	3	8	7	18	3	7	1	1	-	-	-	-	-	-	50
	M.Sc. Mathematics with CS	2	7	3	20	1	4	1	1	-	-	-	-	-	-	39

7. Student Progression in the last academic session:

a) Pass percentage of students in the first attempt:

	Program name	Program code	Number of students appeared in the final year examination	Number of students passed in final year examination	Pass (%) percentage
2017-18	M.Sc. Mathematics	03	66	62	93.93
	M.Sc. Mathematics with CS	04	44	37	84.09
2018-19	M.Sc. Mathematics	03	60	49	81.67
	M.Sc. Mathematics with CS	04	57	17	29.82
2019-20	M.Sc. Mathematics	03	60	52	86.67
	M.Sc. Mathematics with CS	04	55	44	80
2020-21	M.Sc. Mathematics	03	50	30	60
	M.Sc. Mathematics with CS	04	38	22	57
2021-22	M.Sc. Mathematics	03	50	30	60.00
	M.Sc. Mathematics with CS	04	38	22	57.89

b) Detail of students qualifying in state/national/international level examinations during the following period:

Examination	No. of students selected/Qualified	Name of the candidate	Registration/Roll No. of the qualifying exam
2017-18 NET/JRF	08	1. Vinita (NET) 2. Pawan Gora (JRF) 3. Rajesh Kumar (JRF) 4. Ruby (NET) 5. Hanumat Yadav (NET) 6. Harish (NET) 7. Neelam (NET) 8. Uma (JRF)	419509 416921 419600 419646 416017 416924 420069 419149
2018-19 NET/JRF	16	1. Krishan Kumar(JRF) 2. Pooja Yadav(JRF) 3. Divya Yadav (NET) 4. Karishma Sharma (NET) 5. Neeraj Ahuja (NET) 6. Pooja Kumari (NET) 7. Pooja Soni (NET) 8. Sunita (JRF) 9. Vipin Kumar (JRF) 10. Arun Kumar Yadav (JRF) 11. Shakant (NET) 12. Vipin Gupta(JRF) 13. Priya (NET) 14. Nitesh Kumar Yadav (NET) 15. Hanumant Yadav (JRF) 16. Renu (JRF)	416098 415695 413976 417840 418003 415695 419202 416618 418051 418183 430262 412222 417562 413204 419184 420597
2019-20 NET/JRF	3	1. Anita Yadav (NET) 2. Priya (JRF) 3. Nitesh Kumar Yadav (NET) (Computer Science & Apps)	HR0416203854 HR0416202390 DL0105231558
2020-21 NET/JRF	1	1. Anita Yadav (JRF)	HR04603636
2021-22 NET/JRF	4	1. Pardeep (NET) 2. Manish Yadav (JRF) 3. Sumit Dhandha (NET) 4. Komal (NET)	HR05001828 HR04001028 HR05605587 4001183
2021-22 GATE/GPAT	03	1. Aman 2. Saroj 3. Abhilasha	MA22S23007504 MA22S23007194 MA22S23007556
TOTAL	35		
Govt. Jobs			
State Government services	04	1. **Sachin Kumar** Constable Haryana Police Joining on 10 February 2021. 2. **Shakuntla** Lady /Constable Harayana Police joining on 6 January 2021. 3. **Akash Lab** Attendant IGU, Meerpur joining 27 January 2021 4. **Yogesh,** Sub Inspector BSF 5. **Payal** Clerk, HSVP Division No. vi Gurugram (17.06.2021) 6. **Shree OM,** (Commando in Haryana Police) 7. **Nitin Yadav,** Constable (Haryana Police) 8. **Pawan Kumar,** Constable (Haryana Police) 9. **Akshay, Clerk, CMO Office**	

28/15/22

8. Faculty information:

a). Details of faculty sanctioned and filled:

Post	Number			
	Sanctioned	Filled	Vacant	No. of Contract/ Guest Faculty/ Resource person on Extension Lecture
Professor	01	01	00	-
Associate Professor	01	00	01	-
Assistant Professor	07	05	02	01

b). Details of present faculty:

S. No.	Name	Teaching Experience (in yrs)	Qualification	Designation
Session 2017-18				
1	Dr. Manju Pruthi	30 Years	Ph.D.	Professor
2	Dr. Mamta Kamra	27 Years	M.Phil, Ph.D.	Associate Professor
3	Sh. Satish Kumar	27 Years	M. Phil	Associate Professor
4	Dr. M.S. Barak	5 Years	M.Phil, Ph.D.	Assistant Professor
5	Dr. Rajender Kumar	5 Years	Ph.D.	Assistant Professor
6	Dr. Parmit Kumari	22 August, 2017	Ph.D.	Resource Person
7	Dr. Rajvir	22 August, 2017	Ph.D.	Resource Person
8	Ms. Partibha Yadav	1 September, 2017	M.Tech	Resource Person
9	Mr. Rakesh Bhatia	Sept.01, 2017	M.A./B.Ed	Resource Person
Session 2018-19				
1	Dr. Manju Pruthi	31 Years	Ph.D.	Professor
2	Dr. Mamta Kamra	28 Years	Ph.D.	Associate Professor
3	Sh. Satish Khurana	28 Years	M.Phil	Associate Professor
4	Dr. M.S. Barak	6 Years	Ph.D.	Assistant Professor
5	Dr. Rajender Kumar	6 Years	Ph.D.	Assistant Professor
6	Dr. Rajvir	1 Year	Ph.D.	Resource Person
7	Ms. Partibha Yadav	1 Year	M.Tech	Resource Person
8	Ms. Sangeeta	-----	M.Sc.	Resource Person

Session 2019-20				
1	Dr. Manju Pruthi	32 Years	Ph.D.	Professor
2	Dr. Mamta Kamra	29 Years	Ph.D.	Associate Professor
3	Sh. Satish Kumar	29 Years	M.Phil	Associate Professor
4	Dr. M.S. Barak	7 Years	M.Phil, Ph.D.	Assistant Professor
5	Dr. Rajender Kumar	7 Years	Ph.D.	Assistant Professor
6	Dr. Rajvir	2 Years	Ph.D.	Resource Person
7	Ms. Partibha Yadav	2 Years	M.Tech	Resource Person
Session 2020-21				
1	Dr. Manju Pruthi	33 Years	Ph.D.	Professor
2	Dr. Mamta Kamra	30 Years	Ph.D.	Professor
3	Dr. Suresh Kumar	Feb.23, 2021	Ph.D.	Professor
4	Sh. Satish Kumar	30 Years	M. Phil	Associate Professor
5	Dr. M.S. Barak	8 Years	Ph.D.	Assistant Professor
6	Dr. Rajender Kumar	8 Years	Ph.D.	Assistant Professor
7	Ms. Partibha Yadav	3 Years	M.Tech	Resource Person
Session 2021-22				
1	Dr. Manju Pruthi	34 Years	Ph.D.	Professor
2	Dr. Mamta Kamra	31 Years	M.Phil, Ph.D.	Professor
3	Dr. Suresh Kumar	1 Year	Ph.D.	Professor
4	Sh. Satish Kumar	31 Years	M. Phil	Associate Professor
5	Dr. M.S. Barak	9 Years	M.Phil, Ph.D.	Assistant Professor
6	Dr. Rajender Kumar	9 Years	Ph.D.	Assistant Professor
7	Dr. Partibha Yadav	4 Years	M.Tech, Ph.D. (CSE)	Assistant Professor /Resource Person

9. Details of journal publications:

(A) The following are details of the contribution by the faculty members of the Department of Mathematics, which is listed in the SCOPUS/ WoS/ UGC Care list.

Session July 2017 – June 2022						
All Author names as indicated in paper		Title of the paper	Name of Journal	ISSN Number	Scopus/SCI/ Impact Factor	Year/ Volume/ Page Number
		Dr. Manju Pruthi				
1	Pankaj, and Manju Pruthi	Cyclic codes from Whiteman's generalized cyclotomic sequences of order 2 r, r≥ 2	*Journal of Information and Optimization Sciences*	2169-0103	Web of Science	2017, vol.38, 3-4
2	Pankaj, Gunjan, and Manju Pruthi	Unit graphs and subgraphs of Symmetric, Quaternion and Heisenberg groups	*Journal of Information and Optimization Sciences*	2169-0103	Web of Science	2017, Vol. 38, No. 1
3	Pankaj, and Manju Pruthi	Cyclic codes of prime power length from generalized cyclotomic classes of order 2r	*Journal of Information and Optimization Sciences*	2169-0103	Web of Sciences	2018, Vol. 39 no.4
4	Sehrawat, Sudesh, and Manju Pruthi	Codes over dihedral groups	*Journal of Information and Optimization Sciences*	2169-0103	Web of Sciences	2018, Vol. 39 no. 4
5	Pruthi, Manju, and Sudesh	Idempotents in the group algebra of dihedral groups	*Journal of Information and Optimization Sciences*	2169-0103	Web of Sciences	2018, Vol. 39 no. 2
6	Pruthi, M., Kumar, S.	Cyclic codes with generalized cyclotomic cubic classes	Journal of Discrete Mathematical Sciences and Cryptography	0972-0529	Web of Sciences/Scopus	2019, 22(6), pp. 923–933
7	Sehrawat, Sudesh, and Manju Pruthi	Codes over non-abelian groups	*Journal of Information and Optimization Sciences*	2169-0103	Web of Sciences	2019 *Vol. 40 no.3*
8	Kumar, R., Pruthi, M., Taneja, G.	Inventory model for deteriorating products with life time and demand depending on price	*International Journal of Advanced Science and Technology*	2005-4238	Scopus	2019 27(1) pp. 48–52
9	Sudesh Seharawat and Manju Pruthi	Construction of Codes from Symmetric Groups	International Journal of Recent Technology and Engineering (IJRTE)	2277-3878	Scopus	201, Vol-8, Issue-4, 8658-8664
10	Kumar, R., Pruthi, M., Taneja, G.	An inventory model for deteriorating products under trade credit, with life time and time discounting	International Journal of Advanced Science and Technology	2005-4238	Scopus	2019 27(1) pp. 53–60

11	Kumar, R., Pruthi, M., Taneja, G.	Inventory model of deteriorating product with discontinuous demand	International Journal of Engineering and Advanced Technology	2249-8958	Scopus	2019 8(6) 5120 – 5122
12	Singh, V., Pruthi, M., Singh, J.	Minimal cyclic codes of length $16p^n$ over GF(q), where q is prime or prime power of the form 16k + 7	Journal of Mathematical and Computational Science	1927-5307	Scopus	2020 10(1) 1–26
13	Singh, V., Pruthi, M., Singh, J.	Generators idempotent in semi-simple ring FC_{16p^n}, for the ideals corresponding to the minimal cyclic codes of length $16\ p^n$ and the codes	South East Asian Journal of Mathematics and Mathematical Sciences	0972-7752	Scopus	2020, 16(1) 15–36
14	Ashwani Kumar, Manju Pruthi	Primitive Idempotents of Irreducible cyclic codes of length $32\ P^n$	International Journal of Mechanical Engineering	0974 - 5823	Scopus	2022, 7(4)
15	Sudesh Sehrawat and Manju Pruthi	Codes Over Group Q4n×Ct	International Journal of Mechanical Engineering	0974 -5823	Scopus	2022 7(6)

Dr. Mamta Kamra

1	Mamta Kamra, Renu Chugh and Kumari Sarita	Some Common Fixed Point Theorems in E-b-Metric Spaces	Journal of Mathematics and Informatics	0975 - 7139	UGC Care	2017(9) 333-342
2	Mamta Kamra, Renu Chugh and Kumari Sarita	Some Fixed Point Results for Multivalued Operators in Vector valued Spaces	International J. of Engineering Research and General Science	2091 - 2730	UGC Care	2017(5) 117-125
3	Mamta Kamra, Satish Kumar and Kumari Sarita	Some Fixed Point Theorems for Self-Mappings on Vector b-metric Spaces	Global Journal of Pure and Applied mathematics	0973 - 1768	UGC Care	2018(14) 1489-1507
4	Mamta Kamra, Kumari Sarita and Renu Chugh	Four Mappings with a common Fixed Point on E-b-Metric Spaces	International Journal of Engineering and Technology	2319 - 8613	Scopus	2019(11) 88-101
5	Mamta Kamra, Rahul Hooda and Archana Malik	Coupled Fixed Point Theorems in Vector b-metric Space	International Journal of Mathematics Trends and Technology (IJMTT)	2231 - 5373		2019, 65, 11 83-98
6	Mamta Kamra, and Kumari Sarita	Some Common fixed point results for three mappings in Vector-b-metric spaces	International Journal of Scientific Research and Reviews	2279 – 0543	UGC Care	2019(8) 3866 -3881
7	Mamta Kamra, Kumari Sarita and Renu Chugh	Four Mappings with a common Fixed Point on E-b-Metric Spaces	International Journal of Engineering and Technology	2319 - 8613	Scopus	2019 11(1) 88-101
8	Rajpal and Mamta Kamra	U(8)-Cordial Labeling of Some Special Graphs	Journal of Calcutta Mathematical Soc.	2231 - 5314	UGC Care	2019(15) 113-122

9	Rajpal and Mamta Kamra	Total Magic Labeling of Some Special Graphs	Bull. Cal. Math Soc 111	0008 - 0659	UGC Care	2019(5) 427-434
10	Mamta Kamra, Kumari Sarita and Rahul Hooda	Some Common Fixed Point Results for Three Mappings with compatible Pairs on Vector Valued Spaces	International Journal of Advanced Science and Technology	2005 - 4238	Scopus	2019 (28) 385-394
11	Rajpal and Mamta Kamra	Spanning set labeling of Graphs	International Journal of Advanced Science and Technology	2005 - 4238	Scopus	2020 (29) 615 - 618
12	Rajpal and Mamta Kamra	Bycentric subdivision of Graphs and their Magic Labeling	TEST Journal of Engineering and Management	0097 - 3882	Scopus	2020 (83) 5418-5421
13	Pooja Yadav, Mamta Kamra	Some Fixed Point Results on a Vector S-metric Space	Journal of Tianjin University Science and Technology	0493 - 2137	Scopus	2022, 55, 209-228
14	Rahul Hooda , Mamta Kamra and Archana Malik	Fixed Points of Chatterjee mappings and Kannan mappings on vector b-metric spaces with graphs	Journal of Interdisciplinary Mathematics(Taylor & Francis)	0972 - 0525	Scopus and Web of Science	2021, (24) 1739-1750
15	Rahul Hooda, Mamta Kamra and Archana Malik	Fixed points for G-Contraction on E-b-metric spaces with a graph	Communications in Mathematics and Applications	0975 - 8607	Scopus and Web of Science	2021 12(4) 803-813

Sh. Satish Kumar

1	Mamta Kamra, Satish Kumar and Kumari Sarita	Some Fixed Point Theorems for Self-Mappings on Vector b-metric Spaces	Global Journal of Pure and Applied mathematics	0973 - 1768	UGC Care	2018, (14) 1489-1507

Dr. Suresh Kumar

1	Rafael C. Nunes, Sunny Vagnozzi, Suresh Kumar, Eleonora Di Valentino, Olga Mena	New tests of dark sector interactions from the full-shape galaxy power spectrum	Phys. Rev. D	2470 - 0029	SCI 5.296	105, 123506 (2022)
2.	Alexander Bonilla, Suresh Kumar, Rafael C Nunes, Supriya Pan	Reconstruction of the dark sectors' interaction: A model-independent inference and forecast from GW standard sirens	Mon. Not. R. Astron. Soc.	1365 - 2966	SCI 5.287	512, 4231 (2022)
3	Ozgur Akarsu, Suresh Kumar, Emre Ozulker, J. Alberto Vazquez	Relaxing cosmological tensions with a sign switching cosmological constant	Phys. Rev. D	2470 - 0029	SCI 5.296	104, 123512 (2021)
4	Jose C. N. de Araujo, Antonio De Felice, Suresh Kumar, Rafael C. Nunes	Minimal theory of massive gravity in the light of CMB data and the S8 tension	Phys. Rev. D	2470 - 0029	SCI 5.296	104, 104057 (2021)
5	Suresh Kumar	Remedy of some cosmological tensions via effective phantom-like behavior of interacting vacuum energy	Phys. Dark Uni.	2212-6864	SCI 4.243	33, 100862 (2021)

Dr. M. S. Barak

1	Kumari, Manjeet and **Barak, Mahabir Singh** and Kumar, Manjeet	Seismic reflection and transmission coefficients of a single layer sandwiched between two dissimilar poroelastic solids	Petroleum Science	1672 - 5107	Scopus	2017 (14) 676-696

2	**Barak, Mahabir** and Kumari, Manjeet and Kumar, Manjeet	Effect of Hydrological Properties on the Energy Shares of Reflected Waves at the Surface of a Partially Saturated Porous Solid	AIMS Geosciences	2471 - 2132	Web of sci.	2017 (03) 67-93
3	Barak, M.S. and Barak, Sudesh K. and Neeraj K.	Profit analysis of a two-unit cold standby system model operating under different weather conditions	Life Cycle Reliability and Safety Engineering	2520 - 1360	Web of Sci.	2018 7(3) 173-183
4	Kumar, Manjeet and Kumari, Manjeet and Barak, Mahabir Singh	Reflection of plane seismic waves at the surface of double-porosity dual-permeability materials	Petroleum Science	1672 - 5107	Scopus	2018 15(3) 521-537
5	Barak, M.S. and Kumari, Sudesh and Neeraj K.	Profit Analysis of a Two Unit Cold Standby System Operating Under Different Weather Conditions Subject to Inspection	*Life Cycle Reliability and Safety Engineering*	2520 - 1360	Web of Sci.	2018 7(3) 173-183
6	Barak, M.S. and Yadav, Dhiraj and Barak, Sudesh Kumari	Stochastic analysis of two-unit redundant system with priority to inspection over repair	Life Cycle Reliability and Safety Engineering	2520 - 1360	Web of Sci.	2018 7(2) 71-79
7	Barak, M.S., Yadav, Dhiraj and Kumari, Sudesh	Stochastic analysis of a two-unit system with standby and server failure subject to inspection	Life Cycle Reliability and Safety Engineering	2520 - 1360	Web of Sci.	2018 7(1) 23-32
8	Kumari, Manjeet and Barak, M.S. and Kumar, M.	Reflection of inhomogeneous waves at the surface of a dissipative poroelastic media	Journal of Porous Media	1934 - 0508	Scopus	2018. 21(11)
9	Barak, M.S. and Kumari, M. and Kumar, M.	Effect of local fluid flow on the propagation of plane waves at an interface of water/double-porosity solid with underlying uniform elastic solid	Ocean Engineering	0029 - 8018	Scopus	2018 147 195-205
10	Kumari, M. and Kumar, M. and Barak, M.S.	Wave propagation characteristics at the welded interface of double-porosity solid and double-porosity dual-permeability materials	Waves in Random and Complex Media	1745 - 5049	Scopus	2019 (31) 1682-1707
11	Barak, M.S. and Kaliraman, Vinod	Reflection and transmission of elastic waves from an imperfect boundary between micropolar elastic solid half space and fluid saturated porous solid half space	Mechanics of Advanced Materials and Structures	1537 - 6494	Scopus	2019 (26) 1226 -1233
12	Hooda, D.S. and Barak, M. S.	Estimation of missing data in design of experiment and contingency table	SN Applied Sciences	2523 - 3971	Scopus	2019, (1) 1-5
13	Kumar, M. and **Barak, M. S.** and Kumari, M.	Reflection and refraction of plane waves at the boundary of an elastic solid and double-porosity dual-permeability materials	Petroleum Science	1672 - 5107	Scopus	2019 16 298-317
14	Kumar, Sandeep and Kumari, Neelam and Kumar, Rajesh and Gupta	Waves at the boundary surface of tansversely viscotherm-oelastic slab between two	Solid State Technology	0038-111X	Scopus	2020 63 17617

29.10.22

	Vipin, and **Barak, M.S.**	elastic media				-17642
15	Hooda, D.S. and **Barak, M. S.**	Estimation of missing values in fuzzy matrices (FM) and interval-valued fuzzy matrices (IVFM)	Life Cycle Reliability and Safety Engineering	2520 - 1360	Web of sci.	2020 (9) 241-245
16	**Barak, M.S.** and Kumar, M. and Kumari, M. and Singh, A.	Inhomogeneous wave propagation in partially saturated soils	Wave Motion	0165 - 2125	Scopus	2020 93 102470
17	Kumar, Ajay, Garg, Reena, and **Barak, M.S.**	Reliability measures of a cold standby system subject to refreshment	International Journal of System Assurance Engineering and Management	0976 - 4348	Scopus I.F. 0.027	2021 1-9
18	Kumari, M. and **Barak, M.S.** and Singh, A. and Kumar, M.	Effect of various physical properties on the reflection coefficients of inhomogeneous waves at the stress-free surface of partially saturated soils induced by obliquely incident fast P-wave	Journal of Ocean Engineering and Science	2468 - 0133	Scopus I.F. 3.795	2021
19	**Barak, M.S.** and Garg, Reena and Kumar, Ajay	Reliability measures analysis of a milk plant using RPGT	Life Cycle Reliability and Safety Engineering	2520 - 1360	Web of sci.	2021 10 295-302
20	Kumar, M. and Singh, A. and Kumari, M. and **Barak, M.S.**	Reflection and refraction of elastic waves at the interface of an elastic solid and partially saturated soils	Acta Mechanica	1619 - 6937	Scopus I.F. 2.698	2021 232 33-35
		Dr. Rajender Kumar				
1	Rajender Kumar, Manju Pruthi, Gulshan Taneja	Inventory Model for Deteriorating Items with Life Time	*International Journal of Engineering & Technology*	2227-524X	Scopus	*2018 7(16) 102-105*
2	Rajender Kumar, Manju Pruthi, Gulshan Taneja	Production Inventory Model for Deteriorating Products with Lifetime	*Research & Reviews: Discrete Mathematical Structures*	2394 -1979	UGC Care	*2018 5(3) 15-19*
3	Rajender Kumar, Manju Pruthi, Gulshan Taneja	Inventory Model for Deteriorating Products with Life Time and Shortages	*Journal of Emerging Technologies and Innovative Research*	2349 -5162	UGC Care	*2018 5(12) 134-138*
4	Rajender Kumar, Manju Pruthi, Gulshan Taneja	Inventory Model of Deteriorating Product with Discontinuous Demand	*International Journal of Engineering and Advanced Technology (IJEAT)*	*2249 – 8958*	Scopus	*2019 6(3)*
5	Rajender Kumar, Manju Pruthi, Gulshan Taneja	Inventory Model for Deteriorating Products with Life Time and Demand Depending on Price	*International Journal of Advanced Science and Technology*	2005-4238	Scopus	*2019 27(1) 48-52*

29.10.22

6	Rajender Kumar, Manju Pruthi, Gulshan Taneja	An Inventory Model for Deteriorating Products under Trade Credit, With Life Time and Time Discounting	*International Journal of Advanced Science and Technology*	2005-4238	Scopus	*2019 27(1) 53-60*
7	Shelly, Rajender Kumar	Inventory Model with Demand as a Polynomial Function of Time and Time Dependent Deterioration	International Journal of Science and Research (IJSR)	2319-7064	Peer Reviewed	
8	Shelly, Rajender Kumar	Inventory Model with Demand as a Polynomial Function of Time and Constant Deterioration	International Journal of Innovative Science and Research Technology	2456-2165	Peer Reviewed	
9	Shelly, Rajender Kumar	Inventory Model with General Demand and Deterioration	Turkish Online Journal of Qualitative Inquiry (TOJQI)	1309-6591	Scopus	
10	Shelly, Rajender Kumar	An Inventory Model having Polynomial Demand with Time Dependent Deterioration and Holding Cost	International Journal of Innovative Science and Research Technology	2456-2165	Peer Reviewed	
11	Shelly, Rajender Kumar	An Inventory Model having Polynomial Demand with Time Dependent Holding Cost	Turkish Online Journal of Qualitative Inquiry (TOJQI)	1309-6591	Scopus	
12	Pooja Soni, Rajender Kumar	A Deterministic Inventory Model with Demand as a Biquadratic Polynomial Function of Time for Items with Static rate of Deterioration	International Journal of Science and Research (IJSR)	2319-7064	Peer Reviewed	
13	Pooja Soni, Rajender Kumar	A Deterministic Inventory Model with Demand as a Function of Time for Items with a Static rate of Deterioration	International Journal of Science and Research (IJSR)	2319-7064	Peer Reviewed	
14	Pooja Soni, Rajender Kumar	A Deterministic Inventory Model with Biquadratic Demand, Variable Deterioration Rate and Carrying Cost	Turkish Online Journal of Qualitative Inquiry (TOJQI)	1309-6591	Scopus	
15	Pooja Soni, Rajender Kumar	A Deterministic Inventory Model with Bi quadratic Demand, Static rate of Deterioration and Linear Carrying cost	International Journal of Science and Research (IJSR)	2319-7064	Peer Reviewed	
		Ms. Partibha Yadav				
1	Kumari Savita Sheoran and Yadav Partibha	An Innovative Model for Security Threats Classification in Information System.	International Journal of Advanced Research(IJAR)	2320-5407	UGC listed	2017(7) *2291 -2294*
2	Savita Kumari Sheoran and Partibha Yadav	Machine Learning based Optimization Scheme for Detection of Spam and Malware Propagation in Twitter	International Journal of Advanced Computer Science and Applications	2156-5570	Web of Science & Scopus	2021 495-503

29.10.22

3	Kumari Savita Sheoran and Yadav Partibha	An Extended Work Architecture for Online Threat Prediction in Tweeter Dataset	International Journal of Computer Science and Network Security	1738-7906	Web of Science	2021 21(1)

(B) Provide details of the publication of any other journal (referred /peer-reviewed with ISSN Number) in the following format.

10. Details of Book/Book Chapters Published:

a). Books Publications:

Name of the Faculty Member	Title of Book	ISBN No.	Publisher
Dr. M.S. Barak	Sequences and Series	978-93-86376-72-5	Jeevansons Publications

b). Book chapters published:

Name of the Faculty Member	Title of book Chapter	Title of Book	ISBN No.	Publisher
Dr. Mamta Kamra	Some Fixed Point Results for Mappings on E-b-Metric Space	Advanced Mathematics Theory an Applications	978-93-8734-78-2	Research India Publications

11. Details of the patent filed/awarded (If any):

Faculty Member	Title of patent	Status	Patent No.	Date of award
Dr. M.S. Barak	A novel stochastic model for reliability evaluation of computing machines subject to arrival time of service facility upon failure	Awarded	2021103990	09/07/2021
Dr. Rajender Kumar	Smart System and Method for Inventory Tracking and Management Using AI	Awarded	202111044508	15/10/2021

12. Details of Research Supervision:

Name of the Faculty Member	Number of Ph.D. Students		Number of Dissertations / Projects Supervised	
	Awarded	Registered	M. Phil. / Dissertation	PG Projects
Session: 2017-18				
Dr. Manju Pruthi	-	03	-	-
Dr. Mamta Kamra	-	01	02	-
Sh. Satish Kumar	-	-	-	-
Dr. M.S. Barak	02	-	-	-
Dr. Rajender Kumar	-	-	-	-
Session: 2018-19				

29.10.22

Dr. Manju Pruthi	01	04	-	-
Dr. Mamta Kamra	-	03	01	-
Sh. Satish Khurana	-	-	-	-
Dr. M.S. Barak	02	-	-	-
Dr. Rajender Kumar	-	-	-	-
Session: 2019-20				
Dr. Manju Pruthi	01	03	-	-
Dr. Mamta Kamra	01	02	01	-
Sh. Satish Kumar	-	-	-	-
Dr. M.S. Barak	02	-	-	-
Dr. Rajender Kumar	-	-	-	-
Session: 2020-21				
Dr. Manju Pruthi	01	03	-	-
Dr. Mamta Kamra	01	03	-	-
Dr. Suresh Kumar	-	-	-	-
Sh. Satish Kumar	-	-	-	-
Dr. M.S. Barak	-	-	-	-
Dr. Rajender Kumar	-	-	-	-
Session: 2021-22				
Dr. Manju Pruthi	02	03	-	-
Dr. Mamta Kamra	-	02	-	-
Dr. Suresh Kumar	-	-	-	-
Sh. Satish Kumar	-	-	-	-
Dr. M.S. Barak	01	02	-	-
Dr. Rajender Kumar	-	-	-	-
Grand Total	**14**	**29**	**04**	--

13. Research Projects Awarded/Ongoing/Completed during the Year: Nil

Name of the Faculty Member	Title of project	Sanctioned Amount	Funding Agency	Period	Status of the Project
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Grand Total	--	--	--	--	--

14. Participation in Conferences/ Invited Talks / Extension Lectures, etc.:

	Participation/presentation of the paper in conferences/ seminars/ workshops etc.			Participated as a resource person in conferences/ seminars/workshops/refresher courses etc.			Number of extension lectures delivered
Name of Faculty member	National	International	State level	National	International	State	

21/10/22

Session:2017-18							
Dr. Manju Pruthi	-	-	-	-	-	-	-
Dr. Mamta Kamra	-	02	-	-	01	-	02
Sh. Satish Kumar	-	01	-	-	-	-	-
Dr. M.S. Barak	-	02	-	-	-	-	03
Dr. Rajender Kumar	-	-	-	-	-	-	-
Ms. Partibha	-	-	-	-	-	-	-
Session:2018-19							
Dr. Manju Pruthi	-	-	-	-	-	-	-
Dr. Mamta Kamra	01	-	-	-	-	-	02
Sh. Satish Kumar	-	-	-	-	-	-	-
Dr. M.S. Barak	-	04	-	-	-	-	01
Dr. Rajender Kumar	-	-	-	-	-	-	-
Ms. Partibha	-	-	-	-	-	-	-
Session:2019-20							
Dr. Manju Pruthi	02	-	-	-	-	-	01
Dr. Mamta Kamra	01	02	-	-	-	-	01
Sh. Satish Kumar	-	-	-	-	-	-	-
Dr. M.S. Barak	-	--	-	-	-	-	02
Dr. Rajender Kumar	-	-	-	-	-	-	-
Ms. Partibha	-	-	-	-	-	-	-
Session:2020-21							
Dr. Manju Pruthi	02	-	-	-	-	-	-
Dr. Mamta Kamra	-	--	--	-	-	-	-
Dr. Suresh Kumar	-	-	-	-	-	-	-
Sh. Satish Kumar	-	-	-	-	-	-	01
Dr. M.S. Barak	-	-	-	-	-	-	-
Dr. Rajender Kumar	-	-	-	-	-	-	-
Ms. Partibha Yadav	-	-	-	-	-	-	-
Session:2021-22							
Dr. Manju Pruthi	02	-	-	-	-	-	-
Dr. Mamta Kamra	-	--	--	--	-	-	-
Dr. Suresh Kumar	-	-	-	-	-	-	-
Sh. Satish Kumar	01	-	01	-	-	-	-
Dr. M.S. Barak	-	04	-	-	02	-	-
Dr. Rajender Kumar	02	01	-	-	-	-	-
Dr. Partibha Yadav	03	-	-	-	-	-	-
Grand Total	**14**	**16**	**01**	**-**	**03**	**-**	**13**

15. Awards/ Recognition Received by Faculty Members: Nil

Name of the Faculty Member	Name of the Award	Status of the Award (Nat./Int.)	Name of the Conferring Agency	Date of the Award	Field/ Contribution	Whether it is an award for innovation
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16. Details of seminars/conferences/workshops/extension lectures etc., organized by the Department of Mathematics.

Name of the Activity	Title	Level (National/ International)	Date	Funding Agency	Number of participants

29.10.22

Session 2017-18					
Conferences/ Seminars/ Workshop etc.	A Workshop on Vedic Mathematics	National	26.10.2017	IGU	90
	A Workshop on Vedic Mathematics	National	27.03.2018	IGU	100
Extension Lecture	Correlation of Psychology With Mathematics and its implication on day to day life was delivered by Prof. Radhey Shaum, MDU Rohtak	IGU	08.09.2017	IGU	90
	Value Education	IGU	24.02.2018	IGU	80
	LaTeX- A Document Preparation System	IGU	17.03.2018	IGU	100
Session 2018-19					
Extension Lecture	Application of Mini Tab Software delivered by Aquil Ahmed of AMU, Aligarh Muslim University	IGU	18.08.2018	IGU	100
Session 2019-20					
Extension Lecture	Fuzzy Metric Space and Fuzzy Logic delivered by Prof. D. S. Hooda	IGU	03.10.2019	IGU	80
Conferences/ Seminars/ Workshop etc.	Seminar on Facets of Mathematics delivered Prof. B.K. Das, Prof. Renu Chugh, Prof. Atul Vashisth	IGU	02.03.2020	IGU	100
Session 2021-22					
Conferences/ Seminars/ Workshop etc.	A Workshop on Python	IGU	18-22 October 2021	IGU	82
	A Webinar on Mathematics Day	IGU	22 December 2021	IGU	100
	A Workshop on Vedic Mathematics	IGU	17-22 January,2022	IGU	600
	Understanding in Mathematics- A Psychology	IGU	30 .04.2022	IGU	80
	Stress Management	IGU	18.05.2022	IGU	70
	Science and Technology Research Opportunity in India for Young Researchers & Faculty	IGU	18.06.2022	IGU	75

17. Details of consultancy activities of the Department (If any): Nil

Name of the consultants and Department	Name of consultancy project	Consulting/sponsoring agency	Revenue generated (Amount in Rupees)
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18. Details of syllabus revision if any: Yes

a). Details of syllabus revision

Program Code of revised syllabus	Name of the program where the syllabus has been revised	Date of Academic Council Approved	% of syllabus content added or replaced
Session 2017-2018			

29.10.22

03 & 04	M.Sc (Maths) & M.Sc (Maths with CS)	BOPGS&R: 22.07.2017	10
Session 2018-2019			
No Change	Nil	Nil	Nil
Session 2019-2020			
03 & 04	M.Sc (Maths) & M.Sc (Maths with CS)	BOPGS&R: 27.07.2019	30
Session 2020-2021			
No Change	Nil	Nil	Nil
Session 2021-2022			
No Change	Nil	Nil	Nil

b). New Programs /Courses introduced (if any): Yes

Name of the new Program/ course introduced	Program/Course code	Date of approval of Academic Council
Certificate course in Vedic Mathematics	20CVM-004	BOPGS&R: 28.12.2020

19. Number of extension and outreach Programs conducted, if any, in collaboration with industry, community, and non-government organizations through NSS/NCC/Red cross/ Youth Red Cross (YRC), Swachh Bharat, Aids Awareness, Gender issue, moral/ethical values/ personality development, etc.: Nil

Title of activity	organizing unit/agency/collaborating agency	Number of students participated in such activities
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20. Details of Collaborative activities of the Department: Nil

a). **Linkages with institutions/industries for internship, on-the-job training, project work, and sharing of research facilities during the year:** Nil

Nature of linkage	Title of linkage	Name of partnering institution/ industry/ research lab with contact details	Duration	Participant
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b). MoUs signed with institutions of national, international importance, other Universities, industries, corporate houses, etc., during the year: Yes

Organization	Date of MoU signed	Purpose and activities	Number of students/teachers who participated under MoUs
Shiksha Sanskriti Uthan Nyas, New Delhi	27.03.2018	To initiate the ancient study of Vedic Mathematics	More than 600

21. How many computers / ICT resources are available in the Department for student's usage:

Computers (shared basis)	Projector	Smart Board	Internet facility
30	02	01	Unlimited

22. Details of Instruments in the Department (Details of more than Five Lakh for Science Departments, and more than one lakh for the remaining Departments): Nil

Name of the Instrument	Date of purchase	Amount of purchase	Working condition Yes/No	If No, Please specify the reason	Usage samples per month

23. Comments of the audit team about optimal utilization of resources:

The resources available in the University are optimally utilized by the Department.

24. SWOC Analysis of the Department:

Strengths:

- Well-qualified and experienced faculty having specialization in various fields are actively engaged with research work as well as shape the future of students of the Department of Mathematics,
- A wide range of updated courses are offered/ provided by the Department of Mathematics to keep the future requirement of society and industries.
- A good number of students from the Department of Mathematics qualify for JRF/NET and get placement in Govt. or Private Sector every year under the guidance of dedicated faculty members.
- The faculty members have keen observation regularly on each student to enhance their skills in the mentor/mentee meetings.

29.10.22

Weaknesses:

- The Department of Mathematics needs some more teaching staff as well as non-teaching staff.
- The research projects could not receive from different funding agencies in the country.
- The University is situated in a rural area, so transport facilities, electricity, and drinking water is a big problem for students as well as faculty members of Departments.
- The lack of infrastructural facilities like smart classrooms and computer labs equipped with appropriate software is the weakness of the Department.

Opportunities:

- Several research scholars, JRF/NET having financial assistance, are aspirants for the Department of Mathematics.
- Keeping the view of the requirement of surrounding industries and students. A new certificate/ Diploma course/PG program may be introduced.
- A good number of well-qualified candidates are aspirants for faculty positions.

Challenges:

- To develop research and infrastructural facilities in the Department of Mathematics.
- To get teaching and supporting staff for the Department.
- To fetch up grand from various funding agencies for the Department.
- To get the placement of students.

Section B: Administrative Audit

25. **Please verify and comment on the administrative functioning of the Department on the following points:**

(i) **Timely Disposal of files:** Yes, The files are disposed of timely

(ii) **A functioning system of IQAC at the Department level:** Yes

(iii) **A functioning system of other constituted committees like (DC, DRC, BOPGS&R, Alumni, CCPC, etc.) at the Department level:** Yes

- The Departmental committee meetings are held from time to time to discuss various agenda items and resolve problems thereof.

29.10.22

- DRAC meetings are held from time to time to evaluate the synopsis of Research Scholars
- BOPGS&R meetings are held as per University norms to approve new courses/syllabi, a panel of examiners and papers setters, and for the registrations of Ph.D. scholars

(iv) **System of keeping and preserving the data :**

An office copy of files and also soft copies of files are kept.

26. **Good academic and innovative teaching practices of the Department:**

- Have made a paper of self-study mandatory for the students each semester enabling them to develop reading and writing skills.
- Have also made the seminar paper compulsory for the students each semester which helps them to encolcate the habit of reading research papers.
- Regular presentation of the students improves their presentation skills and understanding of the subject's concept.
- The introduction of the Mathematical Lab paper helps improve the problem-solving technique.
- Apply the Mathematical knowledge and soft skills by using tools like GAP, Maxima, and Geogebra to solve real-life problems by developing the ability to think, analyze and articulate logically.

27. **Action was taken by the Department on the recommendation of the previous Academic Audit Report:**

Not applicable as AAA has been done for the first time.

Observations and Recommendations of Expert Committee

28. **Suggestions by the Academic Audit Committee for improvement of the academic environment of the Department**

Keeping in view the record, feedback, and infrastructural facilities available in the Department, the committee recommended the following:

- The Department is required to fill the remaining sanctioned post.
- More Computer labs and Smart Classrooms are required.
- Emphasis should be on fetching research projects for various funding agencies.
- MoUs with reputed Institutions/ Universities may be signed.
- National/International Conferences/Seminars to be organized by the Department

29.10.22

- Revision of syllabi for the existing program in light of NEP-2020 may be done.
- Allocation of suitable space for Research Scholars.
- Introduction of some value-added /Skilled oriented certificate/diploma courses to promote placement and consultancy activities and establish linkage with Institutions/industries.
- To strengthen alum data and organize alumni-related activities from time to time.

29. Academic plans of the Department for the next academic session:

- ❖ To implement the curriculum according to NEP 2020 at the UG and PG levels.
- ❖ To encourage and facilitate Research Culture to promote Research/consultancy by the students and faculty members.
- ❖ To upgrade Library Resources to include digital content.
- ❖ Digital Content in the form of Video Lectures, Study Notes, etc. to be made available on the website by faculty members.
- ❖ To create blogs to enable students to communicate their doubts, give feedback, suggestions, etc.
- ❖ To plan to organize Faculty Improvement Programs, National and International Conferences.
- ❖ To organize seminars/conferences/workshops/extension lectures.

30. Overview of the expert committee on student interaction:

Based on the interaction with the students, records, and feedback from the students, the committee is of the view that the students are satisfied with the teaching/ research, behavior, and efforts of the faculties members.

(Dean of Faculty)	(Outside expert)	(Outside expert)
29.10.22	29/10/2022	28/10/22
(Mamta Kamra)	(Rajesh Kumar Gupta) Dept. of Mathematics CUH, Mahendragarh	(Rajeev Kumar) Dept. of Mathematics MDU, Rohtak

Guidelines for the Academic Audit:

1. Academic audit of the assessment year is a mandatory exercise defined by NAAC; therefore must be completed in the given time frame.The period of the count will be 1 July to 30 June of the assessment academic year.(For example, for 2020-21, the period will be 1 July 2020 to 30 June 2021).

2. The data provided in the academic audit proforma should be accurate and supported with sufficient proof. The audit team may verify the proofs submitted by the Department concerned.

3. The audit team will verify the physical infrastructure through a round of the Department and give specific recommendations about working/optimal utilization of resources and other related aspects.

4. The soft copy and hard copy of the academic audit report must be submitted to the office of IQAC within one week of the audit.

5. The Dean of the concerned faculty will prepare a consolidated report of the academic audits of the concerned Departments and submit to the office of IQAC in the prescribed proforma.

6. It is mandatory that the recommendations of the audit team are discussed in the Departmental committee meeting and initiate appropriate actions to improve the academic functioning of the Department.

7. Proforma and details should be shared with experts at least one week in advance.

Consolidated Report of Academic Audits by Dean of Faculty

(Note: Dean of the Faculty is requested to critically examine the academic audit reports and give specific recommendations for overall improvement of the faculty.)

Name of the Faculty : **Faculty of Physical Sciences**

Name of the Dean of Faculty : **Prof. Mamta Kamra**

Departments covered under Academic Audit : **Mathematics**

Specific recommendations to improve the academic functioning of the faculty: More emphasis should be on the Infrastructural facilities. To motivate the students to qualify JRF/NET to strengthen the research culture. The faculty member are advised to participate in

academic Programs of National/International reputation and focus on fetching research projects from different funding agencies.

Specific Observations and Comments on a particular Department:

The faculty members are recommended to take appropriate action to maintain the regularity of the students in the classes.

29.10.22

(Name and Signature of the Dean of Faculty)

(Prof. Mamta Kamra)