

# HARCOURT BUTLER TECHNICAL UNIVERSITY, KANPUR

Dean (Continuing Education and Internal Quality Assurance)

## Internal Quality Assurance Cell (IQAC)

*Note: This Performa has been designed by the IQAC of the University to carryout in-house Academic Audit of the academic departments of the University. Academic Audit is a scientific and systematic method of reviewing the quality of academic processes. It is related to quality assurance and enhancement of quality in various academic activities. It is aimed at understanding the existing system, assessing the strengths and weaknesses of academic departments, suggesting methods for academic improvement and overcoming the weaknesses and identifying the opportunities for academic reforms.*

### PERFORMA OF ACADEMIC AUDIT OF DEPARTMENTS

1. Name of the Department: Mathematics

2. Date of Audit: 08.09.2022

#### Note:

- Please rate the following parameters / indicators on a scale of 1-10, with 10 being the highest depending upon availability/non availability of a well-defined mechanism / process of the said indicator / criterion. For some of the criterion, it could be subjective as well, but based on standard norms / guidelines / or rationale of the experts.
- Kindly give your opinion on the strength and weakness of the department and your suggestions for 360 degree improvements of academic processes.

#### A. Academics

A. 1	Teaching and Learning	Score
1	Admissions in first year	8
2	Curriculum (Development, Structure, Course Syllabi, Flexibility)	6
3	Formal Academic Load on Students (Teaching, Laboratory/Practical, Projects)	8*
4	Evaluation Process (Continuing Evaluation, End-Term Evaluation, transparency, redressal mechanism for students)	9
5	Number of faculty members (Sanctioned, Filled, Vacant, On contract against vacant)	2**
6	Number of technical staff in labs	00
7	E-Assisted Learning i. Availability of Library Resources (books, book bank, journals and Major	8

2\*\*, 8\*: Load on faculty is extremely high & more faculty is required as soon as possible.

P. Kumar  
8/9/2022  
(MOD)

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Dean, SOBAS

A. Shukla

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	Search Engines (like Scopus, Web of Science) ii. Multi-Media Assisted Teaching (such as Use of ICT, Audio, Video, LCD, LAN, e-learning – resources, OpenEducational Resources)	
8	Technical Societies for Students i. Departmental Society ii. Student Chapter(s) of Professional Societies	NA
9	Educational Tour/Training/Industrial visits/Internship opportunities	NA
10	Effectiveness of Assisted Learning, Tutorial System, Seminars for B. Tech Students	8
11	Faculty Mentoring/Faculty Advisor for Students	8
12	Number of teaching days in a semester	9
13	Formal mechanism to obtain feedback from students and stakeholders on Curriculum (Such as Student feedback for teaching & Course evaluation etc.)	8
	<b>Total Score (out of 130)</b>	<b>74</b>

A. 2	Industry - Institute Interaction	Score
1	Industrial Training as a part of curriculum	NA
2	Involvement of industry expert in designing curriculum.	7
3	Organizing expert lectures from industry.	NA
4	Involvement of industry expert in UG/PG projects (as Joint Supervision)	NA
5	Participation of students in industrial tours and internship programs.	NA
6	Interaction of faculty with industries in terms of visits, lab development.	NA
7	Industrial research projects	
	<b>Total Score (out of 70)</b>	<b>7</b>

A. 3	Laboratory Development	Score
1.	New labs developed in last three year.	NA
2.	Development of infrastructure in existing labs.	NA
3.	Up Gradation of existing equipment's including replacement.	NA
4.	Development of Laboratory manuals of experiments in existing labs.	NA
5.	Development of new experiments in existing labs.	NA
	<b>Total Score (out of 50)</b>	<b>NA</b>

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### B. Research

B.	Research	Score
1.	Research Ambience in the Department	5
2.	Quality of Publications	8
3.	Relevance of Research to society	8
4.	Student Exposure to Attending Quality Conferences/Symposia	8
5.	Research Intensity of Faculty Members	7
6.	Inter Departmental Research Collaborations	5
7.	Industry/externally funded sponsored research	6
	<b>Total Score (out of 70)</b>	<b>47</b>

### C. Outreach activities

C.	Outreach activities	Score
1.	Visit to other institutes of higher learning like IITs, IISc, IISER, etc. by faculty.	8
2.	Delivering of talk / lecture in HBTU apart from regular courses.	8
3.	Expert lectures in other institutes.	8
4.	Visits to other institutes for academic activities like accreditation, academic audit, attending RDCs, BoS etc.	8
5.	Contribution to Professional Societies.	9
6.	Editorial responsibilities / reviews of SCI Journals.	8
7.	Organization of Seminar, Workshops, Symposia, FDP.	8
	<b>Total Score (out of 70)</b>	<b>57</b>

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#### D. Departmental Infrastructure and Human Resource

D.	Departmental Infrastructure and Human Resource	Score
1	Adequacy of Class Rooms and Multi-Media Facility	5
2	Availability of adequate Laboratories	5
3	Availability of Conference/Seminar Room, etc	4
4	Availability of adequate Seating Space/Offices and furnishings for Faculty and Research Students	2
5	Availability of Internet Services in Research Labs and Class Rooms	7
6	Departmental Library	2
7	Computing Facilities and Software	2
8	Computer and internet facilities: (terminals with LAN facilities, hardwares, printers, photocopy machine, UPS, internet-broadband / Wi-fi etc.)	7
9	Faculty- Student Ratio	3*
10	Support Staff (Technical/Administrative) Adequacy	0
	Total Score (out of 100)	37

3\* : Faculty Student Ratio is too high.

#### E. Outcomes

E.	Outcomes	Score
1	Placements of B. Tech. students	9
2	Publications per Faculty in Indexed Journals / Year (Average of last three years)	8
3	Average Citations per Faculty/Year (Last-three Years) (Web of Science / Scopus)	2
4	Recognitions; Awards(National/International) to Faculty/Students	8
5	Consultancy and Externally Funded Projects	6
6	No. of B. Tech. / M. Tech. / Ph.D. graduates to have taken up career in Academics	9
	Total Score (out of 60)	48

Grand total (out of 550):


4

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Ashok

  
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SWOC Analyses

- a) Strength:
- \* Faculty is good.
  - \* Student intake & quality is good
  - \* Academic contribution to society is appreciable.

- b) Weakness:
- \* Infrastructure is not good
  - \* Deptal facilities are ~~not~~ inadequate
  - \* Academic syllabus needs improvement

- c) Opportunities:
- \* ~~Board~~ Board MBTI/HBTU is global and can be enriched
  - \* Financial support for better academics may be useful for the faculty
  - \* Academic collaboration ~~challenge~~ can be fruitfully utilized

- d) Challenges:
- \* Tough competition with other institutes like IIT Kanpur.
  - \* Arranging better opportunities for placement
  - \* Creation of industrial collaborations


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Shalabh

  
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Comments for improvement

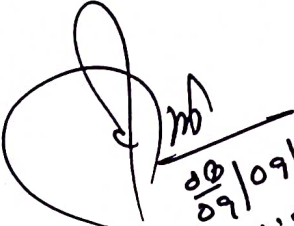
Infrastructural improvements are hampering the growth of the dept.

Signature of the Auditor	Ashalabh
Name, Designation and Affiliation	Shalabh, Professor, Dept of Mathematics & Statistics, IIT Kanpur

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8/9/2023  
(MOD)

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Dean, SOBAS

  
20/09/2022  
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# HARCOURT BUTLER TECHNICAL UNIVERSITY, KANPUR

Dean (Continuing Education and Internal Quality Assurance)  
Internal Quality Assurance Cell (IQAC)

## Summary Sheet of Academic Audit of the Department

- Name of the Department: Mathematics
- Name and Designation of Auditor:
- Date of Audit: 08.09.2022

Sl. No.	Items	Sub-Item (s)	Max. Score	Acquired Score
A.	Academics	A.1. Teaching and Learning	<del>30</del> 110	74
		A.2. Industry – Institute Interaction	<del>70</del> 10	7
		A.3. Laboratory Development	50	NA
B.	Research	--	70	47
C.	Outreach Activities	--	70	57
D.	Departmental Infrastructure and Human Resources	--	100	37
E.	Outcomes	--	60	48
Total Score			<del>550</del> 420	270

<b>Strengths</b> 1. faculty is good. 2. Student intake & quality is good. 3. Academic contribution to society is appreciable. 4.	<b>Opportunities</b> 1. Broad HBTU/HBTO is global and can be expanded. 2. Financial support for better teaching may be useful for faculty. 3. Academic collaborations can be fruitfully utilized.
<b>Weaknesses</b> 1. Infrastructure is not good. 2. Departmental facilities are inadequate. 3. Academic syllabuses need improvement. 4.	<b>Challenges</b> 1. → Tough competition with other institutions like ITR Kanpur. 2. → Arranging better opportunities for placement. 3. → Creation of industrial collaborations.

General Remarks: Infrastructure improvement are hampering the growth of the department.

Decision about the state of academic processes and their outcomes: Good /  Medium /  Poor. (Please tick any one)

Signatures with date:

[Signature]  
(HoD)

[Signature]  
(Dean of School)

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08/09/22  
(Auditor)

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08/09/22  
09.09.2022  
11:55 AM  
(Dean - CEIQA/IQAC Coordinator)

Place: HBTU, Kanpur

The Department of Mathematics had an Academic Audit for the session 2021-22 on 08/09/2022. Prof. Shalabh, Department of Mathematics and Statistics, IIT Kanpur was nominated as the Auditor by university authorities. Prof. Ram Autar, Dean, School of Applied Sciences and Prof. Yaduvir Singh, Dean, CEIQAC were present in the audit. The audit was conducted in the conference hall, Department of mathematics. All faculty members were present in the audit.

The audit started with a brief presentation by Prof. Ram Autar, HOD telling the committee about the department and its achievements.

The evaluation based on the proforma for the audit was then carried out. All the documents pertinent to the audit were evaluated thoroughly by Prof. Shalabh. The department scored 270 out of 420 marks (64.3 %). The following observations were made:

**Strength:**

- The course MSc in Mathematics and Data Science offered by the department covers both academic and industry purpose of the student.
- Faculty performance and contribution to the society are appreciable.
- Student intake and quality are good.

**Weakness:**

- Lack of proper infrastructure
- Departmental facilities are inadequate
- Academic syllabus needs improvement.
- More faculty members are required.

**Opportunities:**

- Brand HBTU is global and can be encashed.
- Financial support for better academics may be useful for the faculties.
- Academic collaborations can be fruitfully utilized.

**Challenges:**

- Tough competition with other institution like IIT Kanpur.
- Arranging better opportunities for placement.
- Creation of industrial collaboration.

The department will take appropriate reformatory steps to meet the challenges by using the opportunities to overcome the weaknesses up to a great extent.

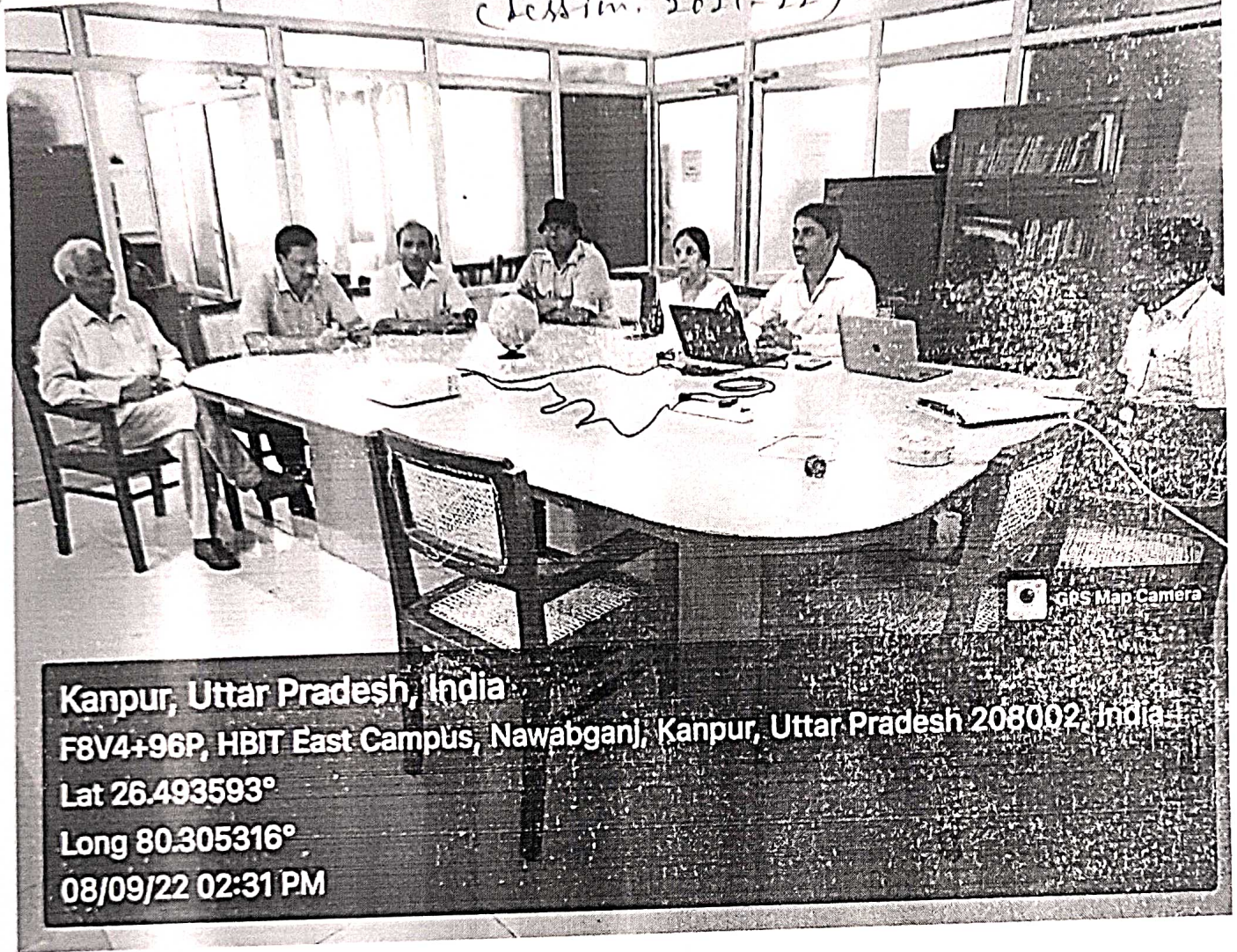
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8/9/2022  
(Ram Autar)  
HOD Maths Deptt.



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Academic Audit of Maths Deptt. (on 08.09.2022)  
(Session. 2021-22)

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Kanpur, Uttar Pradesh, India

F8V4+96P, HBIT East Campus, Nawabganj, Kanpur, Uttar Pradesh 208002, India

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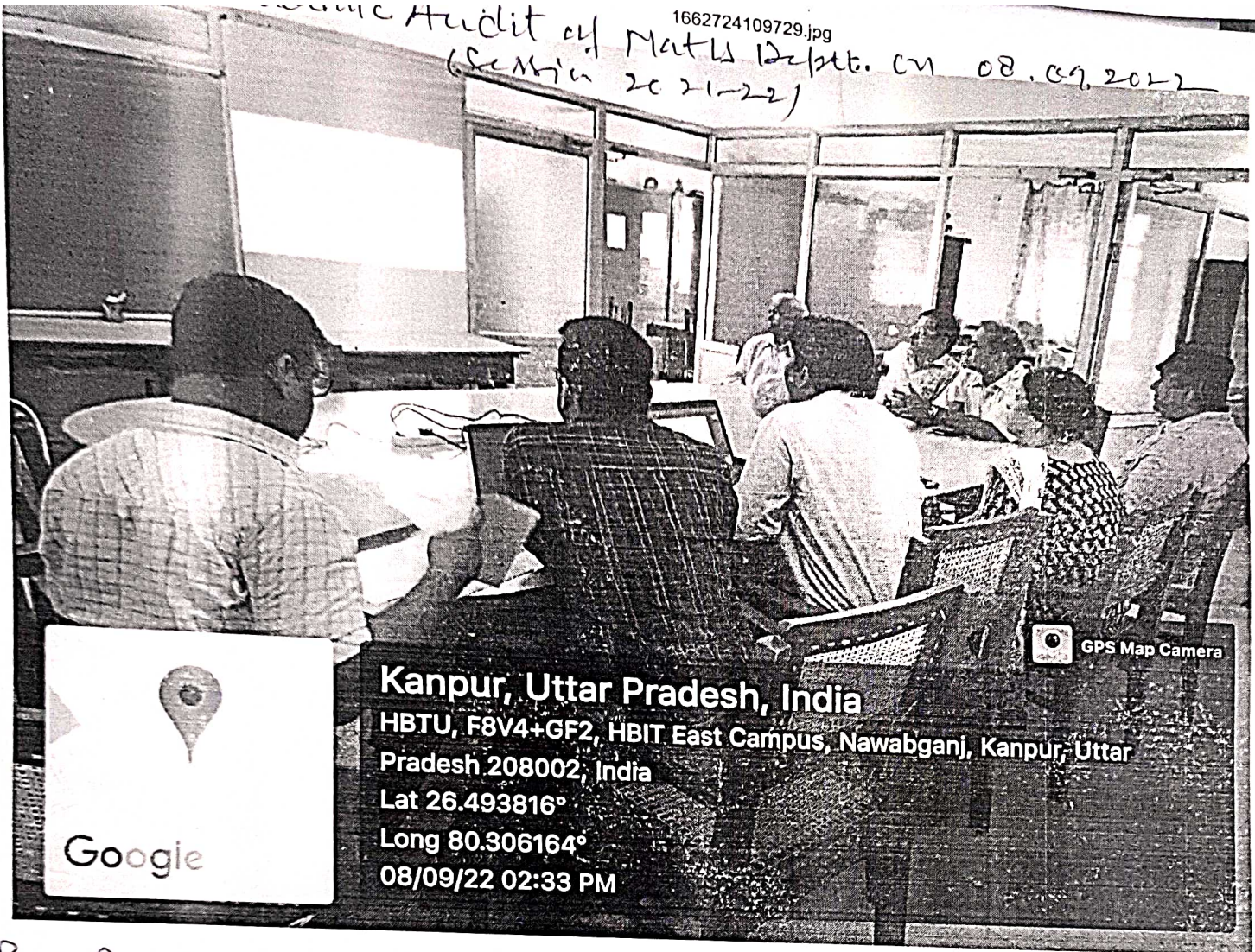
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Prof Ram Autar, Prof Ram Narain, Prof Saleem (Auditor) Prof Yadu veer Singh,  
Prof Rekha Bali, Dr. U. P. Singh, Dr. Shivam Shrivastava & Dr. Ramashy  
Singh yadav was present.

Autar

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Annual Audit of Maths Dept. on 08.09.2022  
(Session 2021-22)



Kanpur, Uttar Pradesh, India

HBTU, F8V4+GF2, HBIT East Campus, Nawabganj, Kanpur, Uttar Pradesh 208002, India

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Prof Ram Anwar, Prof Ram Narain, Prof Salabh (Auditor) Prof Yadu veer Singh, Prof Rekha Bali, Dr. U. P. Singh, Dr. Shivam Shrivastava, Dr. Ramasamy Singh were present.

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