

# 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

1. Name of the Department: Chemical Engg., HBTU KANPUR  
 2. Name and Designation of Auditor: Prof. RAJU KUMAR GUPTA, IIT KANPUR  
 3. Date of Audit: 22/11/2023

Sl. No.	Items	Sub-Item (s)	Max. Score	Acquired Score
A.	Academics	A.1. Teaching and Learning	130	117
		A.2. Industry - Institute Interaction	70	53
		A.3. Laboratory Development	50	37
B.	Research	--	70	52
C.	Outreach Activities	--	70	63
D.	Departmental Infrastructure and Human Resources	--	100	83
E.	Outcomes	--	60	44
Total Score			550	449

### Strengths

1. Faculty more than 90% with Ph.D & strong research experience
2. Strong UG program resulting in core job.
3. Separate building & this will improve research collaboration b/w faculties
4. Strong internship & good placement

### Opportunities

1. Good alumni database & this should be utilized for lab & research development
2. Alumni support to be look for specific grant & lab development
3. To approach chemical industries for CSIR funding.

### Weaknesses

1. Technical staff strength to be improved
2. M.Tech & Ph.D program needs to be strengthened
3. To improve sponsored research funding
4. Computational facilities & research infrastructure to be improved.

### Challenges

1. To attract good student for Ph.D & M.Tech prog.
2. Looking for option for getting sponsored international travel for conferences (institute alumni to be asked for support).
3. Developing research infrastructure at dept. level

General Remarks: Electives on recent topics like sustainability, green synthesis to be included in curriculum. Sponsored research grant to be improved dept outreach activity/ research infrastructure to be improved  
 Decision about the state of academic processes and their outcomes: Good / Medium / Poor (Please tick any one)

Signatures with date:

Ashish K. Jaiswal  
22/11/23 (HoD)

[Signature]  
(Dean of School)

Raju Kumar Gupta  
(Auditor)

[Signature]  
22/11/2023  
(Dean - CEIQA/IQAC Coordinator)

Place: HBTU, Kanpur

	ii. Search Engines (like Scopus, Web of Science) Multi-Media Assisted Teaching (such as Use of ICT, Audio, Video, LCD, LAN, e-learning – resources, OpenEducational Resources)	08
8	Technical Societies for Students i. Departmental Society ii. Student Chapter(s) of Professional Societies	08
9	Educational Tour/Training/Industrial visits/Internship opportunities	09
10	Effectiveness of Assisted Learning, Tutorial System, Seminars for B. Tech Students	09
11	Faculty Mentoring/Faculty Advisor for Students	09
12	Number of teaching days in a semester	10
13	Formal mechanism to obtain feedback from students and stakeholders on Curriculum (Such as Student feedback for teaching & Course evaluation etc.)	10
	<b>Total Score (out of 130)</b>	<b>117</b>

A. 2	Industry - Institute Interaction	Score
1	Industrial Training as a part of curriculum	10
2	Involvement of industry expert in designing curriculum.	06
3	Organizing expert lectures from industry.	06
4	Involvement of industry expert in UG/PG projects (as Joint Supervision)	06
5	Participation of students in industrial tours and internship programs.	10
6	Interaction of faculty with industries in terms of visits, lab development.	08
7	Industrial research projects	07
	<b>Total Score (out of 70)</b>	<b>53</b>

A. 3	Laboratory Development	Score
1.	New labs developed in last three year.	07
2.	Development of infrastructure in existing labs.	07
3.	Up Gradation of existing equipment's including replacement.	07
4.	Development of Laboratory manuals of experiments in existing labs.	08
5.	Development of new experiments in existing labs.	08
	<b>Total Score (out of 50)</b>	<b>37</b>

42

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B.	Research	Score
1.	Research Ambience in the Department	08
2.	Quality of Publications	08
3.	Relevance of Research to society	08
4.	Student Exposure to Attending Quality Conferences/Symposia	07
5.	Research Intensity of Faculty Members	07
6.	Inter Departmental Research Collaborations	08
7.	Industry/externally funded sponsored research	06
	<b>Total Score (out of 70)</b>	<b>52</b>

### C. Outreach activities

C.	Outreach activities	Score
1.	Visit to other institutes of higher learning like IITs, IISc, IISER, etc. by faculty.	09
2.	Delivering of talk / lecture in HBTU apart from regular courses.	09
3.	Expert lectures in other institutes.	09
4.	Visits to other institutes for academic activities like accreditation, academic audit, attending RDCs, BoS etc.	09
5.	Contribution to Professional Societies.	09
6.	Editorial responsibilities / reviews of SCI Journals.	09
7.	Organization of Seminar, Workshops, Symposia, FDP.	09
	<b>Total Score (out of 70)</b>	<b>63</b>

*hw*

*All*

*PL*

*CPD*

#### D. Departmental Infrastructure and Human Resource

D.	Departmental Infrastructure and Human Resource	Score
1	Adequacy of Class Rooms and Multi-Media Facility	09
2	Availability of adequate Laboratories	09
3	Availability of Conference/Seminar Room, etc	09
4	Availability of adequate Seating Space/Offices and furnishings for Faculty and Research Students	09
5	Availability of Internet Services in Research Labs and Class Rooms	08
6	Departmental Library	08
7	Computing Facilities and Software	07
8	Computer and internet facilities: (terminals with LAN facilities, hardwares, printers, photocopy machine, UPS, internet-broadband / Wi-fi etc.)	08
9	Faculty- Student Ratio	09
10	Support Staff (Technical/Administrative) Adequacy	07
	<b>Total Score (out of 100)</b>	<b>83</b>

#### E. Outcomes

E.	Outcomes	Score
1	Placements of B. Tech. students	09
2	Publications per Faculty in Indexed Journals / Year (Average of last three years)	08
3	Average Citations per Faculty/Year (Last-three Years) (Web of Science / Scopus)	08
4	Recognitions, Awards(National/International) to Faculty/Students	08
5	Consultancy and Externally Funded Projects	07
6	No. of B. Tech. / M. Tech. / Ph.D. graduates to have taken up career in Academics	04
	<b>Total Score (out of 60)</b>	<b>44</b>

Grand total (out of 550):

42

AM

PL - PP

## SWOC Analyses

### a) Strength:

- Faculty: ~ 90% have PhD and strong research experience
- Strong UG program resulting in core jobs
- Chemical Dept has got separate building. it will improve research collaboration b/w faculties.
- Strong internship program
- Good placement for OJ students

### b) Weakness:

- Strength of technical staff should be improved
- neat M.Tech. & PhD program. it need to be strengthened.
- Sponsored research funding per faculty could be improved
- Computational facilities including softwares e.g. Aspen should be included in the curriculum.
- weak research infrastructure. Central facility at Dept. level should be improved.

### c) Opportunities:

- Dept. has got good alumni database. Support from alumni for developing lab & research infrastructure should be pursued.
- Named travel grants / lab & from Alumni support should be pitched.
- chemical industries could be approached for CSR funding support.

### d) Challenges:

- Attracting good students for M.Tech & PhD program (support from Alumni/ institute for top up salary)
- International travel for conferences for faculties is very less. Support from institute/ alumni can be asked for.
- There is a need to develop research infrastructure at department level.

W

All

PE

CPD



Comments for improvement

- few electives over recent topics e.g. sustainability, green synthesis etc. can be included in the curriculum.
- To improve teaching; best teacher award at dept. level can be initiated.
- sponsored research grant as well as publications per faculty could be improved
- Department outreach via social media could be improved.
- ~~Research infrastructure at dept. level need to be improved.~~

Signature of the Auditor	Raj Kumar Gupta
Name, Designation and Affiliation	Prof. RAJU KUMAR GUPTA IIT KANPUR

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Ashish Kojan

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Dr. Dixit