



YEARLY STATUS REPORT - 2022-2023

Part A	
Data of the Institution	
1.Name of the Institution	HOMI BHABHA NATIONAL INSTITUTE
• Name of the Head of the institution	U. Kamachi Mudali
• Designation	Vice Chancellor
• Does the institution function from its own campus?	Yes
• Phone no./Alternate phone no.	02225597638
• Mobile no	9969034515
• Registered e-mail	vcoff@hbni.ac.in
• Alternate e-mail address	registrar@hbni.ac.in
• City/Town	Mumbai
• State/UT	Maharashtra
• Pin Code	400094

2. Institutional status

• University	Deemed
• Type of Institution	Co-education
• Location	Urban
• Name of the IQAC Co-ordinator/Director	Prof. Naveen Kumar
• Phone no./Alternate phone no	02225597629
• Mobile	9969258896
• IQAC e-mail address	registrar@hbni.ac.in
• Alternate Email address	nkumar@hbni.ac.in
3. Website address (Web link of the AQAR (Previous Academic Year))	http://www.hbni.ac.in/pdf/aqar_report/AQAR%2021-22%20FINAL%20SUBMITTED.pdf
4. Whether Academic Calendar prepared during the year?	Yes
• if yes, whether it is uploaded in the Institutional website Web link:	http://www.hbni.ac.in/pdf/acad_calendar/Academic_Calendar_2022-23.pdf

5. Accreditation Details

Cycle	Grade	CGPA	Year of Accreditation	Validity from	Validity to
Cycle 2	A+	3.4	2021	16/03/2021	15/03/2026

6. Date of Establishment of IQAC

27/06/2014

7. Provide the list of Special Status conferred by Central/ State Government-UGC/CSIR/DST/DBT/ICMR/TEQIP/World Bank/CPE of UGC etc.

Institution/ Department/ Faculty	Scheme	Funding agency	Year of award duration
Homi Bhabha national Institute	Special autonomy status by UGC (https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1525479#.WrE3iXpWgxs.twitter)	UGC	2018

8. Whether composition of IQAC as per latest NAAC guidelines

Yes

• Upload latest notification of formation of IQAC	View File
9.No. of IQAC meetings held during the year	1
• The minutes of IQAC meeting and compliance to the decisions have been uploaded on the institutional website. (Please upload, minutes of meetings and action taken report)	Yes
• (Please upload, minutes of meetings and action taken report)	View File
10.Whether IQAC received funding from any of the funding agency to support its activities during the year?	Yes
• If yes, mention the amount	5021760 rupees
11.Significant contributions made by IQAC during the current year (maximum five bullets)	
1.A faculty induction program was conducted in June 2022 and December 2022, for the new faculties to brief them about the academic process at HBNI. 2.Implemented a few aspects of NEP-2023, and various initiatives were taken to enhance interactions and collaboration between faculties of HBNI, to realize resource sharing, student mobility, co-guidance of programmes and joint courses etc. 3. interaction among faculty and students of CIs and OCC of HBNI, four theme-based discussion cum meetings were conducted at CIs of HBNI. 4.To promote/popularize science, organised talks on career opportunities in basic science for graduate and postgraduate students of colleges in and around Mumbai city. 5.Collaborated with INSTN, France, a requisite groundwork is done to conduct a course on structural integrity in March 2024.	
12.Plan of action chalked out by the IQAC in the beginning of the Academic year towards Quality Enhancement and the outcome achieved by the end of the Academic year	
Plan of Action	Achievements/Outcomes
Faculty Induction Programme	A faculty induction programmes were conducted for the benefit of the new inducted faculty members to familiarise them with the academic processes in HBNI, in June and December 2022.
Value added course on advanced topics	Value added course on Advanced Material Chemistry and Advanced NMR spectroscopy were conducted.
Creating avenues for better interaction among faculty and students of various CIs and OCC	A theme meeting on "Condensed Matter Physics," was held at Saha Institute of Nuclear Physics (SINP) on June 23-24, 2022. The first theme meeting on Life Sciences was held at Raja Ramanna Centre for Applied Chemistry (RRCAT) Indore during September 7-10, 2022. The Second Theme Meeting in Life Sciences was held at RRCAT Indore during February 16-17, 2023. An interaction meeting in Chemical Sciences was organized by the School of Chemical Sciences, NISER, Bhubaneswar during January 18-20, 2023.
Proposed to conduct webinars on various topics	Organized special lecturers and webinars by eminent academicians, scientists, engineers and technologists on diverse topics.
Implementation of NEP-2020	Implemented a few of the guidelines for HEIs as per NEP-2020, like the Industry Linkage Centre, Academic Break in Academic Programs and is implementing the remaining Guidelines in a phased manner.

13. Whether the AQAR was placed before statutory body?		Yes
<ul style="list-style-type: none"> Name of the statutory body 		
Name		Date of meeting(s)
Council of Management		22/12/2023
14. Whether NAAC/or any other accredited body(s) visited IQAC or interacted with it to Assess the functioning?		No
15. Whether institutional data submitted to AISHE		
Year	Date of Submission	
2023	17/01/2023	
16. Multidisciplinary / interdisciplinary		
<p>Homi Bhabha National Institute is a conglomeration of eleven constituent institutions/off- campus centre (CIs/OCC) with a thr academic and research environment. It conducts post-graduate and doctoral programmes in various disciplines, viz., chemistry, mathematics, life sciences, medical and health sciences and engineering sciences across all its eleven CIs/OCC.</p> <p>Since its inception in 2005, HBNI has been taking great efforts to promote multidisciplinary education and interdisciplinary and research through its CIs/OCC.</p> <p>One of the constituent institutions of HBNI, NISER apart from offering PG and doctoral programmes in science subjects also of doctoral programmes in Humanities and Social Sciences. NISER also offers integrated 5-year M.Sc. Programme in physics, chemis mathematics and biology, with each programme having core and elective courses (subjects). The students of these courses also option to obtain a minor in a discipline other than their major discipline by taking a certain number of courses from the oth discipline. For example, a student opting for a major in physics can also obtain a minor in chemistry, mathematics, or biolog certain courses in either of these departments. Faculty members of HBNI in all its CIs/OCC are encouraged to collaborate among and other researchers of various Institutes for carrying out research in the area of their expertise and other multidisciplin interdisciplinary areas both nationally and internationally. The outcome of such efforts is clearly visible in the multi- and interdisciplinary publications generated in the academic year 2022-23 as a result of these collaborative activities.</p> <p>HBNI also offers DGFS PhD Programme for engineering post-graduates (M. E. / M. Tech. /Equivalent Degree) where one PhD superv the science stream and the second PhD supervisor is a technologist. The arrangement provides the student with a unique oport translate his/her research into technology useful for the nation</p>		
17. Academic bank of credits (ABC):		
HBNI has prepared modalities for implementation of the academic bank of credits and obtained approval from the Academic Cour Council of Management.		
18. Skill development:		

HBNI is keen to impart knowledge and skills to students through progressive teaching and learning methods. In order to improve employability and promote entrepreneurship, HBNI offers various skill developmental programs and fellowships to students. Through these programmes, HBNI also aims at providing a platform for endorsing knowledge exchange and facilitating the interactions of industry with the institute. This is carried out through the implementation of internships and field projects for the students which will be along with practical work experience in nationally recognised research institutes and industries.

One of the constituent institutions of HBNI, The Tata Memorial Centre (TMC) offers a series of skill-based fellowships in the field of oncology every year. These include fellowships in Orthopaedic Oncology, Breast Oncology, Thoracic Oncology, Gastroenterology Oncology, Uro-Oncology, Oral Oncology & Reconstructive Surgery, Plastic & Reconstructive oncology, Interventional Radiology, Medical Imaging, Pulmonary Oncology, Onco-Anaesthesia & Pain, Dental & Prosthetic Surgery, Preventive Oncology and Paediatric Oncology. These fellowships provide comprehensive and multidisciplinary training to individuals committed to a career in oncology. The fellows provide a broad exposure to all range of clinical problems encountered which will help the candidate to develop expertise and manage patients independently. TMC also provides other skill-based fellowships such as Surgical Pathology, Haemato-Pathology, Molecular Oncology and Infectious Diseases & HIV Medicine. TMC also conducts skill-based MSc courses (two years) followed by a one-year diploma in Nuclear Medicine and Molecular Imaging Technology, Clinical Research, Public Health and Epidemiology, and Occupational Health and Safety. BARC also conducts skill-based MSc programme in Hospital Radiopharmacy and MSc programmes in Nuclear Medicine and Molecular Imaging Technology.

BARC, a CI of HBNI is running DipRP (Diploma in Radiation Protection) and Radiography Testing Techniques and Radiological Safety courses to address the need of experts in safe handling as well as applications of radiation and radioactivity. The courses have generated experts who serve various hospitals and industries ensuring radiation safety.

Additionally, the BARC training school of HBNI organizes soft skills workshops for all the postgraduate diploma and MTech students every year. The workshop sessions cover areas like communication skills, presentation skills, creativity & innovation, time management, and ethics. Workshops on "Administrative Procedures" and "Nuclear Security" are also conducted for the benefit of the students by the training school of HBNI.

19. Appropriate integration of Indian Knowledge system (teaching in Indian Language, culture, using online course)

HBNI is taking initiatives to popularize /boost the use of Hindi/local language as a medium of instruction in all its CIs/OCCs. As a step towards this goal, HBNI has published a Nuclear Glossary (English-Hindi) containing the translation of 11000 scientific terms in the year 2021. The nuclear glossary is highly useful for writing articles and research papers. HBNI is planning to publish such a glossary for other Indian languages also. All the CIs/ OCCs also conduct Hindi Diwas celebrations on September 14 every year when competitive events in Hindi like shruat lekhan, essay writing, quiz open speech competition etc are organized. The CIs/OCCs also organize seminars/webinars and workshops in Hindi.

20. Focus on Outcome based education (OBE): Focus on Outcome based education (OBE):

The academic programmes offered by HBNI intend to create professionals in the areas of Science, Engineering, Mathematics, Medical Humanities, in various domains, particularly in the field of Nuclear Science and Technology. These programmes are unique in their nature and are able to address the needs of the country. Post-graduate diploma programmes are offered at BARC Training schools at Mumbai, Kalpakkam, Hyderabad and Indore. The courses offered as part of these programs also meet the requirement of M. Tech / MSc(Engineering). These courses are designed to meet the mission needs of the concerned centres. For example, courses at IGCAR, Kalpakkam, focus on the needs of the fast reactor program, while courses at RRCAT focus on the needs of the accelerator program. Some of the courses are multidisciplinary in nature and can address the human resources of the country in the vital domain of indigenous development science and technology. The curriculum is also designed to cater to M. Tech students from defence organizations, who get training

engage in associated defense programs through exposure to elements of nuclear technology and radiation safety.

The academic programs offered by HBNI in the domain of Medical and Health Sciences are able to fulfil the national requirements, expertise and knowledge base in the treatment of various types of cancers prevalent in India. These programs perform a significant role in establishing a knowledge base and contributing towards cancer research. Additionally, there are programs related to application of radioactivity and various types of radiation such as Diploma in Radiation Protection are aimed to provide specialists who ensure radiation safety in the hospitals and industries in our country.

All the programmes offered by HBNI clearly state the programme and the course outcomes which is available to all the stakeholders on the HBNI website

21.Distance education/online education:

In order to enhance the impact of effective teaching and learning, the faculty members of HBNI use online resources. Some CIs, in particular, the Institute of Mathematical Sciences (IMSc), have established multi-functional facilities to handle video conferencing, web streaming, video recordings and meetings. Using this unique facility, IMSc has hosted a large number of video lectures on mathematics, physics and computational biology, on its website <http://ekalavya.imsc.res.in>, and also hosted them on the YouTube channel "MATSCIENCE". The students from other CIs also get benefitted from the online lectures and programs. A similar smart classroom videoconferencing / video recording facilities has been established in IGCAR also.

The Tata Memorial Centre (TMC), one of the CIs of HBNI makes available online lectures and videos through its e-learning site. It is a one stop online learning destination for Healthcare professionals, globally, impacting patient care and outcomes, through evidence based, unbiased and cutting edge scientific content.

During the academic year 2022-23, HBNI conducted online educational courses on Advanced Materials Chemistry, Advanced NMR Spectroscopy, Accelerator Physics, Neutron Scattering for Condensed Matter Studies, Nuclear and Radiochemistry and Research Methodology. Some of these courses are available on the HBNI Webinar and YouTube channel of HBNI, and NPTEL platform. HBNI also organizes educational webinars delivered by eminent scientists and engineers online. The webinars were streamed live and recordings are available on the YouTube channel of HBNI, HBNI Webinar.

Extended Profile

1.Programme

1.1 Number of programmes offered during the year:	43
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File Description	Documents
Data Template	View File

1.2 Number of departments offering academic programmes	7
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2.Student

2.1		4745
Number of students during the year		
File Description	Documents	
Data Template	View File	
2.2		587
Number of outgoing / final year students during the year:		
File Description	Documents	
Data Template	View File	
2.3		4284
Number of students appeared in the University examination during the year		
File Description	Documents	
Data Template	View File	
2.4		0
Number of revaluation applications during the year		
3.Academic		
3.1		1462
Number of courses in all Programmes during the year		
File Description	Documents	
Data Template	View File	
3.2		1219
Number of full time teachers during the year		
File Description	Documents	
Data Template	View File	
3.3		1476
Number of sanctioned posts during the year		

File Description	Documents
Data Template	View File
4. Institution	
4.1 Number of eligible applications received for admissions to all the Programmes during the year	131878
File Description	Documents
Data Template	View File
4.2 Number of seats earmarked for reserved category as per GOI/ State Govt. rule during the year	101
File Description	Documents
Data Template	View File
4.3 Total number of classrooms and seminar halls	182
4.4 Total number of computers in the campus for academic purpose	6258
4.5 Total expenditure excluding salary during the year (INR in lakhs)	76947.27912

Part B

CURRICULAR ASPECTS

1.1 - Curriculum Design and Development

1.1.1 - Curricula developed and implemented have relevance to the local, national, regional and global developmental needs which is reflected in Programme outcomes (POs), Programme Specific Outcomes(PSOs) and Course Outcomes(COs) of the Programmes offered by the University

The academic programmes offered by HBNI aim to assimilate basic research with technology development. HBNI has uniquely designed the academic programmes in such a way that they can build the required manpower in the research and development area of various domains, particularly in the field of Nuclear Science and Technology. The diverse academic programmes at HBNI also intend to create professionals in the areas of Engineering, Mathematics and Medical research etc., as per the requirements of the society

Some of the post graduate level programs offered by HBNI are unique in their aspects and are able to address the needs of the country. Post-graduate diploma programs are offered at BARC Training schools at Mumbai, Kalpakkam, Hyderabad and Indore. The courses offered as part of these programs also meet the requirement of M. Tech / MSc(Engg) programs.

An elaborate description on Curricula developed and implemented have relevance to the local, national, regional and global developmental needs which is reflected in Programme outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) of the Programmes offered by the University in the attached supporting document

File Description	Documents
Upload relevant supporting document	View File

1.1.2 - Number of Programmes where syllabus revision was carried out during the year

6

File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File

1.1.3 - Total number of courses having focus on employability/ entrepreneurship/ skill development offered by the University during the year

1.1.3.1 - Number of courses having focus on employability/ entrepreneurship/ skill development during the year

1462

File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File

1.2 - Academic Flexibility

1.2.1 - Number of new courses introduced of the total number of courses across all programs offered during the year

24

File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File

1.2.2 - Number of Programmes in which Choice Based Credit System (CBCS)/elective course system has been implemented during the year

33

File Description	Documents
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Upload the data template	View File
Upload relevant supporting document	View File
1.3 - Curriculum Enrichment	
1.3.1 - Institution integrates crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability into the Curriculum	
<p>The academic programmes of HBNI are designed to develop human resources in the areas of nuclear science and technology and allied subjects including mathematics. HBNI is committed to fostering an environment of academic rigour and ethical values. HBNI ensures the complete development of the student by providing exposure to important issues such as gender sensitivity, consciousness of environment, sustainability and most importantly, professional ethics and moral values. For example, HBNI and its CIs take initiatives to organise series of lectures delivered by experts in the field of gender sensitization so as to create the right mind set among the students towards issues related to gender. HBNI also organizes lectures by senior professors periodically, which cover issues related to plagiarism (including self-plagiarism) and take all necessary measures to impart knowledge about ethical practices in the conduct of scientific research to its students. An elaborate description on the Institution practices to integrate crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability into the Curriculum is provided in the attached supporting document. Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C1/m1_3_1/</p>	
File Description	Documents
Upload relevant supporting document	View File
1.3.2 - Number of value-added courses for imparting transferable and life skills offered during the year	
21	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
1.3.3 - Total number of students enrolled in the courses under 1.3.2 above	
1.3.3.1 - Number of students enrolled in value-added courses imparting transferable and life skills offered during the year	
338	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
1.3.4 - Number of students undertaking field projects / research projects / internships during the year	
3523	

File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
1.4 - Feedback System	
1.4.1 - Structured feedback for design and review of syllabus - semester wise / is received from Students Teachers Employers Alumni	<ul style="list-style-type: none"> Any 3 of the above
File Description	Documents
Upload relevant supporting document	View File
1.4.2 - Feedback processes of the institution may be classified as follows	<ul style="list-style-type: none"> Feedback collected, analysed and action taken and feedback available on website
File Description	Documents
Upload relevant supporting document	View File
TEACHING-LEARNING AND EVALUATION	
2.1 - Student Enrollment and Profile	
2.1.1 - Demand Ratio	
2.1.1.1 - Number of seats available during the year	
997	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
2.1.2 - Total number of seats filled against reserved categories (SC, ST, OBC, Divyangjan, etc.) as per applicable reservation policy during the year (Excluding Supernumerary Seats)	
2.1.2.1 - Number of actual students admitted from the reserved categories during the year	
67	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
2.2 - Catering to Student Diversity	

2.2.1 - The institution assesses the learning levels of the students and organises special Programmes for advanced learners and slow learners

HBNI recognizes that the learning programs have to be adequately flexible and provide for different pace of learning among students. Accordingly, the CIs/OCC of HBNI have schemes to cater to advanced learners as well as slow learners.

For M.Sc. and Integrated M.Sc. programmes, option of credit overload is available for advanced learners. Under this option, if a student has CGPA = 8.0, credit overload of a 4 credit course is permissible in a semester. However, performance of such students is carefully monitored by the Dean-Academic/academic committee so that the student is under no stress. If a student feels that a course is a just repetition for him/her, the student can be exempted from attending the course after clearing a designated test. The student can utilize this period to study an advanced audit course from any department guided by the academic committee and as per the student's interest. In some cases, the student can also be permitted to be absent from the regular lectures, but submit assignments/projects, and take the tests.

Detailed description pertaining to the assessment of the learning levels of the students employed by the institution is provided in the attached supporting document. Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C2/m2_2_1/

File Description	Documents
Upload relevant supporting document	View File
Link For Additional Information	http://www.hbni.ac.in/aqar/2023/C2/m2_2_1/NISER_UGManual.pdf

2.2.2 - Student - Full time teacher ratio during the year

Number of Students	Number of Teachers
4745	1219

File Description	Documents
Upload relevant supporting document	View File

2.3 - Teaching- Learning Process

2.3.1 - Student centric methods, such as experiential learning, participative learning and problem-solving methodologies are used for enhancing learning experiences

All the CIs/OCC of HBNI adopt student-centric pedagogies that provide the student a memorable learning experience. HBNI being a research University, most of the students are required to adopt a participative, hands-on approach to learning. Discussion sessions further enhance the learning experience to help the students become independent researchers. The coursework for doctoral students, in most cases, involves credit seminars and annual reviews, which provide students the challenge of not only learning a subject but also developing their communication skills, and provide them opportunities to have discussions with peers and experts. Doctoral students are also encouraged to take up self-study courses and discuss their understanding with the mentor / doctoral committee on a regular basis.

The courses offered by HBNI invariably have tutorials and assignments that help students in problem-solving. Recently, HBNI has launched "HBNI Research Scholar Forum" in order to advance/promote academic links between the research scholars

of HBNI and to provide them a platform to grow their skills in communication, management and organizational domains. Webinars by HBNI students across all its CIs/OCC are conducted regularly under this forum.

A detailed description of Student centric methods followed by the institution is provided in the attached supporting document. Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C2/m2_3_1/

File Description	Documents
Upload relevant supporting document	View File

2.3.2 - Teachers use ICT enabled tools including online resources for effective teaching and learning processes during the year

This is the age of digital learning- while conventional blackboard teaching has still its merits, the techniques of teaching have evolved in digital format, with the availability of several types of ICT resources, offering several advantages. All the institutions of HBNI have implemented ICT based teaching. Classrooms are equipped with LCD projector facility and internet connectivity. The CIs/OCC have auditorium with state-of-the art facilities for projection and recording. The CIs are linked with HBNI central office by videoconferencing, through a dedicated network "Anunet". At the Central Office, two videoconferencing facilities exist which have been extensively used in the past year to organise value added courses, webinars, doctoral committee meetings, credit seminars, etc.

Faculty members of HBNI use online resources for effective teaching and learning. Some CIs have established multi-functional facilities to handle video conferencing and web streaming, Video recordings and meetings. These have enhanced the impact of teaching in the sense that students from other CIs can also benefit from such lecture programs.

A detailed description on the ICT enabled tools and online resources used by the institution for effective teaching and learning processes is provided in the attached supporting document. Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C2/m2_3_2/

File Description	Documents
Upload relevant supporting document	View File

2.3.3 - Ratio of students to mentor for academic and other related issues during the year

2.3.3.1 - Number of mentors

852

File Description	Documents
Upload relevant supporting document	View File

2.4 - Teacher Profile and Quality

2.4.1 - Total Number of full time teachers against sanctioned posts during the year

1219

File Description	Documents
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Upload the data template	View File
Upload relevant supporting document	View File
2.4.2 - Total Number of full time teachers with Ph.D./D.M/M.Ch./D.N.B Superspeciality/D.Sc./D’Lit. during the year	
1067	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
2.4.3 - Total teaching experience of full time teachers in the same institution during the year	
2.4.3.1 - Total experience of full-time teachers	
10403	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
2.4.4 - Total number of full time teachers who received awards, recognition, fellowships at State, National, International level from Government/Govt. recognised bodies during the year	
65	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
2.5 - Evaluation Process and Reforms	
2.5.1 - Number of days from the date of last semester-end/ year- end examination till the declaration of results during the year	
63	
2.5.1.1 - Number of days from the date of last semester-end/ year- end examination till the declaration of results year wise during the year	
63	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File

2.5.2 - Total number of student complaints/grievances about evaluation against total number appeared in the examinations during the year

2

File Description	Documents
Upload relevant supporting document	View File

2.5.3 - IT integration and reforms in the examination procedures and processes (continuous internal assessment and end-semester assessment) have brought in considerable improvement in examination management system of the institution

The examination process adopted at HBNI has a high degree of flexibility, ranging from closed book, closed notes exams to open book, indefinite time exams. This flexibility has helped in tapping creative potentials among students. The examination system for the Ph.D students ensures that the student acquires a broad base of knowledge related to his field of work, and originality and innovation in the research. An Open General Comprehensive Examination after completion of the coursework, annual reviews by a student-specific doctoral committee, an open pre-synopsis viva to confirm adequate quantity and quality of work and independent, critical and robust evaluation of the thesis ensure the quality of the research as well as that of the thesis.

The progress of learning for M. Tech/ PGDNS programs is regularly assessed through assignments, presentations, and periodic examinations. The examination process has been streamlined with the introduction of several measures such as a monitoring system for tracking the receipt of results and online communication to students of the updated results.

A detailed description on the procedures adopted for improvement in examination management system of the institution is provided in the attached supporting document. Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C2/m2_5_3/

File Description	Documents
Upload relevant supporting document	View File

2.5.4 - Status of automation of Examination division along with approved Examination Manual

A. 100% automation of entire division & implementation of Examination Management System (EMS)

File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File

2.6 - Student Performance and Learning Outcomes

2.6.1 - The institution has stated learning outcomes (generic and programme specific)/graduate attributes which are integrated into the assessment process and widely publicized through the website and other documents

The academic programmes offered by HBNI can be divided into three categories: Professional programmes (M.Tech., PG Diploma, DipRP, MD, DM, M.Ch., M.Sc. (Nursing), DMRIT etc.), Research orientated programmes (M.Sc.(Engg), M.Phil., Integrated Ph.D. and Ph.D.), and Science education programmes (integrated M.Sc. and M.Sc.). Many of the programmes are conducted at more than one Constituent Institutions (CIs)/ Off-Campus Centre (OCC). In every case, the design of the

programmes aims at a wholesome development of the student, preparing him/her to undertake a challenging career.

Professional programmes (PG Diploma and M. Tech.) offered by HBNI prepare students for a lifelong career in DAE, including working for large hi-tech projects, undertaking activities such as design, construction, quality assurance or operation. The programme outcomes (POs) and the programme specific outcomes (PSOs) are therefore, in line with the DAE mission and strategic projects. Accordingly, all the courses offered and their projected outcomes are also in conformity with DAE requirements.

A detailed description on the learning outcomes of the institution is provided in the attached supporting document. Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C2/m2_6_1/

File Description	Documents
Upload relevant supporting document	View File

2.6.2 - Attainment of Programme outcomes, Programme specific outcomes and course outcomes are evaluated by the institution during the year

HBNI is a Research University established by DAE as an academic tool to develop indigenous strengths in nuclear science and technology. HBNI and DAE have been closely monitoring the results of the academic programs to assess whether the mandates have been met by the programs. Parameters such as publications in journals and development of new processes and products for the Department's program and for societal needs have been taken as broadly indicative of the attainment of the objectives of the academic program. In the context of HBNI as a Deemed University, the methodology to be adopted for measuring the level of attainment of POs, PSOs and COs in quantitative terms was discussed in the IQAC, and based on its suggestions, a methodology based on the aggregate percentage of marks/CGPA was adopted for the measurement, except for the Research Orientated Programmes. It was decided to consider all POs, PSOs and COs in the particular programme to be of equal weightage and the attainment level in POs, PSOs and COs as equal to the programme level attainment.

A detailed description on the methodology to calculate POs, PSOs and COs is provided in the attached supporting document. Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C2/m2_6_2/

File Description	Documents
Upload relevant supporting document	View File

2.6.3 - Number of students passed during the year

2.6.3.1 - Total number of final year students who passed the university examination during the year

587

File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File

2.7 - Student Satisfaction Survey

2.7.1 - Student Satisfaction Survey (SSS) on overall institutional performance (Institution may design its own questionnaire) (results and details need to be

provided as a web link)

http://www.hbni.ac.in/aqar/2023/C2/m2_7_1/Student_satisfaction_survey.pdf

RESEARCH, INNOVATIONS AND EXTENSION

3.1 - Promotion of Research and Facilities

3.1.1 - The institution Research facilities are frequently updated and there is well defined policy for promotion of research which is uploaded on the institutional website and implemented

The CIs/OCC of HBNI are organizations with a long tradition of research in frontier areas of science and technology, particularly related to nuclear energy. All CIs/OCC have a strong component of research in addition to education and training. A significant fraction of students of HBNI are in fact, research scholars pursuing Ph.D and other research based programs. Research is pursued with sophisticated instruments and complex experimental facilities are set up in house for specific research programs. Being at the forefront of research in the country as well as globally, the organizations under the umbrella of HBNI update their experimental facilities on a regular basis, based on the research needs and the research problems selected are based on the mission of the individual CIs/OCC. However, since the funding for research is given by DAE, the broad contour of programs is also approved by DAE. Thus, the overall research promotion policy is decided by DAE.

An elaborated description on the research promotion policy adopted by HBNI is provided in the attached supporting document. Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C3/m3_1_1/

File Description	Documents
Upload relevant supporting document	View File

3.1.2 - The institution provides seed money to its teachers for research (amount INR in Lakhs)

0

File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File

3.1.3 - Number of teachers receiving national/ international fellowship/financial support by various agencies for advanced studies/ research during the year

19

File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File

3.1.4 - Number of JRFs, SRFs, Post-Doctoral Fellows, Research Associates and other research fellows enrolled in the institution during the year

2411	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
3.1.5 - Institution has the following facilities to support research Central Instrumentation Centre Animal House/Green House Museum Media laboratory/Studios Business Lab Research/Statistical Databases Moot court Theatre Art Gallery	A. Any 4 or more of the above
File Description	Documents
Upload relevant supporting document	View File
3.1.6 - Number of departments with UGC-SAP, CAS, DST-FIST, DBT, ICSSR and other recognitions by national and international agencies during the year	
7	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
3.2 - Resource Mobilization for Research	
3.2.1 - Extramural funding for Research (Grants sponsored by the non-government sources such as industry, corporate houses, international bodies for research projects) endowments, Chairs in the University during the year (INR in Lakhs)	
5593.2	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
3.2.2 - Grants for research projects sponsored by the government agencies during the year (INR in Lakhs)	
64667.64	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
3.2.3 - Number of research projects per teacher funded by government and non-government agencies during the year	

0.47	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
3.3 - Innovation Ecosystem	
3.3.1 - Institution has created an eco-system for innovations including Incubation centre and other initiatives for creation and transfer of knowledge	
<p>HBNI has under its academic umbrella eleven institutions of DAE as its CIs/off-campus centre (OCC). Out of these, seven are grant-in-aid institutes of DAE, most of which are engaged in fundamental research (eg. HRI, IMSc, IOP, SINP) or education programmes at MSc level (NISER, HRI) or medical research (TMC). Due to the mandates of these institutions, activities in these institutions are not oriented to technology development. In the DAE units under HBNI (BARC, IGCAR, VECC and RRCAT), although there is no emphasis on technology incubation, other initiatives for creation, transfer and exploitation of knowledge are pursued vigorously. One of the mandates of HBNI is to develop knowledge base and technology solutions for indigenous development of nuclear science and technology, and thus the results of research work of HBNI students in DAE units is often directly relevant to DAE's own programs. Such developments get converted into technologies and products in the industrial units, commercial unit and public sector companies under DAE, which thus play the role of incubation as well as implementation centres.</p> <p>A detailed description on the incubation centres and other initiatives under HBNI for the creation and transfer of knowledge is provided in the attached supporting document. Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C3/m3_3_1/</p>	
File Description	Documents
Upload relevant supporting document	View File
3.3.2 - Number of workshops/seminars conducted on Research Methodology, Intellectual Property Rights (IPR), Entrepreneurship and Skill Development during the year	
5	
3.3.2.1 - Total number of workshops/seminars conducted on Research methodology, Intellectual Property Rights (IPR), entrepreneurship, skill development year wise during the year	
5	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
3.3.3 - Number of awards / recognitions received for research/innovations by the institution/teachers/research scholars/students during the year	

3.3.3.1 - Total number of awards / recognitions received for research/innovations won by institution/teachers/research scholars/students year wise during the year	
89	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
3.4 - Research Publications and Awards	
3.4.1 - The institution ensures implementation of its stated Code of Ethics for research	
3.4.1.1 - The institution has a stated Code of Ethics for research and the implementation of which is ensured through the following	
<ol style="list-style-type: none"> 1. Inclusion of research ethics in the research methodology course work 2. Presence of institutional Ethics committees (Animal, chemical, bio-ethics etc) 3. Plagiarism check 4. Research Advisory Committee 	A. All of the above
File Description	Documents
Upload relevant supporting document	View File
3.4.2 - The institution provides incentives to teachers who receive state, national and international recognitions/awards Commendation and monetary incentive at a University function Commendation and medal at a University function Certificate of honor Announcement in the Newsletter / website	
	D. Any 1 of the above
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
3.4.3 - Number of Patents published/awarded during the year	
3.4.3.1 - Total number of Patents published/awarded year wise during the year	
14	
File Description	Documents
Upload the data template	View File

Upload relevant supporting document	View File
3.4.4 - Number of Ph.D's awarded per teacher during the year	
3.4.4.1 - How many Ph.D's are awarded during the year	
218	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
3.4.5 - Number of research papers per teacher in the Journals notified on UGC website during the year	
2	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
3.4.6 - Number of books and chapters in edited volumes published per teacher during the year	
3.4.6.1 - Total number of books and chapters in edited volumes / books published, and papers in national/international conference-proceedings during the year	
296	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
3.4.7 - E-content is developed by teachers For e-PG-Pathshala For CEC (Under Graduate) For SWAYAM For other MOOCs platform For NPTEL/NMEICT/ any other Government Initiatives For Institutional LMS	B. Any 4 of the above
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
3.4.8 - Bibliometrics of the publications during the year based on average Citation Index in Scopus/ Web of Science/PubMed	

Scopus	Web of Science	
3.392	Web of science is not available at HBNI	
File Description		Documents
Any additional information		View File
Bibliometrics of the publications during the year		View File
3.4.9 - Bibliometrics of the publications during the year based on Scopus/ Web of Science - h-Index of the University		
Scopus	Web of Science	
147.75	Web of science is not available at HBNI	
File Description		Documents
Bibliometrics of publications based on Scopus/ Web of Science - h-index of the Institution		View File
Any additional information		View File
3.5 - Consultancy		
3.5.1 - Institution has a policy on consultancy including revenue sharing between the institution and the individual and encourages its faculty to undertake consultancy		
<p>DAE strongly encourages sharing of knowledge base and expertise through consultancy. The CIs of HBNI have a large pool of talent with great expertise in several unique domains that are of high value to other national missions such as space and defence, industries and society at large. The faculty in DAE units offer consultancy to several national programs. BARC also offers consultancy to farmers and other private entities to set up food irradiators, NISARGRUNA biogas plants, production of high yielding / salt tolerant crop varieties, etc (for details refer to https://technologies.britatom.gov.in/licensees/agriculture-bioscience). The Grant-in-aid institutions of HBNI do engage in consultancy, and where applicable, they also permit faculty to receive a share of the revenue (eg. NISER). The R&D Manual of NISER, available at the link below, explicitly indicates the policy of consultancy, including sharing of revenue with faculty. https://www.niser.ac.in/docs/rnd-manual.pdf As per this policy, a consultation fee / honorarium can be paid to the faculty members and supporting staff of the institute engaged in the project, up to a maximum of 40% of the cost of the project.</p>		
File Description		Documents
Upload relevant supporting document		View File
3.5.2 - Revenue generated from consultancy and corporate training during the year (INR in Lakhs)		
3.5.2.1 - Total amount generated from consultancy and corporate training during the year (INR in lakhs)		
29.58		

File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
3.6 - Extension Activities	
3.6.1 - Extension activities in the neighbourhood community in terms of impact and sensitising students to social issues and holistic development during the year	
<p>CIs/OCC of HBNI has a long tradition of interacting with the community in the neighbourhood. The faculty of HBNI takes pride in extending their knowledge base to train and educate the community, through a large number of professional bodies that are functional in these organizations. Faculty also participates as resource persons in the extension/outreach programs organized by DAE across the country. HBNI and its CIs organizes several webinars and online educational courses in addition to educational visits of students to CIs or outreach activities as part of dissemination of knowledge to school/college /teachers across the educational institutes in the country. Some of the outreach programmes conducted by HBNI and its CIs during the academic year 2022-2023 are provided in the following link; http://www.hbni.ac.in/aqar/2023/C3/m3_6_1/</p>	
File Description	Documents
Upload relevant supporting document	View File
3.6.2 - Number of awards received by the Institution, its teachers and students from Government /Government recognised bodies in recognition of the extension activities carried out during the year	
3.6.2.1 - Total number of awards and recognition received for extension activities from Government / Government recognised bodies during the year	
6	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
3.6.3 - Number of extension and outreach programs conducted by the institution including those through NSS/NCC/Red cross/YRC during the year(including Government initiated programs such as Swachh Bharat, Aids Awareness, Gender Issue, etc. and those organised in collaboration with industry, community and NGOs)	
201	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
3.6.4 - Total number of students participating in extension activities listed at 3.6.3 above during the year	
4358	

File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File

3.7 - Collaboration

3.7.1 - Number of collaborative activities with other institutions/ research establishment/industry for research and academic development of faculty and students during the year

3.7.1.1 - Total number of Collaborative activities with other institutions/ research establishment/industry for research and academic development of faculty and students during the year

86

File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File

3.7.2 - Number of functional MoUs with institutions/ industries in India and abroad for internship, on-the-job training, project work, student / faculty exchange and collaborative research during the year

43

File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File

INFRASTRUCTURE AND LEARNING RESOURCES

4.1 - Physical Facilities

4.1.1 - The institution has adequate facilities for teaching - learning. viz., classrooms, laboratories, computing equipment, etc.

All the eleven CIs/OCC of HBNI have adequate state-of-the art teaching-learning facilities. The BARC Training School, Mumbai has sprawling building with 14 classrooms and six lecture halls which are equipped with LCD facilities and internet connection over the BARC LAN. There are two computer laboratories exclusively for students. There is a Process Control Laboratory and a Nuclear Physics Laboratory in the building. Additionally, students have access to more than 150 laboratories in BARC to carry out laboratory work. The BARC Training school at IGCAR operates in a dedicated complex with classrooms provided with thin Client, Projector and LAN facility.

In HRI, there are 10 classrooms and discussion rooms equipped with projector based teaching facility and ICT facilities. There are state-of-art laboratories and a high performance Cluster Computation Facility for scientific computing. The hostels too have Wi-Fi connectivity. An extensive report on the teaching and learning facilities available in the CIs of HBNI is provided in the attached supporting document. Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C4/m4_1_1/

File Description	Documents
Upload relevant supporting document	View File

4.1.2 - The institution has adequate facilities for cultural activities, yoga, games (indoor, outdoor) and sports. (gymnasium, yoga centre, auditorium, etc.)

All the CIs/OCC have excellent facilities for sports, yoga and cultural activities. For the sake of brevity, facilities available in some of the institutions are described below. A majority of the students and the faculty of BARC stay in Anushakti Nagar. The colony has many Badminton courts, Tennis courts, Basket Ball court, Cricket grounds, Football grounds, and multi-purpose halls for indoor games and yoga. There are two community halls for cultural activities. In addition, DAE Convention Centre is used to organize seminars/conferences beside conducting many cultural activities. All these facilities are open for use by students. HRI encourages sports by providing excellent facilities to the students, faculty, non-teaching staff and postdocs. It has facilities for many indoor/ outdoor sports facilities, viz. badminton court, table tennis facility, swimming pool, football ground, cricket ground, gymnasium, track and field (400 metres), volleyball court, etc. There is a well-equipped community centre for recreational purpose. There is a lounge area in guesthouse where yoga classes are held regularly. Many outdoor games are also organized in football ground. The details of facilities available for the cultural and sports activities at the different CIs of HBNI are provided in the attached supporting document. Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C4/m4_1_2/

File Description	Documents
Upload relevant supporting document	View File

4.1.3 - Availability of general campus facilities and overall ambience

The CIs/OCC of HBNI is world class institutions with excellent campus facilities and related infrastructure. Many of them are situated in tranquil locations with natural plenteousness, and great emphasis is placed on maintenance of the campus facilities with highest standards. The Central Office of HBNI is situated in Anushakti Nagar which is one of the residential townships of DAE. The CIs and OCC, especially the DAE units, have extensive complexes with lush green landscape spread with clean wide internal roads having adequate lighting. The campuses of DAE units are guarded 24 x7. The overall ambience of BARC is awe-inspiring, with buildings of unique world class architecture (eg. the Modular Laboratories building which is one of the longest buildings of such kind). There are 1430 species of plants in BARC campus, which reflects the excellent floral and plants diversity. The campuses of the CIs/OCC also have auditoria of different capacities, post-office, bank, dispensary, several canteens, a co-op. society, etc. The details of general

campus facilities and overall ambience present at various CIs of HBNI are provided in the attached supporting document. Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C4/m4_1_3/	
File Description	Documents
Upload relevant supporting document	View File
4.1.4 - Total expenditure excluding salary for infrastructure augmentation during the year (INR in Lakhs)	
49845.94	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
4.2 - Library as a Learning Resource	
4.2.1 - Library is automated using Integrated Library Management System (ILMS) and has digitisation facility	
<p>The CIs and OCC of HBNI possess large libraries with extensive collection of books, reports and other documents. They are fully automated using Integrated Library Management System. While some of the CIs are using Libsys, several of the CIs have migrated to KOHA Library Management System. BARC Central Library is one of the most comprehensive and biggest of its kind in Asia with a collection of more than 7,00,000 documents including 1,10,000 books and 1,50,000 bound volumes on fields related to nuclear science and technology. Automation of the library services in BARC uses barcode-based check-in and check-out of documents and computer-based library management and upgradation of ILMS with all modules like Acquisition, Cataloguing, Circulation, Serials, OPAC (Online Public Access Catalogue), etc. In 2012, an ISO15693 / 18000-3 compliance based 13.56 MHz RFID System was implemented and integrated with the then existing ILMS. Currently this system is being extensively used by the readers with Self-Kiosk RFID system. RFID technology using Hand-held Stock/Inventory System, Staff stations for RFID tagging, etc., have improved the efficiency of the library services. A comprehensive description on the automation of library facilities at the CIs of HBNI is provided in the attached supporting document. Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C4/m4_2_1/</p>	
File Description	Documents
Upload relevant supporting document	View File
4.2.2 - Institution has subscription for e-Library resources Library has regular subscription for the following: e - journals e-books e-ShodhSindhu Shodhganga Databases	A. Any 4 or all of the above
File Description	Documents
Upload relevant supporting document	View File
4.2.3 - Annual expenditure for purchase of books/ e-books and subscription to journals/e-journals during the year (INR in Lakhs)	
6593.571748	

File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
4.2.4 - Number of usage of library by teachers and students per day (foot falls and login data for online access)	
3276	
File Description	Documents
Upload relevant supporting document	View File
4.3 - IT Infrastructure	
4.3.1 - Number of classrooms and seminar halls with ICT - enabled facilities such as LCD, smart board, Wi-Fi/LAN, audio video recording facilities during the year	
182	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
4.3.2 - Institution has an IT policy, makes appropriate budgetary provision and updates its IT facilities including Wi-Fi facility	
<p>The CIs/ OCC of HBNI are all research institutions of high eminence, pursuing a large variety of research programs in different disciplines. Some of them have very large number of staff, which makes it very important to have a campus wide network of IT facilities to enable academic as well as administrative processes. All CIs of HBNI also pursue computational and modelling activities as part of their research, for which the IT infrastructure is essential. Due to security reasons, the network in some of the institutions are restricted with regard to access. However, in many of the CIs, Wi-Fi facility is available across the campus. All CIs/OCC of HBNI have set up and periodically upgraded their IT facilities through funding made available by DAE. A comprehensive report on the IT policy of the institution and the IT facilities at the CIs of the institute is provided in the attached supporting document. Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C4/m4_3_2/</p>	
File Description	Documents
Upload relevant supporting document	View File
4.3.3 - Student - Computer ratio during the year	
Number of students	Number of Computers available to students for academic purposes
4745	5120
4.3.4 - Available bandwidth of internet connection in the Institution (Leased)	• ≥ 1 GBPS

line)	
File Description	Documents
Upload relevant supporting document	View File
4.3.5 - Institution has the following Facilities for e-content development Media centre Audio visual centre Lecture Capturing System(LCS) Mixing equipment's and softwares for editing	A. All of the above
File Description	Documents
Upload relevant supporting document	View File
Upload the data template	View File
4.4 - Maintenance of Campus Infrastructure	
4.4.1 - Total expenditure incurred on maintenance of physical facilities and academic support facilities excluding salary component during the year	
30958.04	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
4.4.2 - There are established systems and procedures for maintaining and utilizing physical, academic and support facilities - laboratory, library, sports complex, computers, classrooms etc.	
<p>The CIs/OCC of HBNI have world class academic and physical infrastructure in terms of laboratory facilities, library, computing systems, etc., and also other supporting facilities such as hostels and sports complexes. High emphasis is placed on maintenance of these facilities and periodic upgradation so that the productivity of the organisations is sustained and improved. Every CI/OCC has set up dedicated administrative structures for this purpose. In larger CIs (eg. BARC, IGCAR), a separate Division looks after the library or computation facilities. Maintenance of computers and attending to the breakdown / repair issues is done by contract.</p> <p>The Scientific & Information Resource Divisions in CIs, eg. BARC,IGCAR and RRCAT look after the library facilities, including periodic refurbishment, renewal of contracts and utilization of the library. The larger CIs/OCC also have a Human Resource Development Division which also looks after the classroom infrastructure, and technica</p>	
File Description	Documents
Upload relevant supporting document	View File
STUDENT SUPPORT AND PROGRESSION	
5.1 - Student Support	

5.1.1 - Total number of students benefited by scholarships and free ships provided by the institution, Government and non-government agencies (NGOs) during the year (other than the students receiving scholarships under the government schemes for reserved categories)	
4041	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
5.1.2 - Total number of students benefited by career counselling and guidance for competitive examinations offered by the Institution during the year	
321	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
5.1.3 - Following Capacity development and skills enhancement initiatives are taken by the institution Soft skills Language and communication skills Life skills (Yoga, physical fitness, health and hygiene) Awareness of trends in technology	A. All of the above
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
5.1.4 - The Institution adopts the following for redressal of student grievances including sexual harassment and ragging cases Implementation of guidelines of statutory/regulatory bodies Organisation wide awareness and undertakings on policies with zero tolerance Mechanisms for submission of online/offline students' grievances Timely redressal of the grievances through appropriate committees	• All of the above
File Description	Documents
Upload relevant supporting document	View File
5.2 - Student Progression	
5.2.1 - Number of students qualifying in state/ national/ international level examinations during the year (eg:NET/SLET/GATE/GMAT/CAT/ GRE/TOEFL/Civil Services/State government examinations)	
5.2.1.1 - Number of students who qualified in state/ national/ international examinations (e.g.: IIT-JAM/NET/SET/JRF/ GATE /GMAT /CAT/ GRE/ TOEFL/Civil Services/State government examinations) during the year	

32

File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File

5.2.2 - Total number of placement of outgoing students during the year

521

File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File

5.2.3 - Number of recently graduated students who have progressed to higher education (previous graduating batch) during the year

235

File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File

5.3 - Student Participation and Activities**5.3.1 - Number of awards/medals won by students for outstanding performance in sports/cultural activities at inter -university/state/national/international events (award for a team event should be counted as one) during the year**

37

File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File

5.3.2 - Presence of Student Council and its activities for institutional development and student welfare

HBNI believes that participative decision making can be a significant factor in Institute's success. By motivating the students in active participation in decision making, the Institute runs more efficiently and is more effective at achieving its objectives and goals. Accordingly, as part of good practices followed by HBNI, students are involved in various decision making processes of the CIs and OCC of HBNI and find representation in various committees set up the CIs/OCC. The unique aspect of HBNI is that students of HBNI are spread over ten different Constituent Institutions and one Off-campus Centre. Also, a significant fraction of HBNI students (approx. one third) are Ph.D students, who receive individual attention through the Doctoral Committees. Therefore, involvement of students in various activities varies from CI to CI depending upon the profile of the students and the academic programs run in the respective CI/OCC. The

details of student council and its activities in the different CIs of HBNI are provided in the attached supporting document. Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C5/m5_3_2/

File Description	Documents
Upload relevant supporting document	View File

5.3.3 - Number of sports and cultural events / competitions organised by the institution during the year

82

File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File

5.4 - Alumni Engagement

5.4.1 - The Alumni Association/Chapters (registered and functional) contributes significantly to the development of the institution through financial and other support services during the year

HBNI is a research university and a predominant fraction of its students are research scholars. Alumni of HBNI have occupied several key positions, particularly in academics. Several alumni are leading R&D programs in DAE units and mission oriented activities such as nuclear reactor design, development of fuel cycle, mining of nuclear materials, etc. The alumni of HBNI have also provided leadership to professional bodies. Many of the CIs/OCC of HBNI maintain an active alumni program, regularly interact with them through email networks, track their progress and invite them to programs organised in the institution so that the current students can be inspired by the interactions. The DAE units under HBNI being central government funded national laboratories, do not have any provision for accepting the financial and non-financial contribution from alumni towards the development of the institute. However, some of the CIs/OCC, which are Grant-in-aid institutes of DAE, do obtain financial support from the Alumni for various programs in the respective institutions. A detailed description on the Alumni Association and its activities at different CIs of HBNI is provided in the attached supporting document. Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C5/m5_4_1/

File Description	Documents
Upload relevant supporting document	View File

5.4.2 - Alumni contribution during the year (INR in Lakhs)

E. <1Lakhs

File Description	Documents
Upload relevant supporting document	View File

GOVERNANCE, LEADERSHIP AND MANAGEMENT

6.1 - Institutional Vision and Leadership

6.1.1 - The institution has a clearly stated vision and mission which are reflected in its academic and administrative governance

HBNI was established with the mission of contributing to the development of indigenous nuclear technological capability through the pursuit of excellence in academic programs in sciences (including engineering sciences) and mathematics. The vision of HBNI is:

- i) To provide an academic framework for integrating basic research with technology development.
- ii) To encourage inter-disciplinary research.
- iii) To nurture an environment for attracting high quality manpower in the sciences including engineering sciences to take up a career in nuclear science and technology and related areas.

In line with the mission and vision, HBNI has pursued a path of excellence that has provided very valuable, large body of research work, and created human resources of high caliber, that have greatly aided in the development of nuclear science and technology in the country. This has been made possible by the unique Governance structure of HBNI. To deal with the diversity of academic programs and R&D goals of the CIs and OCC, HBNI has set up a unique distributed academic governance mechanism. Detailed description on the academic governance mechanism followed at HBNI is provided in the attached supporting document. Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C6/m6_1_1/

File Description	Documents
Upload relevant supporting document	View File

6.1.2 - The effective leadership is reflected in various institutional practices such as decentralization and participative management

HBNI is a unique research University, integrating the academic strengths of ten CIs and one Off-campus Centre, each having its own mission and areas of research specialization. To achieve success in its programs, HBNI has to account for the diversity and at the same time to synergize the strengths of its CIs/OCC. To meet this requirement, the organizational structure of HBNI is indeed truly decentralized. The responsibilities for activities such as selection and admission of students, payment of fellowships, guidance and monitoring of progress of students, redressal of grievances of students, organization of exams and providing hostel accommodation are under the purview of the CI/OCC. The Director of the CI/OCC provides overall guidance to the academic programs at the CI and sets up necessary organizational structures for the conduct of the academic programs with rigor. Discipline specific Standing Academic Committees are set up at each CI which evaluate research proposal, allocate guide, prescribe the course work for the students and also forms the Doctoral Committee. A comprehensive description on effective leadership, reflected in various institutional practices of HBNI is provided in the attached supporting document. Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C6/m6_1_2/

File Description	Documents
Upload relevant supporting document	View File

6.2 - Strategy Development and Deployment

6.2.1 - The institutional Strategic plan is effectively deployed

One of the elements of the strategic plan of HBNI is to introduce additional academic programs focused on skill and professional development. HBNI endeavors to create and organize courses and programs that meet growing requirements of nuclear science and engineering and their applications for the benefit of the country. These programs benefit not only employees of DAE units, but also the practicing professionals in industries and other institutions. HBNI has also initiated important professional and skill-based programs and strengthened on-going professional courses. Some examples

of the professional courses introduced by HBNI are given below:

- Introduction of MSc (Radiopharmacy) course: The course is introduced in RMC-BARC, which is a skill-based course and provides opportunities to the students to develop knowledge, understanding and skills in principles and practice of radiopharmaceutical science and equips them to work as a radiopharmaceutical scientist.
- Introduction of MSc (Occupational Therapy in Oncology) course: The primary focus of this course introduced at TMC is to gain advanced clinical practice in oncology care and acquire insight and experience regarding occupational therapy's role in the oncology setting, and demonstrate competency in clinical care for those undergoing cancer treatment.
- Introduction of MSc (Public Health and Epidemiology) course: This course is introduced at TMC and aims to familiarize the students to all the fields of public health and provide basic understanding of the principles and methods of public health epidemiology.

File Description	Documents
Upload relevant supporting document	View File

6.2.2 - The functioning of the institutional bodies is effective and efficient as visible from policies, administrative setup, appointment and service rules, procedures, etc.

HBNI is a Grant-in-aid Institute (GIA) of the DAE. HBNI integrates and regulates the academic activities carried out under 4 DAE units and seven GIAs. Each of these institutions is an organisation of high repute, and most of these have been established well before the formation of HBNI. To provide a high level of autonomy to these institutions to pursue their mandates, and at the same time to ensure adherence to common academic policies, a unique organisational structure has been devised by DAE. The apex body that oversees the functions of HBNI and provides overall guidance and directions, particularly in the domain of administration and finance is the Council of Management, headed by Secretary, DAE. This body ensures that the intent of formation of HBNI, and its adherence to Government guidelines and procedures, are ensured. To aid the Council of Management in the finance matters, a Finance Committee has been constituted, which is responsible for the budget of the institute and preparation of annual accounts, for submission to the Council of Management and thereafter to the Government. Detailed description on the functioning of the institutional bodies of HBNI is provided in the attached supporting document. Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C6/m6_2_2/

File Description	Documents
Upload relevant supporting document	View File

6.2.3 - Institution Implements e-governance in its areas of operations

6.2.3.1 - e-governance is implemented covering following areas of operation

1. Administration
2. Finance and Accounts
3. Student Admission and Support
4. Examination

A. All of the above

File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
6.3 - Faculty Empowerment Strategies	
6.3.1 - The institution has a performance appraisal system, promotional avenues and effective welfare measures for teaching and non-teaching staff	
<p>The CIs and OCC of HBNI are either DAE units or Grant-in-aid institutions of DAE. They follow a robust and transparent mechanism of appraisal of performance of the staff, as per DAE guidelines. The faculty as well as non-teaching staff provide an Annual Performance Appraisal Report (APAR) to the Department, as a part of the Annual Performance Appraisal System. The APAR is evaluated based on several attributes covering personal qualities, work output and functional competency, with weightage factors depending on the role played by staff member. The assessment by the immediate superior is reviewed by a reviewing officer and finally by the Head of the Group or the Head of the Unit. The APAR grading is conveyed to the officer reported upon and opportunity is given to make any representation with respect to the grading. A comprehensive report on the performance appraisal system,= promotional avenues and effective welfare measures at the institute is provided in the attached supporting document.Link to the attached supporting document is http://www.hbni.ac.in/aqar/2022/C6/m6_3_1/</p>	
File Description	Documents
Upload relevant supporting document	View File
6.3.2 - Total number of teachers provided with financial support to attend conferences / workshops and towards membership fee of professional bodies during the year	
340	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
6.3.3 - Number of professional development / administrative training Programmes organized by the institution for teaching and non-teaching staff during the year	
72	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
6.3.4 - Total number of teachers undergoing online/ face-to-face Faculty Development Programmes (FDP)during the year(Professional Development Programmes, Orientation / Induction Programmes Refresher Course, Short Term Course)	

103	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
6.4 - Financial Management and Resource Mobilization	
6.4.1 - Institutional strategies for mobilisation of funds and the optimal utilisation of resources	
<p>HBNI is a grant-in-aid institution (GIA) of DAE, Government of India, and is fully funded by DAE. HBNI and its CIs/OCC receive grants from DAE as per Government procedures and there is usually no need to look for additional financial resources. Funds for BARC, IGCAR, RRCAT and VECC, which are DAE units, are received from Central Government for Capital as well as Revenue Sectors through budget allocation provided by Ministry of Finance. Based on the gross allocations made by Ministry of Finance, DAE makes object head-wise allocations to its constituent Units based on which the expenditure is incurred by the DAE units. Commitments and Expenditure are monitored on a regular basis through Project Coordinators and Accounts Division. Any additional funds found to be required through such monitoring are sought for from DAE or excess fund is surrendered through re-appropriation at Final Requirement stage which is prepared in January each year. Thus, a robust system is in place for mobilization of funds and its optimal utilization. An elaborate description on the institutional strategies for mobilization of funds and the optimal utilization of resources is provided in the attached supporting document. Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C6/m6_4_1/</p>	
File Description	Documents
Upload relevant supporting document	View File
6.4.2 - Funds / Grants received from government bodies during the year for development and maintenance of infrastructure (not covered under Criteria III and V) (INR in Lakhs)	
905.94	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File
6.4.3 - Funds / Grants received from non-government bodies, individuals, philanthropists during the year for development and maintenance of infrastructure (not covered under Criteria III and V)(INR in Lakhs)	
1421.63	
File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File

6.4.4 - Institution conducts internal and external financial audits regularly

Homi Bhabha National Institute (HBNI) is a Grant-in-Aid Institution (GIA) of Department of Atomic Energy (DAE), Government of India, and is fully funded by DAE. The CIs / OCC of HBNI are either units of DAE, or grant-in-aid institutes of DAE. Thus, HBNI and its CIs/OCC receive grants from DAE as per Government procedures. The expenditures are incurred in the most optimum manner by following the guide lines issued by Ministry of Finance, Department of Atomic Energy and following all financial rules and Regulations of Government of India. In accordance with HBNI Financial Rules, 2014 Rule 2, the Institute adopts the General Financial Rules (GFR), Civil Account Manual for accounting the Grants-in-Aid received from DAE. Utilization Certificates are being furnished to DAE at the end of each financial year. Also, as per Rule 4 (a) of HBNI Financial Rules, 2014, HBNI is registered as a Charitable Institution under the Bombay (Mumbai) Public Trust Act, 1950 (Charity commission, Mumbai) and therefore, audited financial statements are being filed every year also with Charity Commission. More details on financial audits conducted at the institution is provided in the attached supplementary document. Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C6/m6_4_4/

File Description	Documents
Upload relevant supporting document	View File

6.5 - Internal Quality Assurance System

6.5.1 - Internal Quality Assurance Cell (IQAC) has contributed significantly for institutionalizing the quality assurance strategies and processes by constantly reviewing the teaching learning process, structures & methodologies of operations and learning outcomes at periodic intervals

Internal Quality Assurance Cell (IQAC) is a body of high importance in the University system. It serves as a sounding board for the management in its quest for excellence and helps to bring out quality improvements in several domains. The IQAC debates on a variety of subjects including teaching and learning processes, academic and physical infrastructure, student progression, faculty empowerment etc., and provides recommendation to the University to take appropriate steps. The academic and administrative structure of HBNI is unique. The CIs and OCC are administratively independent; they are also solely responsible for several academic functions such as selection and admission of students, infrastructure development and student support as first responders, proposal / revision of courses to support their mission programs, etc., at the same time following uniform, predominant guidelines arrived at the University level. The CIs and OCC accordingly have their own bodies / forums that look at quality improvements with regard to academics as well as administration. The quality improvements and the contributions made by IQAC during the current academic year is described in the attached supporting document. Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C6/m6_5_1/

File Description	Documents
Upload relevant supporting document	View File

6.5.2 - Institution has adopted the following for Quality assurance Academic Administrative Audit (AAA) and follow up action taken Confernces, Seminars, Workshops on quality conducted Collaborative quality initiatives with other institution(s) Orientation programme on quality issues for teachers and studens Participation in NIRF Any other quality audit recognized by state, national or international agencies (ISO Certification, NBA)

B. Any 4 of the above

File Description	Documents
Upload the data template	View File
Upload relevant supporting document	View File

6.5.3 - Incremental improvements made for the preceding during the year with regard to quality (in case of first cycle) Post accreditation quality initiatives(second and subsequent cycles)

1. The academic ordinances have been refined, with the objective of enhancing the clarity of academic processes (eg. Credit assignment), to cover all new programs introduced.
2. New value added /skill development courses have been introduced for the benefit of students.
3. Feedback from students, faculty, parents and alumni is sought which gives valuable inputs about the strengths and weaknesses of HBNI and areas for improvement.
4. Guidelines have been issued for the authorship of papers for faculty and students, and all these are checked for plagiarism.
5. A senior faculty member in each CI/OCC has been designated as Dean (Student Affairs) to coordinate the student affairs and provide them guidance with regard to administrative issues.
6. A formal program of induction of faculty has been introduced for the benefit of newly inducted faculties to brief them about the academic programs at HBNI.
7. The security features in the degree certificates were enhanced by incorporating QR code and the photograph of the student.
8. The declaration of results and issue of provisional degree certificate (PDC) has been made faster with Ph.D students getting their degree certificate within a few months after the completion of the Ph.D defense.
9. Implemented a few of the guidelines for HEIs as per NEP-2020, like the Industry Linkage Centre and Academic Break in Academic Programs.

File Description	Documents
Upload relevant supporting document	View File

INSTITUTIONAL VALUES AND BEST PRACTICES

7.1 - Institutional Values and Social Responsibilities

7.1.1 - Measures initiated by the Institution for the promotion of gender equity during the year

HBNI places high emphasis on gender equity takes several measures towards gender equity. The emphasis on gender equity is exemplified by the fact that the advertisement for BARC training School incorporates a specific statement that 'DAE strives to have a workforce who reflects gender balance and women candidates are encouraged to apply.' HBNI processes do not discriminate between genders. It is pertinent to record that nearly 20 % of the faculty of HBNI are women. All the CIs of HBNI are guarded by security and adequate number of female security personnel and female doctors are employed to attend to women employees and students. Every CI has a Women's cell as per Government guidelines, and they not only address concerns of women with regard to their safety or security, but also organize regular programs to provide exposure to women to their rights and privileges. Female researchers are permitted to avail maternity leave with corresponding extension to the academic tenure, so that the leave does not have any impact on their academic program. The campuses also have day care centres in the townships. HBNI women faculty members are deputed to women centric conferences particularly

those with themes related to women empowerment.	
File Description	Documents
Upload relevant supporting document	View File
Annual gender sensitization action plan(s)	http://www.hbni.ac.in/aqar/2023/C7/m7_1_1/
Specific facilities provided for women in terms of: a. Safety and security b. Counseling c. Common rooms d. Daycare Centre e. Any other relevant information	http://www.hbni.ac.in/aqar/2023/C7/m7_1_1/
7.1.2 - The Institution has facilities for alternate sources of energy and energy conservation Solar energy Biogas plant Wheeling to the Grid Sensor-based energy conservation Use of LED bulbs/ power-efficient equipment	A. Any 4 or All of the above
File Description	Documents
Upload relevant supporting document	View File
7.1.3 - Describe the facilities in the Institution for the management of the following types of degradable and non-degradable waste (within 200 words) Solid waste management Liquid waste management Biomedical waste management E-waste management Waste recycling system Hazardous chemicals and radioactive waste management	
<p>HBNI and all its CIs/OCC rigorously follow the effective waste management strategy i.e., reduce, reuse and recycle. Sewage treatment plants at IGCAR and BARC are aimed to manage the waste water discharged from quarters and Public Office Buildings. The treatment plants reduce the threat of water pollution and makes the best use of the sewage treated water for Gardening and thereby maintaining the green atmosphere in the Township.</p> <p>The biomedical waste at TMC is treated in-house using a Hydroclave before sending it for disposal.</p> <p>At BARC, solid as well as liquid chemical wastes with hazard potential are incinerated in a chemical incinerator. Radioactive liquid waste generated during experiments is collected and disposed by following stringent regulations of safety committees/AERB.</p> <p>Computers to be disposed are sold/auctioned to a Certified E-Waste Recycler. The computer center of NISER, Bhubaneshwar has taken a proactive approach towards the environmental sustainability by constituting a committee with representatives from almost every school/section of NISER to oversee an E-waste collection and disposal program in accordance with the E-waste management rule 2016 of the Ministry of Environment, Forest and Climate Change.</p>	
File Description	Documents
Upload relevant supporting document	View File
7.1.4 - Water conservation facilities available in the Institution: Rain water harvesting Bore well /Open well recharge Construction of tanks and bunds Waste water recycling Maintenance of water bodies and distribution system	A. Any 4 or all of the above

in the campus	
File Description	Documents
Upload relevant supporting document	View File
7.1.5 - Green campus initiatives include	
7.1.5.1 - The institutional initiatives for greening the campus are as follows:	
<ol style="list-style-type: none"> 1. Restricted entry of automobiles 2. Use of bicycles/ Battery-powered vehicles 3. Pedestrian-friendly pathways 4. Ban on use of plastic 5. Landscaping 	A. Any 4 or All of the above
File Description	Documents
Upload relevant supporting document	View File
7.1.6 - Quality audits on environment and energy are regularly undertaken by the institution	
7.1.6.1 - The institution's initiatives to preserve and improve the environment and harness energy are confirmed through the following:	
<ol style="list-style-type: none"> 1. Green audit 2. Energy audit 3. Environment audit 4. Clean and green campus recognitions/awards 5. Beyond the campus environmental promotional activities 	D. Any 1 of the above
File Description	Documents
Upload relevant supporting document	View File
7.1.7 - The Institution has a disabled-friendly and barrier-free environment	
Ramps/lifts for easy access to classrooms and centres. Disabled-friendly washrooms Signage including tactile path lights, display boards and signposts Assistive technology and facilities for persons with disabilities: accessible website, screen-reading software,mechanized equipment, etc. Provision for enquiry and information: Human assistance, reader, scribe, soft copies of reading materials, screen reading, etc.	A. Any 4 or all of the above
File Description	Documents
Upload relevant supporting document	View File

7.1.8 - Describe the Institutional efforts/initiatives in providing an inclusive environment i.e. tolerance and harmony towards cultural, regional, linguistic, communal, socio-economic and other diversities (within a maximum of 200 words)

HBNI as well as its CIs/OCC are under the umbrella of DAE and pursue all directives of the Government, including providing opportunity to all sections of the society. As an institute open to all, HBNI has only merit as its sole criterion in every process, and does not discriminate in any manner between students or faculty based on any factors such as region, community or language. The CIs/OCC of HBNI regularly organize cultural/outreach /extension programmes where students from diverse regions participate in a harmonious manner. Festivals of all regions are enthusiastically celebrated by all students and faculty. The pledge administered on the occasion of Sadhbhavana Diwas to all students and faculty clearly emphasises the commitment for emotional oneness and harmony. There are Hindi essay and poem competitions in which a large number of non-Hindi speaking members not only participate but win the top prizes also. Same is true for Marathi and other regional languages related events. BARC Staff club and other similar clubs in the CIs/OCC conduct several events which contribute significantly towards harmony among the diversity.

File Description

Documents

Upload relevant supporting document

[View File](#)

7.1.9 - Sensitization of students and employees of the institution to constitutional obligations: values, rights, duties and responsibilities of citizens:

The CIs and OCC of HBNI are either DAE units or Grant-in-aid institutions funded by DAE. Since all the CIs/OCC are under the umbrella of a Government organization, they fully abide by the mandates of the Government. Thus, HBNI not only develops outstanding scientists / engineers /medical & health specialists, but also focuses on inculcating the values required to groom the students as responsible citizens. The service rules of the employees at Central Office as well as the CIs/OCC are in line with Government rules, and therefore, the faculty, non-teaching staff and students are trained to follow due procedures with particular emphasis on probity and accountability. More details in this regard are provided in the attached supporting document. Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C7/m7_1_9/

7.1.10 - The Institution has a prescribed code of conduct for students, teachers, administrators and other staff and conducts periodic programmes in this regard. The Code of Conduct is displayed on the website There is a committee to monitor adherence to the Code of Conduct Institution organizes professional ethics programmes for students, teachers, administrators and other staff Annual awareness programmes on Code of Conduct are organized

Any 3 of the above

File Description

Documents

Upload relevant supporting document

[View File](#)

7.1.11 - Institution celebrates / organizes national and international commemorative days, events and festivals

HBNI and its CIs/OCC regularly celebrate national and international commemorative days and festivals, and organizes events and take great pride in celebrating them. The nationally important days are observed at the HBNI Central Office and across all CIs/OCC of HBNI by organizing special talks delivered by eminent scientific personalities, screening of documentaries, visit of school students to research facilities etc. An extensive write up on the celebration of national and international commemorative days such as Independence Day, Republic Day, Teachers' Day, Engineer's Day, National

Science Day, International Women's day as well as the foundation day of the institute celebrated by HBNI and its constitutional institutes during the reporting academic year is provided in the attached supporting document.

Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C7/m7_1_11/

File Description	Documents
Upload relevant supporting document	View File

7.2 - Best Practices

7.2.1 - Describe one best practice successfully implemented by the Institution as per NAAC format provided in the Manual

Title To make available the extensive and unique experimental facilities available with DAE Institutions for advanced research by HBNI students and faculty and also other Research Institutions/Universities. **Objectives**

HBNI possess unique, state-of-the art research facilities, such as nuclear reactors, accelerators, etc. HBNI aims to advance indigenous nuclear technological capability by making available these research facilities to the young research students. The Practice HBNI encourages faculty and students to take up research programs that make use of the immense experimental facilities available within DAE units. Some of the unique experimental facilities available are research reactors, accelerators, tokamaks, synchrotron, neutron spectrometers, large telescopes, laboratories for experiments with ultrapure / reactive/ radioactive materials, high temperature sodium test facilities, shake table for seismic simulations, facilities to study materials under extreme conditions, etc. Other advanced experimental facilities available in the CIs/OCC include crystal growth facilities, spectroscopic facilities, ultrafast chemistry, thin film deposition, plasma processing, laboratories for stress analysis, robotics and remote handling, etc. The students of HBNI from various CIs/OCC have access to such unique and complex experimental facilities and thus develop unique expertise in challenging experimentation. An elaborate description on the best practices followed at HBNI is provided in the attached supporting document. Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C7/m7_2_1/

7.3 - Institutional Distinctiveness

7.3.1 - Highlight the performance of the institution in an area distinct to its priority and thrust (within a maximum of 200 words)

Title: Advancement in Nuclear Science and Technology through Academic Programs. HBNI is a unique university and was established with the mission of encouraging pursuit of excellence in sciences that has major significance for the progress of indigenous nuclear technological capability. HBNI academic programmes not only provide human resource base for developing technologies relevant to nuclear power generation, but also address strategic sector and other national mission programs including health care and other societal sectors. The doctoral students have access to wide range of facilities ranging from tabletop set upto mega science facilities. The knowledge and skills acquired in HBNI academic programs by students empowers them to take up hi-tech projects including design, construction, quality assurance as well as operation of nuclear facilities. This approach has given India confidence to construct nuclear reactors, as well as entire range of fuel cycle facilities based on indigenous technology. The CIs/OCC of HBNI also pursue research in several frontline areas and applications of radiation and radioisotopes in different fields such as healthcare, industry, agriculture and food technology. Application of nuclear radiation technologies in health sciences is a success story, especially in the area of diagnosis and treatment of cancer.

7.3.2 - Plan of action for the next academic year

The plans of actions for the next academic year include the following:

1. Introduction of new academic programs, such as Integrated MD-PhD program, Integrated MSc in Computer Science, Integrated MSc in Earth and Planetary Sciences, Integrated MSc-PhD program in Life Sciences and MSc (Patient Navigation).
2. Introduction of additional skill-based courses, such as Fellowship in Paediatric Palliative Medicine and Fellowship in Cancer Cytogenetics.
3. Offering of unique courses from HBNI on NPTEL platform. The courses include i) Nuclear and Radiochemistry, ii) Environmental Studies, and iii) Disaster Management -Challenges in CBRNEM
4. Webinars on various important topics for the benefits of research scholars.
5. Creation of a Research and Development Cell at HBNI to identify thrust areas of research, to promote researchers and innovators, and to identify potential collaborators from industry, research organizations, academic institutions etc. This will also help to form a strong research and incubation group in the Department of atomic energy.
6. Designation of 'Professors of Practice' at HBNI to take help from professors from the other fields for the holistic development of the students. An elaborate description on the best practices followed at HBNI is provided in the attached supporting document. Link to the attached supporting document is http://www.hbni.ac.in/aqar/2023/C7/m7_3_2/