



Yearly Status Report - 2018-2019

Part A

Data of the Institution

Part A	
Data of the Institution	
1. Name of the Institution	HOMI BHABHA NATIONAL INSTITUTE
Name of the head of the Institution	Prof. P.R. VASUDEVA RAO
Designation	Vice Chancellor
Does the Institution function from own campus	Yes
Phone no/Alternate Phone no.	02225597638
Mobile no.	9566535738
Registered Email	registrar@hbni.ac.in
Alternate Email	vcoff@hbni.ac.in
Address	Homi Bhabha National Institute, a Deemed to be University, Grant-in-Aid Institute of the Department of Atomic Energy, Govt. of India 2nd Floor, Training School Complex Anushaktinagar Mumbai 400094
City/Town	Mumbai
State/UT	Maharashtra

Pincode	400094																		
2. Institutional Status																			
University	Deemed																		
Type of Institution	Co-education																		
Location	Urban																		
Financial Status	central																		
Name of the IQAC co-ordinator/Director	Prof. A.K. Dureja																		
Phone no/Alternate Phone no.	02225597629																		
Mobile no.	9969102829																		
Registered Email	registrar@hbni.ac.in																		
Alternate Email	dureja@hbni.ac.in																		
3. Website Address																			
Web-link of the AQAR: (Previous Academic Year)	http://www.hbni.ac.in/main/dsp_doc.html?nm=NAAC/agr2018.pdf																		
4. Whether Academic Calendar prepared during the year	Yes																		
if yes,whether it is uploaded in the institutional website: Weblink :	http://www.hbni.ac.in/students/dsp_file.html?nm=students/acdm_clndr.pdf																		
5. Accrediation Details																			
<table border="1"> <thead> <tr> <th rowspan="2">Cycle</th> <th rowspan="2">Grade</th> <th rowspan="2">CGPA</th> <th rowspan="2">Year of Accrediation</th> <th colspan="2">Validity</th> </tr> <tr> <th>Period From</th> <th>Period To</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>A</td> <td>3.53</td> <td>2015</td> <td>11-May-2015</td> <td>10-May-2020</td> </tr> </tbody> </table>						Cycle	Grade	CGPA	Year of Accrediation	Validity		Period From	Period To	1	A	3.53	2015	11-May-2015	10-May-2020
Cycle	Grade	CGPA	Year of Accrediation	Validity															
				Period From	Period To														
1	A	3.53	2015	11-May-2015	10-May-2020														
6. Date of Establishment of IQAC	27-Jun-2014																		
7. Internal Quality Assurance System																			
Quality initiatives by IQAC during the year for promoting quality culture																			

Item /Title of the quality initiative by IQAC	Date & Duration	Number of participants/ beneficiaries
HBNI Colloquium: On Doctoral Education, mentoring scholars for Tewenty first century (Prof. Surendra Prasad, Chairperson, NBA)	11-Jun-2018 1	45
Technical Lectures: The Idea of University (Prof. M.S. Ananth. ex-Director, IIT Madras, Chennai)	20-Aug-2018 1	45
Participation in NIRF exercise	20-Dec-2018 1	40
Revision of HBNI Ordinances	19-Dec-2018 1	65
Faculty Review and Assessment in the light of prescribed norms adopted as per the Academic Council	05-Dec-2018 1	273
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8. 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 with duration	Amount
No Data Entered/Not Applicable!!!				
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9. Whether composition of IQAC as per latest NAAC guidelines:

Yes

Upload latest notification of formation of IQAC

[View File](#)

10. Number of IQAC meetings held during the year :

1

The minutes of IQAC meeting and compliances to the decisions have been uploaded on the institutional website

Yes

Upload the minutes of meeting and action taken report

[View File](#)

11. Whether IQAC received funding from any of the funding agency to support its activities during the year?

Yes

If yes, mention the amount	5400000
Year	2018

12. Significant contributions made by IQAC during the current year(maximum five bullets)

(i) A coordinated effort to address the student matters, an online platform was designed for student applications submission, processing of student progress, continual review of the progress by the students etc. (ii) Participation in the AISHE survey, an important strategy for HBNI to consolidate the progress, achievements, outcomes. (iii) Regularly conduct talks, by eminent speakers on quality issues that impact the growth and development of the institution at large. (iv) Communication with all the key stakeholders in the CIs/ OCC regarding the national initiatives and of the statutory bodies, UGC, MHRD, DAE, MoEFCC and such other of the Government of India, which have helped in orientation of the quality aspects of the University. (v) Continual updation of Academic Ordinance and academic processes outlined for implementation in the Constituent Institutions and Off Campus Centre of HBNI.

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13. Plan of action chalked out by the IQAC in the beginning of the academic year towards Quality Enhancement and outcome achieved by the end of the academic year

Plan of Action	Achievements/Outcomes
Curriculum Design Delivery (a) Nuclear Law Security, Humanities for Engineering Sciences students, new specializations in MD programmes (in the revised credit format)	Certificate course in Nuclear Law and Safety is introduced in Aug. 2019, Courses in Humanities, English is introduced in OCC.
Flexibility in the curriculum (b) Addition of more elective courses for choice of students (c) Online courses	The students have the choice of NPTEL courses as part of the self study courses.
Innovations and Best Practices Improve and promote large number of inter disciplinary research projects	CIs/ OCC have engaged in promoting interdisciplinary research by introduction of Major and Minor subjects of study.
Digital learning resources	HBNI has repository of ICT lectures on variety of topics relevant to nuclear sciences engineering and technology on ePathshala, which is accessible for students all times.
Student Centric best practices	An Online platform for fee payment introduced, student enrolment and online application for registration for all courses is also introduced
Student Support Services	HBNI at the central level has issuing student Information Brochure, which contains information about all the programmes of study, duration, calendar

	of activities, contact details of all the central resources and a companion brochure from respective CIs/ OCC is also issued to students at the time of enrolment.
Extension and outreach activities in CIs/ OCC and National research Scholar meets	National research Scholar meet organized at IGCAR and RRCAT, wherein reserach fellows in various disciplines meet and share knolwedge and best practices, invited speakers also mentor the talks and research fellows
Assistance and grants for attending International seminars, symposium, scientific meeting in their areas of specializations	HBNI is extending financial assistance to students to present their research work in the international conference, HBNI is extending an effective and transparent policy to benefit all students for extending this financial assistance
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14. Whether AQAR was placed before statutory body ?	Yes
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Name of Statutory Body	Meeting Date
Council of Management	05-Dec-2018

15. Whether NAAC/or any other accredited body(s) visited IQAC or interacted with it to assess the functioning ?	No
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16. Whether institutional data submitted to AISHE:	Yes
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Year of Submission	2018
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Date of Submission	01-Feb-2019
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17. Does the Institution have Management Information System ?	Yes
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If yes, give a brief descripton and a list of modules currently operational (maximum 500 words)	HBNI has established a portal for managing the student profile credentials using a unique platform, an Integrated Management System (IMS), which has repository of student progress information viz., progress reports, Doctoral Committee reports, synopsis and results of the final viva examination. The Integrated Management System (IMS) has been designed and commissioned to maintain the database of all the students and faculty members
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of HBNI on a single platform. The IMS helps in managing credentials of students in regard to academic progress and maintain faculty members' information. It has been designed so that all the academic management is enabled on fast track mode. For management of this, hierarchal roles have been assigned to the functionaries e.g. VC, Dean, AssociateDeans, Dean Academics at CIs/OCC, Dean Students' Affairs, Registrar, Assistants, Students etc. Graded access has been given to all the users based on their functional role in the system e.g. a student shall access his data, while a Dean Academic of a particular discipline at CI/OCC can access data of all the students and faculty members connected to that particular discipline in the CI/OCC only. A guide can see details of all the students completed/pursuing a research programme under him/her. System Administrator can assign various roles to users of this system. A user can enter into this system through a secured login and password. To make the system more secure, once a person tries to log in to this system using the wrong password, after three attempts, the captcha is provided and if it gets two more attempts, the user is made inactive. In this case, the user needs to talk to the system administrator to make him/her active and reset his/her password. The system administrator can modify administrative parameters if needed. The system utilizes powerful database management, data retrieval and data manipulation. The system is very useful for generating reports for students as well as faculty members. At any point in time, one can generate reports by applying various filters. The filters have been provided for all major input parameters e.g. CI/OCC, discipline, programme name, gender, academic year, course completed/pursuing etc. The generated report can be saved in the form of an Excel sheet. The query filed for the generation of these reports can also be saved for future regeneration of the data with the same set of parameters. All the academic processes have been made online to make the process with limited paperwork. Assistants can

initiate enrolment process which goes through AssociateDean, Dean and for the final decision by the ViceChancellor. After approval by the ViceChancellor, enrolment number gets generated automatically. All certificates needed for students' enrolment and enrolment form are uploaded in the system. Faculty members can upload their academic outputs e.g. publications, awards etc. in the system. Students can upload their documents like Annual Progress Reports, OGCE report etc in their domain which is accessible to all the concerned persons/Central office for taking any decision.

Part B

CRITERION I – CURRICULAR ASPECTS

1.1 – Curriculum Design and Development

1.1.1 – Programmes for which syllabus revision was carried out during the Academic year

Name of Programme	Programme Code	Programme Specialization	Date of Revision
PhD or DPhil	PHYS04	PHYSICAL SCIENCES (NISER)	07/03/2019
PhD or DPhil	MATH04	MATHEMATICAL SCIENCES (NISER)	27/02/2019
PhD or DPhil	LIFE04	LIFE SCIENCES (NISER)	27/02/2019
PhD or DPhil	CHEM04	CHEMICAL SCIENCES (NISER)	27/02/2019
PhD or DPhil	APAS04	APPLIED SYSTEMS ANALYSIS (NISER)	27/02/2019
PhD or DPhil	CHEM04	CHEMICAL SCIENCES (BARC)	01/06/2018
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1.1.2 – Programmes/ courses focussed on employability/ entrepreneurship/ skill development during the Academic year

Programme with Code	Programme Specialization	Date of Introduction	Course with Code	Date of Introduction
PhD or DPhil	Soft skill programme (IGCAR)	01/08/2018	SS01	01/08/2018
Mtech	Executive Excellence Programme (BARC)	01/08/2018	SS02	01/08/2018
PG Diploma	Executive Excellence Programme (BARC)	01/08/2018	SS03	01/08/2018

PG Diploma	Medical Radio Isotope Techniques (TMC)	01/08/2018	HLTH07	01/08/2018
PG Diploma	Fusion Imaging Technology (TMC)	01/08/2018	HLTH16	01/08/2018
PG Diploma	Radiation Physics (BARC)	01/08/2018	HLTH11	01/08/2018
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1.2 – Academic Flexibility

1.2.1 – New programmes/courses introduced during the Academic year

Programme/Course	Programme Specialization	Dates of Introduction
MSc	Nuclear Medicine	26/10/2018
PhD or DPhil	Fellowship in Pulmonary Oncology	26/10/2018
PhD or DPhil	Fellowship in Molecular Hemato Oncology	24/04/2019
PhD or DPhil	Fellowship in Oral Oncology with Reconstructive Surgery	24/04/2019
DM	OncoPathology	01/08/2018
PhD or DPhil	Soft Skill Courses (for students of Engineering Sciences)	01/08/2018
Mtech	Executive Excellence in Communication for all specialisations	01/08/2018
PG Diploma	Executive Excellence in Communications for all specialisations	01/08/2018
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1.2.2 – Programmes in which Choice Based Credit System (CBCS)/Elective Course System implemented at the University level during the Academic year.

Name of programmes adopting CBCS	Programme Specialization	Date of implementation of CBCS/Elective Course System
PG Diploma	PGD (Chemical Science)	01/08/2018
PG Diploma	PGD (Life Sciences)	01/08/2018
PG Diploma	PGD (Engineering Sciences)	02/08/2018
PG Diploma	PGD (Physical Sciences)	02/08/2018
Mtech	Engineering Sciences	01/08/2018
MPhil	Physical Sciences	01/08/2018
MPhil	Chemical Sciences	02/08/2018
MPhil	Life Sciences	02/08/2018

MSc	Engineering Sciences	02/08/2018
PhD or DPhil	Engineering Sciences	01/08/2018
PhD or DPhil	Physical Sciences	01/08/2018
PhD or DPhil	Chemical Sciences	01/08/2018
PhD or DPhil	Mathematical Sciences	01/08/2018
PhD or DPhil	Life Sciences	01/08/2018
PhD or DPhil	Applied systems Analysis	01/08/2018
PhD or DPhil	Integrated Prgm. Dual Degree Engineering	01/08/2018
PhD or DPhil	Integrated prgm. Dual degree Physical Sciences	01/08/2018
PhD or DPhil	Integrated Prgm. Dual degree Mathematical Sciences	01/08/2018
MSc	Physical Sciences	01/08/2018
MSc	Integrated Prgm. 5-yr. Physical Sciences	08/08/2018
MSc	Integrated Prgm 5 yr. Chemical Sciences	08/08/2018
MSc	Integrated Prgm. 5 yr. Mathematical Sciences	08/08/2018
MSc	Integrated Prgm. 5 yr. Life Sciences	08/08/2018

1.3 – Curriculum Enrichment

1.3.1 – Value-added courses imparting transferable and life skills offered during the year

Value Added Courses	Date of Introduction	Number of Students Enrolled
SOFT SKILL PROGRAMME	01/08/2018	40
Executive Excellence Programme (BARC PGD)	01/08/2018	95
MTech Mini Projects	01/08/2018	97
Technical Communication I (NISER)	01/08/2018	186
Technical Communication II (NISER)	01/08/2018	186
Science Communication workshop for Doctors, PhD fellows of TMC	07/12/2018	155
Certified Fellowship (Orthopaedic Oncology)	01/08/2018	2
Certified Fellowship (Breast Oncology)	01/08/2018	2
Certified Fellowship (Thoracic Oncology)	01/08/2018	2
Certified Fellowship (Uro Oncology)	01/08/2018	2

Certified Fellowship (Interventional Oncology)	06/08/2018	2
Certified Fellowship (Surgical Pathology)	06/08/2018	2
Certified Fellowship (Heamato Pathology)	06/08/2018	2
Certified Fellowship (Dental Prosthetic Surgery)	06/08/2018	2
Certified Fellowship (Preventive Oncology)	07/08/2018	2
Certified Fellowship (Infectious Disease HIV Medicine)	07/08/2018	2
Certified Fellowship (Gastrointestinal Oncology)	06/08/2018	2
Certified Fellowship (Pulmonary Oncology)	06/08/2018	2
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1.3.2 – Field Projects / Internships under taken during the year

Project/Programme Title	Programme Specialization	No. of students enrolled for Field Projects / Internships
MCh	Health Sciences	44
DM	Health Sciences	44
MD	Health Sciences	66
MSc	Clinical Research	10
PG Diploma	Fusion Imaging Technologies	10
Mtech	Engineering Sciences (technical study tours to state of art facilities))	74
Mtech	Engineering Sciences (technical visit to Kakrapar Atomic Power station)	74
PG Diploma	Technical visit to NCCCM	7
Mtech	ENGINEERING SCIENCES Mini Project	97
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1.4 – Feedback System

1.4.1 – Whether structured feedback received from all the stakeholders.

Students	Yes
Teachers	Yes
Employers	No
Alumni	Yes

Parents

Yes

1.4.2 – How the feedback obtained is being analyzed and utilized for overall development of the institution?
(maximum 500 words)

Feedback Obtained

The Homi Bhabha National Institute (HBNI) is a unique Deemed to be University, offering academic programs in 10 different constituent institutions (CIs) and Off Campus Centre (OCC). Nearly half of the students are employees of DAE. The motivation and the expectation of such employee students are naturally different from students who join HBNI to acquire a degree/diploma and move further into academic/professional career. Many HBNI students pursue basic research in a variety of disciplines, while others pursue research programs that have a vector towards applications. CIs/OCC regularly collects feedback from the students concerning each course work and lecturer. This feedback helps to understand the effectiveness of course syllabus, and teaching quality and blind spots of the lecturers. The lecturers are also advised to obtain informal feedback regularly so that they can gauge the pulse of their classroom and make necessary changes in teaching methodology to suit the class. HBNI also obtains feedback from its various stakeholders, on a regular basis, to ensure that the programs, processes, infrastructure, facilities and environment in its Central Office as well as the CIs/OCC are conducive to healthy growth and also ensure that HBNI can meet objectives with which it was established. With this in view, a feedback survey was conducted among a) students b) faculty c) parents and d) alumni. The stakeholders were requested to provide feedback, online, based on a set of specific questions. These questions were based on the specific domains where the feedback from the stakeholder will be of high value. The stakeholders were requested to give marks ranging from 0 (strongly disagree) to 4 (strongly agree). Considering the diversity with regard to programs and processes, the stakeholders also had the option of marking "Not applicable" where necessary. The response given by all stakeholders of a particular category (student/faculty/ alumni/ parent) was averaged. A score of 0 to 1 was treated as "Unsatisfactory", 1 to 2 as "reasonably good, needs improvement", 2 to 3 as "very good" and 3 to 4 as "excellent". Overall, the results indicate that all the stakeholders are generally happy with the teaching and learning process and other aspects covered by the questionnaire, while there is still a good scope for improvement. In particular, the students are very happy with the research infrastructure, the learning aspect and the committed efforts of the faculty. The response relates to the points where the average feedback score was less than 2.5, which includes (1) Revision in the course curriculum (2) Sufficient number of courses to enhance the employability and encourage to take up entrepreneurial activities (3) Examination system of the course does not put in any undue stress and (4) Hostel and other infrastructure facilities available at CIs/OCC were tabulated and put up before the Council of Management (CoM), along with the actions HBNI would take to address the issues, in consultation with CIs/OCC, Boards of studies and Standing Committee of Deans. The suggestions made by CoM will be implemented to enhance quality of learning at HBNI.

CRITERION II – TEACHING- LEARNING AND EVALUATION

2.1 – Student Enrolment and Profile

2.1.1 – Demand Ratio during the year

Name of the Programme	Programme Specialization	Number of seats available	Number of Application received	Students Enrolled
PhD or DPhil	Engineering Science, Physical	31	987	31

	Sciences (IGCAR)			
PhD or DPhil	Physical Sciences (VECC)	10	319	10
PhD or DPhil	Physical Sciences (SINP)	40	1000	33
PhD or DPhil	Physical Sciences (IoP)	20	300	16
PhD or DPhil	Engineering Sciences (VECC)	1	10	1
MSc	Engineering Sciences (VECC)	1	10	1
PhD or DPhil	Physical Sciences (RRCAT)	15	287	12
MSc	Integrated courses Physical Chemical Life Mathematical (NISER)	202	67574	182
PhD or DPhil	Physical Chemical Life Mathematical Applied System Analysis (NISER)	150	2213	56
PhD or DPhil	Integrated MSc PhD (NISER)	20	244	5
MSc	Clinical Research (TMC)	10	365	10
MSc	Nursing (TMC)	10	12	10
PG Diploma	Fusion Imaging Technology (TMC)	10	251	10
PG Diploma	Chemistry, Physics, Bio- Sciences (BARC)	63	21411	63
Mtech	Engineering Sciences	165	128276	116
PhD or DPhil	Engineering Sciences (BARC)	13	1200	13
PhD or DPhil	Physics (HRI)	4	26	4
MSc	Physics (HRI)	20	41	20
PhD or DPhil	Mathematical Sciences (IMSc)	26	920	26
PhD or DPhil	Mathematical Sciences (iPhD IMSc)	6	60	6

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2.2 – Catering to Student Diversity

2.2.1 – Student - Full time teacher ratio (current year data)

Year	Number of students enrolled in the institution (UG)	Number of students enrolled in the institution (PG)	Number of fulltime teachers available in the institution teaching only UG courses	Number of fulltime teachers available in the institution teaching only PG courses	Number of teachers teaching both UG and PG courses
2018	0	3316	0	1135	0

2.3 – Teaching - Learning Process

2.3.1 – Percentage of teachers using ICT for effective teaching with Learning Management Systems (LMS), E-learning resources etc. (current year data)

Number of Teachers on Roll	Number of teachers using ICT (LMS, e-Resources)	ICT Tools and resources available	Number of ICT enabled Classrooms	Number of smart classrooms	E-resources and techniques used
1135	1135	4451	129	0	4451

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2.3.2 – Students mentoring system available in the institution? Give details. (maximum 500 words)

Students are mentored by Doctoral Committee for PhD programmes, and MTech Committee for MTech programmes, MPhil Thesis Committee for MPhil programmes and such other PG Programmes Committee for MSc and MSc 5 Year Integrated programmes. There is a continuous process of students mentoring, through academic courses, project work and mini projects. The facilities are also extended to selected students from outside and when the requirement arises. The students are always welcome and encouraged to interact outside the classes during the course work. After the course work, they are encouraged to get into the research aspects, and interact outside the classroom. Towards the end of research programme, the supervisor and other faculty members help the student to look for the places for career development and institute forwards supporting letters, whenever required. They are encouraged to undertake 6 month project work in such sectors that are relevant for career development. HBNI has a well defined policy for mentoring newly admitted students and enrolled graduate students. Students from various geographies and socioeconomic backgrounds, urban rural mix of students join the PG PhD programmes following due processes as stipulated in the CIs/ OCC. All the CIs/ OCC conduct student induction programme with the objective to orient them in behavioural, emotional, cultural aspects. They are also well informed about the detailed academic and related activities in advance. For PG programmes there is MTech Project Monitoring Committee, which mentors students in the project work and related all academic activities. Students have access to their guides and mentors at all times. Similarly, for the PhD programme the student specific Doctoral Committee provides the complete mentoring and guidance to the research students. The student specific guide also mentors the student in their postdoctoral fellow as well. External members in DC is also proposed taking into account the specialities of thesis and research needs, they also mentor the student as per needs of sectoral growth and employment. Provision of Institute information regulations: HBNI at the central level prepares Student information Brochure, which highlights about the university level activities and student related matters in terms of academic activities, academic regulations, ordinances and other academic requirements. In each of the CIs/ OCC, Dean Student Affairs is the key person to inform and guide students in case of concerns like regulations, student matters of course requirements, guides, external interactions. Each of the CIs/ OCC have a Student Grievance Committee for students to have access to key relevant information and raise issues if any and resolve the matter at the CI level. In case they are not satisfied, they can address directly to the Central Office and Vice Chancellor is the final authority.

Number of students enrolled in the institution	Number of fulltime teachers	Mentor : Mentee Ratio
3316	1135	3

2.4 – Teacher Profile and Quality

2.4.1 – Number of full time teachers appointed during the year

No. of sanctioned positions	No. of filled positions	Vacant positions	Positions filled during the current year	No. of faculty with Ph.D
1317	1135	182	23	977

2.4.2 – Honours and recognition received by teachers (received awards, recognition, fellowships at State, National, International level from Government, recognised bodies during the year)

Year of Award	Name of full time teachers receiving awards from state level, national level, international level	Designation	Name of the award, fellowship, received from Government or recognized bodies
2019	Prof. Raj Gandhi	Professor	Fellow of Fermilab Neutrino Physics Centre
2018	Prof. Christ Prakash Paul	Associate Professor	Homi Bhabha Science Technology Award, DAE
2018	Dr. Abhishek Mahajan	Professor	Most Promising Young Radiologist
2018	Dr. Rushishek Patil	Professor	Ambassador of the Month International Union of Immunological Societies
2018	Dr. Amit Dutt	Professor	Bhatnagar Award
2018	Dr. Raghu Thota	Professor	Vaidya Ratna National Award
2018	Dr. J.P Agarwal	Professor	AROI Overseas Award
2018	Dr. D.D. Deshpande	Professor	Life Time Achievement Award by North east Indian radiation Oncology Federation
2018	Prof. V Ravindran	Professor	Fellow of Indian National Science Academy 2018
2018	Dr. Areejit Sama	Associate Professor	Research Ambassador Deutscher Akademiseher Austauschdienst (DAAD)
2018	prof. Parameswaran Shankaran	Professor	Fellow of India National Science Academy 2018
2018	Prof. Saket Saurabh	Professor	Swarnajayanthi Fellowship 2018 (DST)
2018	Dr. Sayantan Sharma	Associate Professor	Ramanujam Fellowship 2018 (SERB, DST)

2018	Prof. Saket Saurab	Professor	Swarnajayanthi Fellowship, DST, Govt. of India
2018	Prof. Subrato Mukherjee	Professor	Elected Fellow of Indian National Academy of Engineering
2018	Prof. A.K. Pati	Professor	JC Bose Fellowship, DST, Govt. of India
2018	Dr. Tuhin Ghosh	Assistant Professor	Indian Academy of Sciences
2018	Dr. Chandan Goswami	Associate Professor	DAAD Fellow
2018	Dr. Palo Aich	Associate Professor	Sofia Medical Academy Bulgaria
2018	Dr. Subhankar Mishra	Assistant Professor	DST BRICS Young Scientists Award
2018	Dr. Shubhada Chiplunkar	Professor	President, Mumbai Immunology Group, ImmunoOncology Society of India
2018	Kakoli Bose	Professor	Associate Editor Bioscience Report Portland UK
2018	Dr. R.A. Badwe	Director	Life Time Achievement Award from Indian Medical Association
2019	Dr. Oishee Chakrabarti	Assistant Professor	National Women Bioscientist Award (Young Category) DST Govt. of India
2018	Prof. R. Divakar	Professor	Metallurgist of year Award in Metal Science Category, Ministry of Steel
2018	Anita Toppo	Professor	Corrosion Awareness Award, NACE International Gateway India
2018	Prof. P.R. Vasudeva Rao	Vice Chancellor	Fellow of the Indian National Academy of Engineering
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2.5 – Evaluation Process and Reforms

2.5.1 – Number of days from the date of semester-end/ year- end examination till the declaration of results during the year

Programme Name	Programme Code	Semester/ year	Last date of the last semester-end/ year-end examination	Date of declaration of results of semester-end/ year- end
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				examination
Mtech	ENGG01	2018	02/07/2018	16/07/2018
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2.5.2 – Average percentage of Student complaints/grievances about evaluation against total number appeared in the examinations during the year

Number of complaints or grievances about evaluation	Total number of students appeared in the examination	Percentage
50	3316	1.5

2.6 – Student Performance and Learning Outcomes

2.6.1 – Program outcomes, program specific outcomes and course outcomes for all programs offered by the institution are stated and displayed in website of the institution (to provide the weblink)

http://www.hbni.ac.in/main/dsp_doc.html?nm=agrar/prq_otcm.pdf

2.6.2 – Pass percentage of students

Programme Code	Programme Name	Programme Specialization	Number of students appeared in the final year examination	Number of students passed in final year examination	Pass Percentage
ENGG01	Mtech	ENGINEERING SCIENCES	116	116	100
ENGG03	MSc	ENGINEERING SCIENCES	3	3	100
CHEM13 PHYS13 MATH 13 LIFE 13	MSc	INTEGRATED PROGRAMMES IN PHYSICAL, CHEMICAL MATHEMATICAL LIFE SCIENCES	55	55	100
HLTH09	MD	HEALTH SCIENCES	74	60	81.08
HLTH10	DM	HEALTH SCIENCES	45	44	97.77
HLTH15	MSc	NURSING	2	2	100
HLTH17	MSc	CLINICAL RESEARCH	9	9	100
HLTH16	PG Diploma	FUSION IMAGING TECHNOLOGY	10	10	100
HLTH07	PG Diploma	MEDICAL RADIO ISOTOPE TECHNIQUES	5	3	60
ENGG00 PHYS00 CHEM00 LIFE00	PG Diploma	SCIENCES	63	63	100
HLTH11	PG Diploma	RADIATION	25	25	100

		PHYSICS			
CHEM13 PHYS13 LIFE13 MATH13	MSc	Five Year Integrated MSc programmes NISER	97	94	96.90
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2.7 – Student Satisfaction Survey

2.7.1 – Student Satisfaction Survey (SSS) on overall institutional performance (Institution may design the questionnaire) (results and details be provided as weblink)

http://www.hbni.ac.in/main/dsp_doc.html?nm=agar/stud_stsftn.pdf

CRITERION III – RESEARCH, INNOVATIONS AND EXTENSION

3.1 – Promotion of Research and Facilities

3.1.1 – Teachers awarded National/International fellowship for advanced studies/ research during the year

Type	Name of the teacher awarded the fellowship	Name of the award	Date of award	Awarding agency
National	Dr. Kalyan Chakraborty	AFS AIS LA	06/05/2018	AFS
International	Dr. C. K. Kamal	Post Doc Fellowship	05/04/2019	Stockholm University, Stockholm, Sweden
National	Prof. V. Ravindran	Fellow of Indian national Academy of Sciences	05/03/2018	The Indian National Academy of Sciences
National	Prof. Parameswaran Shankaran	Fellow of the Indian National Academy of Sciences	05/03/2018	The Indian National Academy of Sciences
International	Dr. Parnika Das	Indo Italian Cooperation in S T	02/01/2018	DST
International	Dr. Parnika Das	India Germany Cooperation in Synchrontron DESY Hamburg	08/02/2018	DST
National	Dr. Chandrima Das	SwarnaJayanti Fellowship in Life Sciences	13/07/2018	DST, Govt. of India
National	Dr. Oishee Chakrabarti	National Women Bioscientist Award (Young Category)	20/07/2018	DST, Govt. of India
National	Dr. Liton Majumdar	Ramanujan Fellowship	10/10/2018	SERB, DST
National	Dr. Guneshwar Sing Thangjam	Ramanujan Fellowship	10/10/2018	SERB, DST

National	Dr. Umesh Kumar Venkatesh Dubey	Inspire Faculty Award	01/08/2018	DST
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3.1.2 – Number of JRFs, SRFs, Post Doctoral Fellows, Research Associates and other fellows in the Institution enrolled during the year

Name of Research fellowship	Duration of the fellowship	Funding Agency
RA	2	DAE
JRF/ SRF	5	UGC CSIR/ DBT/ SERB/ TMH
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3.2 – Resource Mobilization for Research

3.2.1 – Research funds sanctioned and received from various agencies, industry and other organisations

Nature of the Project	Duration	Name of the funding agency	Total grant sanctioned	Amount received during the year
Major Projects	2	DAE	79249	38891
Minor Projects	2	DSR/ DBT/ SERB/ CSIR/ others	42916	1775
International Projects	3	As per list provided	65	32
Interdisciplinary Projects	2	Pharma Diagnostic corporates/NGOs/ Philanthropist	61	33
Any Other (Specify)	4	NGOs/ Philanthropist	4833	2343
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3.3 – Innovation Ecosystem

3.3.1 – Workshops/Seminars Conducted on Intellectual Property Rights (IPR) and Industry-Academia Innovative practices during the year

Title of workshop/seminar	Name of the Dept.	Date
DAE BRNS Workshop on Laser Additive Manufacturing and Allied Technologies	HBNI RRCAT Engineering Sciences	08/10/2018
Workshop on Intellectual Property Rights	HBNI Institute of Plasma Research (IPR) ATI Mumbai	19/11/2018
No file uploaded.		

3.3.2 – Awards for Innovation won by Institution/Teachers/Research scholars/Students during the year

Title of the innovation	Name of Awardee	Awarding Agency	Date of award	Category
Ion Beams in Material Engineering and Characterization	Mr. Mahesh Saini	Inter University Accelerator Centre	09/10/2018	Ion Beam Material Engineering
Young Scientist Award	Jinoop AN	MP Council for Science	01/03/2019	Mechanical Engineering

		Technology		
Young Scientist Award	Subhomoy Halдар	MP Council for Science Technology	01/03/2019	Physical Sciences
Young Scientist Award	Hemant Krishna	DAE	31/10/2018	Physical Sciences
Homi Bhabha Science Technology Award	C.P. Paul	DAE	31/10/2018	Physical Sciences
IMPPAT	Dr. Areejet Sama	Young Scientist Conference India International Science Festival	05/10/2018	Best Digital India Theme
Excellence in Microscopy 2018	Dr. Biswarup Satpati	Electron Microscopy Society of India	01/06/2018	Excellence in Microscopy
Prof. CVK Baba Award for Best Thesis in Nuclear Physics	Dr. Biswarup Das	Indian Physics Association	01/06/2018	Best Thesis in Nuclear Physics
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3.3.3 – No. of Incubation centre created, start-ups incubated on campus during the year

Incubation Center	Name	Sponsored By	Name of the Start-up	Nature of Start-up	Date of Commencement
nil	nil	nil	nil	nil	01/04/2018
No file uploaded.					

3.4 – Research Publications and Awards

3.4.1 – Ph. Ds awarded during the year

Name of the Department	Number of PhD's Awarded
Mathematical Sciences (HRI 13 IMSc 16)	29
Chemical Sciences (IGCAR, sinp)	44
Physical Sciences (IGCAR, RRCAT, HRI, vecc, IoP, SINP)	113
Engineering Sciences (IGCAR, vecc, IPR)	33
Life Sciences	26
Medical and Health Sciences	2

3.4.2 – Research Publications in the Journals notified on UGC website during the year

Type	Department	Number of Publication	Average Impact Factor (if any)
International	Chemical and Physical Sciences	61	3.28
International	Chemical and	28	2.61

	Engineering Sciences		
International	Health and Life Sciences	14	5.06
International	Life and Physical Sciences	58	4.42
International	Chemical Sciences Physical Sciences and Engineering Sciences	5	4.35
International	Chemical Life and Physical Sciences	3	4.48
International	Engineering and Life Sciences	3	1.50
International	mathematics and Physical Sciences	3	4.01
International	Chemical Sciences Engineering Sciences Life Sciences	1	4.12
International	Chemical Sciences Physical and Health Sciences	1	1.49
International	Chemical Sciences and Mathematical Sciences	1	4.48
International	Chemical Sciences Physical Sciences and Mathematical Sciences	1	1.68
International	Engineering Sciences Life Sciences Physical Sciences	1	1.49
International	Health Sciences and Physical Sciences	1	1.49
International	Engineering Sciences	215	2.25
International	Phyiscial Sciences	1461	3.74
International	Chemical Sciences	425	3.04
International	Life Sciences	168	3.27
International	Health Sciences	235	6.06
International	Engineering Sciences Physical Sciences	154	4.56
International	Mathematical Sciences	75	0.74
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3.4.3 – Books and Chapters in edited Volumes / Books published, and papers in National/International Conference Proceedings per Teacher during the year

Department	Number of Publication
Publications, Conference Papers	4128
Confernece Proceedings. Books, Chapters in Books, Reviews	120
View File	

3.4.4 – Patents published/awarded/applied during the year

Patent Details	Patent status	Patent Number	Date of Award
A Beam Visualizer device	Filed	2018	18/06/2018
a process for plasma oxidation of a substrate and an apparatus	Published	304083	01/06/2018
a method for diffusion bonding of piezoelectric crystal tp metal wear plate	Filed	pct/ib2019	21/01/2019
Method of adjuvant treatment with chlorophyllin therapeutic preparation	Published	US 10, 183	22/01/2019
Use of Jack Bean lectin for increasing abundance of hematopoietic stem cells	Filed	19159260.9	21/01/2019
Conjugate of Estradiol and Applications of Inventors	Published	US20180052	10/05/2018
Extracts of Marine Mollusc Turbobrunneus used	Filed	IP20182101	13/05/2018
System comprising Sun Ray Collimating Central Mirror and Heliostat" Indian patent application number: 201827036596, dated 27 Sept.,2018	Filed	2018270365	27/09/2018
Splitted Plasma Anode Fireball based Ion Source for both Nanopatterning and	Filed	2018210213	07/06/2018

Thin Film deposition" Indian patent application number: 201821021321 dated 07 June 2018			
A Method for increasing the life of Cutting Tools" Indian patent application number: 201821022517, dated 15 June 2018	Filed	2018210225	15/06/2018
Fixative composition for Preservation and Recovery of Leucocytes of Biological samples	Filed	2018210236	25/06/2018
Production of dilute Pb (0.2 to 1.1 wt) Li Alloys" PCT patent application number: PCT/IB2018/056434, dated 24Aug., 2018	Filed	PCT/IB2018	24/08/2018
Process for Determination of parts per billion (ppb) levels of Total Iron in Boiler Coolant water" Indian patent application number: 201921009009, dated 08 March 2019	Filed	2019210090	08/03/2019
A Beam Visualizer Device" Indian patent application number 201921009442 dated 11Mar2019	Filed	2019210094	11/03/2019
A wound dressing capable of insitu NOx release and a process for manufacturing the same" Indian patent number 300809, dated 06Sep2018	Published	300809	06/09/2018
Thermal Plasma process for 'inflight' Dissociation of Zircon Mineral"	Published	303530	27/11/2018

Indian patent number 303530 , dated 27Nov2018			
Charged thin flim composite nanofiltration membranes and process of its production" Indian patent number 308260, dated 27Feb2019	Published	308260	27/02/2019
A method of adjuvant treatment with Chlorophylin containing therapeutic preparation including for Radioprotection of normal tissues during radiation therapy and kit thereof" USA patent number 101.83.026 , dated 22Jan2019	Published	101.83.026	22/01/2019
A method and device for tuning SCRF Cavity" Europe (validated in France Germany Switzerland) patent number 3266285, dated 16May2018	Published	3266285	16/05/2018
Optical RareEarth doped fiber long period grating based ionizing radiation dose Sensor device" USA patent number 10101467, dated 16Oct2018	Published	10101467	16/10/2018
Use of Jack bean Lectin for increasing the abundance of hematopoietic stem cells and progenitor cells in bone marrow and/or epidermal stem cells in skin in vivo" USA patent application number: 16/239,280, dated	Filed	19159260.9	26/02/2019

03Jan., 2019 Europe patent application number: 19159260.9, dated 26Feb., 2019.

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3.4.5 – Bibliometrics of the publications during the last academic year based on average citation index in Scopus/ Web of Science or PubMed/ Indian Citation Index

Title of the Paper	Name of Author	Title of journal	Year of publication	Citation Index	Institutional affiliation as mentioned in the publication	Number of citations excluding self citation
As per attachment	As per attachment	As per attachment	2018	4.02	HBNI and CIs OCC	11788
View File						

3.4.6 – h-Index of the Institutional Publications during the year. (based on Scopus/ Web of science)

Title of the Paper	Name of Author	Title of journal	Year of publication	h-index	Number of citations excluding self citation	Institutional affiliation as mentioned in the publication
As per attachment	As per attachment	As per attachment	2018	76	23576	HBNI CIs OCC
View File						

3.4.7 – Faculty participation in Seminars/Conferences and Symposia during the year

Number of Faculty	International	National	State	Local
Presented papers	203	365	10	0
Attended/Seminars/Workshops	133	248	34	3
Resource persons	79	36	24	0
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3.5 – Consultancy

3.5.1 – Revenue generated from Consultancy during the year

Name of the Consultan(s) department	Name of consultancy project	Consulting/Sponsoring Agency	Revenue generated (amount in rupees)
Tata Memorial Hospital and Institute of Plasma Research	Sponsored research, Consultancy and Technology Transfer	various agencies as given in attachment	119847284
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3.5.2 – Revenue generated from Corporate Training by the institution during the year

Name of the Consultan(s) department	Title of the programme	Agency seeking / training	Revenue generated (amount in rupees)	Number of trainees
APD FCIPT Institute of	Training regarding	Rubamin Ltd.	200000	15

Plasma research	Technology transfer		
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3.6 – Extension Activities

3.6.1 – Number of extension and outreach programmes conducted in collaboration with industry, community and Non- Government Organisations through NSS/NCC/Red cross/Youth Red Cross (YRC) etc., during the year

Title of the activities	Organising unit/agency/ collaborating agency	Number of teachers participated in such activities	Number of students participated in such activities
International Year of Periodic Table (IYPT 2019)	HBNI BARC	75	500
Theme meeting to commemorate 125th Birth year of S.N. Bose and Meganad Saha	HBNI BARC	100	300
Field Project/ Internship for UG and PG students for neighbouring colleges and Universities	VECC	10	143
Training Programme on Plasma Science and Technology (5 prgms.) Fusion science for teachers	IPR	200	6000
Orientation Course on Acclerators, Lasers and related science and technologies	RRCAT	20	40
Summer Outreach programme in Mathematics	NISER	6	40
Teacher's Enrichment Workshop	IMSc	10	60
Teacher's Enrichment Workshop	IMSc	10	40
Enriching Mathematics Education	IMSc	20	70
Science at Sabha	IMSc	10	200
Colloquium on Dreaming Big	SINP	1	100
Documentary on Satyendra Nath Bose	SINP	1	100
Seminar on	SINP	1	100

Luminescence of Silicon and its applications for Photovoltaics			
Outreach programme for public school, colleges university students	VECC in collaboration with Science India Forum, Sri Sri Tribal Academy, Orissa Univ. Agri Sciences, Bhairav College, IEM Kolkata, Bose Institute, NIT Durgapur, Heritage School, calcutta Public School, Asamas University	6	500
IANCAS IGCAR	IGACR	9	200
SACSE	IGCAR	9	200
DST INSPIRE	IGCAR	9	150
BRMB	IGCAR	10	16
Blood Donation Camps	HBNI TMC	10	178
Platlet Donation Awareness	HBNI TMC	10	120
International Yoga day	HBNI BARC	10	100
Tree Planting Day	HBNI BARC	10	120
Technical Study Tours to Kakrapar Atomic Power Station and NCCCM Hyderabad	HBNI BARC	15	174
Vigyan Pratibha Teachers Training Camp	SINP HBNI	10	50
Science Day 2019	SINP HBNI	5	500
Prof. MN Sahas 125th Birth Aniversary celebration	SINP	1	500
54th Meghanad Saha Memorial Lecture on theme 50 years of Cancer Research Then now	SINP	1	500
Unfolding Science: A personal experience. lecture delivered by	SINP HBNI	1	500

Chancellor HBNI, Prof. Srikumar Banerjee			
Lecture on Dynamic Rivers of Bengal Indian Calendar reform 1955 Off lesser science of Meghanad saha	SINP	3	100
Teacher's Enrichment Workshop	IMSc	10	40
From Learning to Doing: Science, Education and Public Service in Chennai	IMSc	10	100
foldscope workshop	IMSc	5	20
Supporting teachers in helping students make sense of mathematics,	IMSc	5	30
Towards understanding grassroots India:	IMSc	5	20
Zero Shadow Day	IMSc	5	30
Summer School Students Workshop	IMSc	10	70
Vigyan Samagam	IPR DST NCSM	10	300
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3.6.2 – Awards and recognition received for extension activities from Government and other recognized bodies during the year

Name of the activity	Award/Recognition	Awarding Bodies	Number of students Benefited
Swachhta activities	Swachhta Pakhwada Award	DAE	150
No file uploaded.			

3.6.3 – Students participating in extension activities with Government Organisations, Non-Government Organisations and programmes such as Swachh Bharat, Aids Awareness, Gender Issue, etc. during the year

Name of the scheme	Organising unit/Agency/collaborating agency	Name of the activity	Number of teachers participated in such activities	Number of students participated in such activities
Platelet Donation Awareness	TMC in Association with Hospitals	Blood Donation camps	10	30
Swachh Bharath	NISER Govt. of Odisha	Swachha Survekshan	1	150
Gender Issues	NISER Govt. of Odisha	Safe Life Safe Campus Role of Youth in Women	3	200

Science at Sabha	IMSc	Learning Science applications	10	200
Indian Women Science Exhibit Display	IMSc	Women in Science	6	50
Indian Women in Science Exhibition	IMSc	IMSc life of Science	6	60
Science Journalism Media	IMSc	Science Communication	2	30
Swachh Bharat	Institute of Physics (IoP)	Cleaning IoP campus	10	20
Swachh Bharat	VECC	Cleanliness drive campus hostel	5	10
Blood Donation	VECC in collaboration with Association of Voluntary Blood Donors WB	Blood Donation	12	50
Swachhata Activities	IGCAR Pakhwada activities	Swachhata Pakhwada	10	160
Outdoor Blood Donation Campus	TMC in Association with Regional Hospitals	Blood Donation camps	25	178
Regional Workshop on Research Opportunities	NISER	workshop	10	60
Workshop on cyber security	NISER	workshop	5	50
UN International Day for Girls in Science	IMSc	Workshop	10	180
Celebrations of National Science Day 2019	HBNI BARC	Workshop	10	60
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3.7 – Collaborations

3.7.1 – Number of Collaborative activities for research, faculty exchange, student exchange during the year

Nature of activity	Participant	Source of financial support	Duration
Survey for Pulsars and Fast Transients with the upgraded	20 Members in collaboration & they are affiliated	DAE IMSC TIFR	2

GMRT : A Pilot Study	to NCRA-TIFR Pune, IMSc Chennai (Manjari Bagchi) SINP Kolkata, IUCAA Pune, RRI Bangalore, NISER Bhubaneswar, University of California Berkeley (USA), TIFR Mumbai, ASTRON (The Netherlands), CEA Saclay		
DAAD Sandwich PhD Programme	1	NISER DAAD Germany	1.6
Scientific Associate	1	NISER CERN Geneva	1
CMS Compactmuon solenoid	13	NISER Multi Country Consortium	1
ERASMUS K 107	2	NISER European Union	0.1
Scientific Investigator	1	NISER NASA	2
Research ALICE START	IoP faculty and students	DAE	7
Research Project Case Control Observational Study on Distribution of Breast Cancer	Nilesh Gardi Ethnic Research Initiative USA & TMC	Ethnic Research Initiative	9
Research Project Risk Factors in carcinoma Breast cancer	Dr. Suvarna Khadlikar	Federation of Obstetric Gynecological Societies of India	5
Research Project Multi Omics Analysis to Decipher Mechanism of Hormone Resistance in Breast Cancer	TMC ACTREC NIBMG NCCS	TMC ACTREC NIBMG NCCS	3
Research Project Mapping of Breast Cancer Transitions to identify underlying biology of tumor progression	Sanofi-Synthelabo - TMC	Sanofi Ltd.	4
Research Project Retrospective and anonymized study of breast tumors for identification of	Onco Stem Diagnostics P Ltd.	Onco Stem Diagnostics	5

markers predictive of risk			
Indian Pulsar Timing Array (InPTA) experiment	Project members are affiliated to NCRATIFR Pune, TIFR Mumbai, RAC TIFR Ooty, ASTRON (The Netherlands), & IMSC Chennai (Manjari Bagchi, Dhruv Pathak)	DAE IMSc ASTRON Netherlands	3
IndoU.S Joint RD Networked Joint Center Programme: Emergence and Remodeling of force chains in soft and Biological Matter	This project involves partners at Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru, India, (Srikanth Sastry), Brandeis University, Waltham, MA, USA, (Bulbul Chakraborty), National Centre for Biological Sciences, Bengaluru, (Madan R	DAE IMSc Respective institutes	3
Max Planck Partner Group in Mathematical Biology	IMSc, in collaboration with Prof. Jürgen Jost, our partner and host in MPIMIS Leipzig	Max Plank Institute Germany	3
Hypoxia Sensitive Nanoparticle Conjugates For Targeted Drug Delivery In Cancer	Dr. Dhanya Sunil, Department of Chemistry, Manipal Institute of Technology, Manipal, Karnataka-576104, Dr. R.S. Ningthoujam, BARC	DAE BRNS	3
Synthesis of metal ferrite modified MCM41 (FMMCM) composites as adsorbent for remediation of Cr (VI) from contaminated water	Dr. Rashmi Acharya, Centre for Nano Science and Nano Technology, Sikha 'O' Anusandhan University, Khandagiri, Bhubaneswar-30, and Dr. Raghunath Acharya, BARC	DAE BRNS	3
Development of New Heterogeneous Porous Catalysts	Dr. S. Islam, Department of Chemistry,	DAE BRNS	3

and their Use for the Preparation of fine Chemical	University of Kalyani, Kalyani, Nadia-741235, West Bengal		
Structural Studies on RhoHto designant imetastatic drug for Lymphoma, using synchrotron radiation	Dr.Kiran Kulkarni, Senior Scientist, Division of Biochemical Sciences, CSIR-NationalChemical Laboratory, Dr. Homi Bhabha Road, Pune - 411 008 and Dr. Ravindra D Makde, BARC	DAE BRNS	3
In Vitro and In Vivo Functions of Cell Surface Estrogen Receptors in the context of Prostate Cancer	Dr. Geetanjali Sachdeva, Primate Biology Division, National Institute for Research in Reproductive Health, Indian Council of Medical Research, J.M. Street, Parel, Mumbai-400 012 and Dr. Prita Ray, ACTREC	DAE BRNS	3
Synthesis of Heterocycles via Multiple CH Bond Activation	Dr. Debabrata Maiti, Department of Chemistry, Indian Institute of Technology-Bombay, Powai, Mumbai-400076 and Dr. Sunil Ghosh, BARC	DAE BRNS	3
Electronic structure and transport Properties of inorganic/organic nano composites	Prof. Pranab Sarkar, Viswa-Bharati, Shantinike tan-731235, West Bengal and Dr. C. Majumder, BARC	DAE BRNS	3
Angularly Distributed DonorAcceptor Based Chromophore: Simple System for Sophisticated NLO effect	Dr. Debdas Ray, Department of Chemistry, School of Natural Sciences, Shiv Nadar University, NH-91, Tehsil Dadri, District: Gautam Budha Nagar, Uttar Pradesh-201 314 and Dr. Dulal Senapati, SINP	DAE BRNS	3
Investigating multinucleon	Dr. Kushal Kalita, Assistant	DAE BRNS	3

transfer np correlation: effects of nuclear deformation/ orientation	Professor, Department of Physics, Gauhati University, Guwahati-781014, Assam and Dr. Bidyut J Roy, BARC		
Spectral Analysis of Multiplex Networks	Dr. Sarika Jalan, Associate Professor (Physics), IIT- Indore, Khandwa Road, Simrol, Indore-453 552, Madhya Pradesh and Dr. Shashi CL Srivastava, VECC	DAE BRNS	3
Fundamental Physics in Strong Gravitational field of Neutron Stars	Dr. Sarmistha Banik, BITS Pilani- Hyderabad Campus, Jawahar Nagar, Samerpet Mondal, Medchal District, Hyderabad-500078, Telengana and Dr. Debades Bandyopadhyay, SINP	DAE BRNS	3
Radionuclide sensing platform based on functionalized polymer having nanochannels using accelerator	Prof. Pralay Maiti, Professor, School of Materials Science and Technology, IIT (BHU), Varanasi-221005, Uttar Pradesh and Dr. Rahul Tripathi, BARC	DAE BRNS	3
Design and synthesis of multifunctional micellar based drug delivery vehicles for cancer therapy	Dr. Sabita Patel, Assistant Professor, Department of Chemistry, National Institute of Technology (NIT), Rourkela-769008, Odisha and Dr. PA Hassan, BARC	DAE BRNS	3
Sodiumion battery development based on polymer and polyanionbased cathode and hard carbon anode	Dr. Sagar Mitra, Associate Professor, Department of Energy Science and Engineering, IIT Bombay, Powai, Mumbai-400076 and dr. Dimple Dutta, BARC	DAE BRNS	3

<p>Porphyrin-Tethered-BetaCyclodextrin Loaded with Guanidinobenzimidazoles as GQuadruplex DNA binders</p>	<p>Dr. Muthu Vijayan Enoch, Department of Chemistry, Karunya University, Karunya Nagar, Coimbatore-641 114, Tamil Nadu and Dr. Haridas Pal, BARC</p>	<p>DAE BRNS</p>	<p>3</p>
<p>Development of thermally stable radiation resistant organosilicate based paint formulations for corrosion</p>	<p>Dr. Prabal Pratap Singh, Department of Chemistry, GLA University, NH-2, Delhi-Mathura Highway, Chaumuha, Mathura-281406, Uttar Pradesh and Dr. Manmohan Kumar, BARC</p>	<p>DAE BRNS</p>	<p>3</p>
<p>Pharmacological evaluation of a novel asparaginase used for the treatment of childhood Acute Lymphoblastic Leukaemia (ALL)</p>	<p>Prof. Avinash Sonawane, Dean, School of Biotechnology, Immunology Lab Campus-11, KIIT University, Bhubaneswar, Odisha-751024 and Dr. Vikram Gota, BARC</p>	<p>DAE BRNS</p>	<p>3</p>
<p>Growth of Pure and Doped Organic Single Crystals for Scintillator Applications</p>	<p>Dr. Sethuraman, Assistant Professor, Dept. of Physics, School of Physics, Madurai Kamaraj University, Madurai-625021, Tamil Nadu and Dr. Babita Tiwari, BARC</p>	<p>DAE BRNS</p>	<p>3</p>
<p>Fire Retardant Materials: Investigation on Mechanistic Thermophysical props. synthesis process</p>	<p>Dr. Anirban Chowdhury, Department of Materials Science and Engineering, Indian Institute of Technology Patna, Kanpa Road, Bihta, Bihar and Dr. S.N. Achary, BARC</p>	<p>DAE BRNS</p>	<p>3</p>
<p>A computational investigation on the reaction paths and spectroscopic properties of crown ethers</p>	<p>Dr. ANJAN CHATTOPADHYAY, BITS-PILANI, K.K.BIRLA GOA CAMPUS, ZUARINAGAR, Goa and Dr. Musharaff Ali, BARC</p>	<p>DAE BRNS</p>	<p>3</p>

Information theoretic measures and complexity under free and confinement situations within DFT: some	Dr. Amlan Kusum Roy, IISER Kolkata, Mohanpur, Dist. Nadia, West Bengal and Dr. A.K. Samanta, BARC	DAE BRNS	3
Effect of structure, microstructure of complex oxides on heavy ion implantation and release behavior	Dr. Pawan Kumar Kulriya, Scientist-E, Inter University Accelerator Centre, Post Box No.10502, Aruna Asaf Ali Road, New Delhi and Vinita Grover Gupta, BARC	DAE BRNS	3
Development of bi/trimetallic plasmonic nanoparticles decorated metal oxide semiconductor as Photoc	Dr. Sushant Kumar, Assistant Professor, Block VI, Room no. 110, Department of Chemical and Biochemical Engineering, Indian Institute of Technology - Patna and Dr. Rajesh Ganesan@igcar	DAE BRNS	3
Design and Generation of in situ Transition metal complexes with nitrogen containing Ligand and their exploration in regioselective CC and CHeteroatom bond Formation	Dr. Ravi P. Singh, Associate Professor, Department of Chemistry, Indian Institute of Technology Delhi (IITD), Hauz Khas, New Delhi and Dr. Sunil K Ghosh, BARC	DAE BRNS	3
Development of conducting polymer based nanocomposites for efficient detection of Mycotoxins	Dr. Ashok Kumar, Professor, Dept. of Physics, Tezpur University, Tezpur, Napaam, Assam and Dr. C.A. Betty, BARC	DAE BRNS	3
Studies on the regulation by stress induced small RNAs in Deinococcus radiodurans	Dr. Tanmay Dutta, Assistant Professor, Department of Chemistry, Indian Institute of Technology Delhi (IITD), Hauz Khas, New Delhi and Dr. Swati Kota	DAE BRNS	3

Effect of nuclear density approximation and shellclosure in the dynamics of heavy ion induced reactions	Dr. Raj Kumar, Assistant Professor, SPMS, Thapar Institute of Engineering & Technology, Patiala and Dr. S.K. Patra, BARC	DAE BRNS	3
Theoretical Investigation of Thermoelectric Materials	Dr. Kanchana Venkatakrishnan, Professor, Department of Physics, Indian Institute of Technology-Hyderabad, Kandi and Ranjan Mittal, BARC	DAE BRNS	3
High throughput synthesis of nanoliposomes in microfluidic reactors for efficient delivery of anticancer drugs	Dr. Sanjay Singh, Associate Professor, Division of Biological & Life Sciences, Ahmedabad University, Commerce Six Roads, Navrangpura, Ahmedabad and Dr. Beena Singh, BARC	DAE BRNS	3
Surface Properties of Weyl Semimetals	Dr. Arijit Kundu, Assistant Professor, Department of Physics, Indian Institute of Technology-Kanpur, Kanpur and Prof. Pinaki Majumdar, HRI	DAE BRNS	3
Towards Selective Cell Membrane Platforms for Drug Membrane Interactions Biophysical Insights into Activity and Toxicity	Dr. Shobhna Kapoor, Assistant Professor, Department of Chemistry, Indian Institute of Technology-Bombay and Dr. Abhijit Chakraborti, SINP	DAE BRNS	3
Realization of a prototype spin valve based on perovskite oxide superlattice $\text{Sr}_2\text{FeMoO}_6/\text{LaBO}_3(\text{B Fe})$	Dr. Suvankar Chakraverty, Institute of Nano Science & Technology, Habitat Centre, Phase-10, Sector-64, Mohali and Dr. Surendra Singh, BARC	DAE BRNS	3

Development of magnetically recyclable visible light photocatalysts for H ₂ O ₂ production	Dr. Indrajit Sinha, Associate Professor, Department of Chemistry, Indian Institute of Technology (BHU). Varanasi and Dr. Mrinal Rajesh Pai, BARC	DAE BRNS	3
Synthesis of earth abundant, low cost, environmentally harmless Cu ₂ MSnX ₄ (CNTS/Se)based thin film solar cells	Dr. Kishor M Sonawane, Dept. of Physics, Fergusson College, F.C.Road, Pune and Dr. Namita Maiti	DAE BRNS	3
Fluorescence and colorimetric recognition of some lanthanides and actinides using several new probes	Dr. Debasis Das, Professor, Department of Chemistry, University of Burdwan, Rajbati, Burdwan and Dr. Arunasis Bhattacharyya, BARC	DAE BRNS	3
Estimation of Diffuse Extra Galactic Background Light Through VHE Gamma ray Observation of Blazars	Dr. Naseer Iqbal, Professor, Dept. of Physics, University of Kashmir, Hazratbal, Srinagar, Jammu & Kashmir and Sunder Sahayanathan, ApSD	DAE BRNS	3
Asia Pacific Conference and Workshop on Quantum Information Science	Prof. Ujjwal Sen	IISER Kolkota HRI DAE DST	10
Development of transition metal based porous hollow structures for superior energy conversion and storage applications	Dr. Asit Baran Panda, Sr. Scientist, CSIR-Central Salt & Marine Chemicals Research Institute, G.B. Marg, Bhavnagar and Ashis Kumar Satpati, BARC	DAE BRNS	3
Scaleup of biogenic bimetallic core shell [Pd/Fe] nanoparticles synthesis and their application to waste water treatment	Dr. Mrudula Pulimi, Associate Professor, Centre for Nanobiotechnology, VIT University, Vellore-632014, Tamil Nadu and Dr.	DAE BRNS	3

	V.P. Venugopalan		
Preparation of biogenic bimetallic core shell [Pd/Fe] nanoparticles for wastewater bioremediation applications	Dr. Amitava Mukherjee, VIT University, Centre for Nanobiotechnology, Vellore- 632014, Tamil Nadu and Dr. V.P. Venugopalan	DAE BRNS	3
Identification functional characterization of salt responsive conserved novel miRNAs in soyabean	Dr. Vinay Kumar , Department of Biotechnology, PES Modern College of Arts, Science and Commerce, Ganeshkhind, Pune and Dr. Ashish Kumar Srivastava, BARC	DAE BRNS	3
Effect of manipulating sialic acid levels on cell adhesion process	Dr. Ranjana Arya, Assistant Professor, School of Biotechnology, Jawaharlal Nehru University, New Delhi-110067 and Dr. Anu Ghosh, BARC	DAE BRNS	3
Pd complexes with Hybrid Organochalcogen Ligands as Homogeneous Catalysts in CC coupling Reactions	Prof. Bhalchandra Bhanage, Department of Chemistry, Institute of Chemical Technology, Nathalal Parekh Marg, Matunga-400019 and Dr. Sandeep Dey	DAE BRNS	3
Impact of radiation based fragmentation of alpha glucans and their application potential	Dr. Prakasham R Shetty, Medicinal Chemistry and Biotechnology, CSIR-Indian Institute of Chemical Technology, Hyderabad-500 007, Telengana and Dr. Suprasanna, BARC	DAE BRNS	3
Mechanism of Active Intracellular Transport: Connecting Theory and Experiment	Faculty of IMSc	DAE Plan Project	3
Modeling Soft Glass flow from micro to macro scale	Pinaki Chaudhuri, IMSc, and Dr. Kirsten Martens,	DAE respective donors	2

(CEFIPRA Project No 56041)	Laboratoire interdisciplinaire de Physique, Universit Grenoble Alpes, Grenoble,		
Size Matters: Predicting personalized risk of SGA[part of "Grand Challenges India: Maternal and Child Health", funded by BIRAC, DBT and Bill and Melinda Gates Foundation]	Investigators are Leelavati Narlikar of CSIR-NCL Pune (PI), Gautam Menon and Rahul Siddharthan of IMSc, all of whom bring modelling and machine-learning expertise; and Uma Ram of Seethapathy Clinic, Chennai, and P Saravanan of University of Warwick,	Funded by BIRAC, DBT and Bill and Melinda Gates Foundation	3
Workshop on Lasers and Optoelectronics for College Teachers	Regional Colleges Teachers in Physical Sciences	RRCAT	2
DAE BRNS Theme meeting on Ultrafast Sciences	Faculty Scientists and specialist in Lasers Ultrafast sciences	RRCAT	3
Design and fabrication of large magnets for fusion applications and joint teaching programmes	Faculty of Pandit Deendayal Petroleum University Gandhinagar	IPR	2
Technology development and exchange of propriety data on plasma jet interaction with microbes	Institute of Pharmacy, Nirma University	IPR	1
Set up centres of excellence in GTU affiliated colleges and capacity building of Research students	Gujarat Technological Univeristy, Gandhinagar	IPR	5
Indian Strings Meeting 2018	Prof. Ashoke Sen, HRI	IISER Trivandrum	6
QIPA 2018	Prof. Ujwal Sen, HRI	HRI Allahabad	6
National Workshop on Qantum Information and	Prof. Ujwal Sen, HRI	HRI IIITAllahabad	10

Information Security			
String field Theory and String Phenomenology	Prof. Ashoke Sen, HRI	HRI DAE ITCP Trieste	10
Nu Horizons VII	Prof. Raj Gandhi	HRI DAE	10
Prof. Karoru Haigiwara lecture Series	HRI Infosys	HRI Infosys	12
Invitation to Particle Cosmology	prof. Biswarup Mukhopadhyaya	HRI Manipal centre for natural Sciences DAE	10
Neutrino and Dark Matter Activity	prof. Sandhya Choubey HRI	HRI DAE	10
HEP March Activity	Prof. Mukhopadhyaya	HRI DAE	10
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3.7.2 – Linkages with institutions/industries for internship, on-the- job training, project work, sharing of research facilities etc. during the year

Nature of linkage	Title of the linkage	Name of the partnering institution/ industry /research lab with contact details	Duration From	Duration To	Participant
Technical Study Tours	Blend of Knowledge with fun	Kakrapar Atomic Power station	01/03/2019	30/05/2019	74 students
Technical Study Tours	Blend of Knowledge with fun	National Centre for Compositional Characterization of Materials, Hyderabad	01/05/2019	15/06/2019	74 students
Academy Summer Research Fellows	Interaction with Indian Academies	Indian National Academy of Sciences, National Academy of Sciences, Indian Academy of Sciences	09/04/2018	31/08/2018	60 students
Practical training programme (BARC, Mumbai) for 1 3 months	Project work, internship and project study	BARC and University of Mumbai, Colleges and autonomous institutions of national	02/04/2018	30/07/2018	736 students

		and state universities			
Practical training programme (BARC, Mumbai) for more than 3 months	Project work, Internship and project study	BARC and University of Mumbai, Colleges and autonomous institutions of national and state universities	10/12/2018	18/02/2019	547 students
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3.7.3 – MoUs signed with institutions of national, international importance, other universities, industries, corporate houses etc. during the year

Organisation	Date of MoU signed	Purpose/Activities	Number of students/teachers participated under MoUs
NISER TIFR	03/03/2018	Research Collaborations	4
NISER ILS Bhubaneswar	03/03/2018	Research collaboration use of animal house, imaging facilities protein purification	3
NISER LV Prasad Eye unit	03/03/2018	Research Collaboration Human patient sample	1
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CRITERION IV – INFRASTRUCTURE AND LEARNING RESOURCES

4.1 – Physical Facilities

4.1.1 – Budget allocation, excluding salary for infrastructure augmentation during the year

Budget allocated for infrastructure augmentation	Budget utilized for infrastructure development
6000	5800

4.1.2 – Details of augmentation in infrastructure facilities during the year

Facilities	Existing or Newly Added
Campus Area	Existing
Class rooms	Existing
Laboratories	Existing
Seminar Halls	Existing
Classrooms with LCD facilities	Existing
Seminar halls with ICT facilities	Existing
Video Centre	Newly Added
Number of important equipments purchased (Greater than 1-0 lakh) during the current year	Newly Added

Classrooms with Wi-Fi OR LAN	Existing
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4.2 – Library as a Learning Resource

4.2.1 – Library is automated {Integrated Library Management System (ILMS)}

Name of the ILMS software	Nature of automation (fully or partially)	Version	Year of automation
LIBSYS	Partially	7	2004
Koha	Fully	17.11.11.000	2014
Koha	Fully	17.11	1998
LIBSYS	Partially	7	2003
LIBSYS	Partially	LS Premia	2002

4.2.2 – Library Services

Library Service Type	Existing		Newly Added		Total	
Text Books	346475	511853790	3776	6659714	350251	518513504
Reference Books	15310	66563684	84	565000	15394	67128684
e-Books	45249	107732160	2144	8090607	47393	115822767
Journals	20006	4547504480	290	290205448	20296	4837709928
e-Journals	13229	0	97	121331121	13326	121331121
Digital Database	618	106611700	41	19217562	659	125829262
CD & Video	4266	2166730	25	0	4291	2166730
Library Automation	2	4672420	0	2780979	2	7453399
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4.2.3 – E-content developed by teachers such as: e-PG- Pathshala, CEC (under e-PG- Pathshala CEC (Under Graduate) SWAYAM other MOOCs platform NPTEL/NMEICT/any other Government initiatives & institutional (Learning Management System (LMS) etc

Name of the Teacher	Name of the Module	Platform on which module is developed	Date of launching e-content
Prof. Ajit M Srivastava	Topological defects in condensed matter and particle physics	https://www.youtube.com/watch?vwVTX7BVdU8I	23/01/2018
Faculty of HBNI IMSc	Video Lectures on Maths and Physical Sciences	https://ekalavya.imsc.res.in/	01/08/2018
Prof. Ashoke Sen	Lectures in PDF and Video format	http://www.hri.res.in/~sen/	10/01/2019
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4.3 – IT Infrastructure

4.3.1 – Technology Upgradation (overall)

Type	Total Co	Computer	Internet	Browsing	Computer	Office	Departme	Available	Others
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	computers	Lab		centers	Centers		nts	Bandwidth (MBPS/GBPS)	
Existing	26684	11	4000	100	21	100	88	1000	0
Added	1000	0	445	10	3	0	0	0	0
Total	27684	11	4445	110	24	100	88	1000	0

4.3.2 – Bandwidth available of internet connection in the Institution (Leased line)

1000 MBPS/ GBPS

4.3.3 – Facility for e-content

Name of the e-content development facility	Provide the link of the videos and media centre and recording facility
J Gate	https://jgateplus.com/search/index/
IMSc Media center hosted using Drupal - inhouse, multipurpose	https://ekalavya.imsc.res.in/
IMSc Media center activities are initiated in the year 2009 for elearning through video contents in the disciplines of Mathematical and Physical Sciences. In continuation to this, 25 seater multifunctional mini studio facility is established in 2018	https://www.youtube.com/user/matsciencechannel
Remote classroom activities are executed for IISER Mohali (around 400 lectures), IIT Jodhpur (around 250 lectures), IISER Pune (around 50 lectures), IISER Tirupathi students by the IMSc faculty using the facilities of the Media Center, remote classes	https://www.youtube.com/user/matsciencechannel
Special lectures, Series of lectures, Conferences and Workshops are recorded, webstreamed and uploaded in the IMSc portal page Ekalavya (https://ekalavya.imsc.res.in/). The Ekalavya serves over 1600 lectures (about 3500 hrs of video content)	https://www.youtube.com/user/matsciencechannel
Media Center encompasses a sound proof broadcast quality mini studio for recording educational videos using PTZ Cameras, video recorders, A/V Mixers, Video Editing, Video Conferencing and Web Streaming equipments with proper lighting facilities.	https://www.youtube.com/user/matsciencechannel
the media facility is handled using project manpower. Considering the growing IMSc requirements and demands, additional media facility with 100 seating capacity is under establishment.	https://www.youtube.com/user/matsciencechannel

4.4 – Maintenance of Campus Infrastructure

4.4.1 – Expenditure incurred on maintenance of physical facilities and academic support facilities, excluding salary component, during the year

Assigned Budget on academic facilities	Expenditure incurred on maintenance of academic facilities	Assigned budget on physical facilities	Expenditure incurred on maintenance of physical facilities
14493	13843	13213	11377

4.4.2 – Procedures and policies for maintaining and utilizing physical, academic and support facilities - laboratory, library, sports complex, computers, classrooms etc. (maximum 500 words) (information to be available in institutional Website, provide link)

The HBNI and the Constituent Institutions/ Off Campus Centre are established by the Govt. of India through the Department of Atomic Energy. The academic buildings, laboratories, resources such as IT computer centre, classrooms, ICT labs, sports complex, residential facility for faculty, staff and students are the facility established following the procedures of the Govt. of India and such statutory bodies. Accordingly the maintenance and the physical facilities are under their purview, the DAE allocated budgets directly for the respective activities. The resources relating to ICT, campus infrastructure for academic and related activities are part of the major RD activities of the CIs/ grant in aid to the respective institutions following the govt. norms. Where specific facilities such as e governance peripherals are purchased, installed and maintained following due procedures of the Govt. of India. It is estimated that approximately 12 percent to 15 percent of the total cost of equipment, devices, computers, peripherals are spent on annual maintenance across all the institutions, where applicable, replacement of spares is undertaken as per the maintenance policies of the institutions. All the facilities available in the CIs is available across all the CIs/ OCC for carrying out experimental and theoretical work. For utilizing these facilities from other CIs/ OCC a communication to the in charge of the lab are made through formal and informal for use of such facilities. Some facilities are for central use of all scientists across the CIs/ OCC, The Electron Microscope facility of SINP is working as a central facility and equipped with a 200 keV Transmission Electron Microscope and a 300keV Field Emission Gun Transmission Electron Microscope. The facility caters to the researchers from diverse disciplines like Biological Sciences, chemical sciences and engineering sciences. Researchers utilize some of the facilities like Indus I and II, which are very unique and they are used by almost all the CIs/ OCC and other instituted in India, who also use the facility for study of biological samples like bacteria their thin section, lipid vesicles, detergent micelles, lipid protein complexes, peptide aggregation etc.

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CRITERION V – STUDENT SUPPORT AND PROGRESSION

5.1 – Student Support

5.1.1 – Scholarships and Financial Support

	Name/Title of the scheme	Number of students	Amount in Rupees
Financial Support from institution	DAE Fellowship PhD programme	1932	81826003
Financial Support from Other Sources			
a) National	Fellowship for Research programmes UGC, DST	315	4855000

b)International	DAAD	1	2160000
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5.1.2 – Number of capability enhancement and development schemes such as Soft skill development, Remedial coaching, Language lab, Bridge courses, Yoga, Meditation, Personal Counselling and Mentoring etc.,

Name of the capability enhancement scheme	Date of implementation	Number of students enrolled	Agencies involved
International Yoga Day for Holistic Health Development	21/06/2018	30	HBNI BARC
Executive Excellence for Engineers	01/08/2018	83	HBNI BARC
Executive Excellence for Young Scientists	01/08/2018	16	HBNI BARC
Communication and Soft Skills for Doctoral Students	01/08/2018	16	IGCAR
Technical Communication for MSc Students of NISER	06/08/2018	97	NISER
Technical Communication for PhD students	06/08/2018	30	NISER
Teacher Enrichment workshop for Andhra University	03/09/2018	40	IMSc
From Learning to Doing: Science, Education and Public Service in Chennai	05/11/2018	100	IMSc
Supporting teachers in helping students make sense of mathematics,	20/11/2019	30	IMSc TIFR
Towards understanding grassroots India:	06/12/2018	20	IMSc
Teacher Enrichment Workshop on Maths for College teachers	07/01/2019	200	IMSc IMA Bhubaneswar
Enriching Mathematics Education	28/01/2019	60	IMSc
Vigyan Pratibha Chennai Region Teachers Workshop	21/01/2019	50	IMSc

Indian Women in Science, Exhibition	01/02/2019	16	IMSc
The Stellar Legacy of Prof. Meghnad Saha	26/02/2019	100	IMSc
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5.1.3 – Students benefited by guidance for competitive examinations and career counselling offered by the institution during the year

Year	Name of the scheme	Number of benefited students for competitive examination	Number of benefited students by career counseling activities	Number of students who have passed in the comp. exam	Number of students placed
2019	na	0	0	0	0
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5.1.4 – Institutional mechanism for transparency, timely redressal of student grievances, Prevention of sexual harassment and ragging cases during the year

Total grievances received	Number of grievances redressed	Avg. number of days for grievance redressal
2	1	30

5.2 – Student Progression

5.2.1 – Details of campus placement during the year

On campus			Off campus		
Name of organizations visited	Number of students participated	Number of students placed	Name of organizations visited	Number of students participated	Number of students placed
No Data Entered/Not Applicable !!!					
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5.2.2 – Student progression to higher education in percentage during the year

Year	Number of students enrolling into higher education	Programme graduated from	Department graduated from	Name of institution joined	Name of programme admitted to
2018	4	PhD	Physical Sciences	IIT Mumbai, BITS Hyderabad, IISER Tirupathi, TIFR Mumbai	Post Doc Fellow
2018	3	MTech	Engineering	HBNI	PhD
2018	2	MD Anaesthesia	Medical and Health TMC	St. John Medical College Bengaluru	DM Critical Care Medicine
2018	2	MD Anaesthesia	Medical and Health TMC	National Board of	FNB Critical Care

				Examinations Delhi	Medicine
2018	122	MSc	NISER Maths, Physics, Chemistry, Life Sciences	National Institutions and Internat ional Universities	PhD
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5.2.3 – Students qualifying in state/ national/ international level examinations during the year
(eg:NET/SET/SLET/GATE/GMAT/CAT/GRE/TOFEL/Civil Services/State Government Services)

Items	Number of students selected/ qualifying
NET	27
GATE	15
CAT	6
GRE	20
Any Other	12
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5.2.4 – Sports and cultural activities / competitions organised at the institution level during the year

Activity	Level	Number of Participants
Swimming Competetion (VECC)	National Level	24
Carom	National Level	32
Bridge	national Level	30
Ball Badminton	national level	22
PhD Scholars day	Intra Institute	82
Annual Sports Day (HRI)	Intra Institute	82
Cricket Match	Intra Institue	30
HRI Joys Day Annual Cultural Event	Intra Institute	120
Badminton	Intra Institute	50
Cricket	Intra Institute	75
football	Intra Institute	45
swimming	intra institute	15
Annual Sports	Intra Institute	200
chess	intra institute	5
Cards	Intra Institute	15
Carrom	Intra Institute	25
Volley Ball	Intra Institute	64
World Hindi Day	Intra Institute	60
Hindi Pakhwada (IoP)	Intra Institute	65
International Yoga Day (IoP)	Intra Institute	50

IMSC Sports Activity Cricket, Football, TT, Chess	Intra Institute	120
IMSC Cultural events	Intra Institute Institute annual functions	160
IMSC Movie club	Intra Institute	30
IMSC Fresher Function	Institute level	120
IMSC Science Day	Institute level	120
IMSC Hindi Day	Institute level	120
Swachhata Pakhwada	Intra Institute	65
Cricket	Intra Institute	44
IISM 2018 (NISER)	National Level	15
IGCAR Shuttle	Campus level	143
IGCAR Cricket	Campus level	143
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5.3 – Student Participation and Activities

5.3.1 – Number of awards/medals for outstanding performance in sports/cultural activities at national/international level (award for a team event should be counted as one)

Year	Name of the award/medal	National/ International	Number of awards for Sports	Number of awards for Cultural	Student ID number	Name of the student
2018	DAE National Swimming Competition	National	1	0	PHYS042014 04003	Soumik Bhattacharya
2018	Gold Medal in Sports	National	2	0	NISER01	NISER Team
2018	Gold medal in Sports	National	1	0	NISER 02	NISER Team
2018	Silver medal in sports	National	2	0	NISER 04 05	NISER Team
2018	Silver medal in sports	National	2	0	NISER 06 07	Niser Team
2018	Silver medal in sports	National	1	0	NISER 08	NISER Team
2018	Silver medal in sports	National	6	0	NISER10 11 12 13 14 15	NISER Team
2018	Bronze Medal in sports	National	2	0	NISER 16 17	NISER Team
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5.3.2 – Activity of Student Council & representation of students on academic & administrative bodies/committees of the institution (maximum 500 words)

HBNI in its endeavor to provide effective and transparent functioning of the academic and academic related activities have constituted functional bodies/committees to undertake the delegated functions. Students are represented in all such bodies to seek views of the students and their matters. For the purpose of academic activities students are represented in Student Grievance Committees (at the CI levels), Internal Quality Assurance Cell, Placement and Alumni Cell. In order for the functioning of cultural and outreach activities, each of the CI/ OCC have Student Cultural Committees, which organize and conduct national festivals, environmental and health awareness campaign, swachaata abhiyan, outreach activities such as blood donation camps, awareness campaign. Students of HBNI and CIs/ OCC participate in various sports, cultural, library, nature clubs and such other committees. They organize annual events, sports and cultural as per their academic calendar. All support is being extended to them for organizing such events through student mentors and Dean Student Affairs. Each of the CIs have indoor games, sports and cultural clubs which organize such events within the campus. The students are engaged in annual hostel day celebrations, institute day, swachata abhiyan, clean campus campaign, new year eve celebrations, Ganapathi Utsav, colloquium on science topics, health matters, popular science talks, invites lectures on Science Day, Yoga Day, Republic day, Independence Day, Literary Club, Dance, Drama and Film club and such other events. The students in all the CIs/ OCC are actively engaged in the national/ international level scientific forums, meeting and conferences for exchange of ideas and themebased research. They are generally mentored and guided by the Centre Director, PhD guides. Clean Green Campaign in the CIs: The students of PG level are engaged in Swacchata Abhiyan, planting tree sapling on the notified days of the year to commemorate their contributions to the country. These activities help inculcate a habit for conservation of environment and natural resources. All the students of the CIs take this initiative annually. Promotion and Popularization of Science Education Programmes by students of CIs: a large number of students in the CIs actively participate in training and education programme to the undergraduate and post graduate during the summer vacation and regular projects during the final year of the science programme being pursued by students of other university, colleges etc. They even train students for 1year project leading to preparation of a project report in the chosen topics. The number of such trainee students are in large numbers to the extent of more than 200 to 1000. Select CIs also conduct summer students visitor programme for a duration of 6 weeks, students sponsored and supported by INSA also take part in such activities. The students are also engaged in organizing popular science lecture for school students either within the CIs or in their school campus. National Science Day/ National Technology Day: The students in the CIs are actively engaged in National Science Day and National Technology Day programme celebrated as per their programmes. On such occasion, eminent scientists are invited.

5.4 – Alumni Engagement

5.4.1 – Whether the institution has registered Alumni Association?

Yes

TMC ACTREC has a registered Alumnus Association. Other CIs also have similar bodies. HBNI has an alumni cell coordinating the efforts and directions as per the institute policy across all the Constituent Institutions and Off campus Centre.

5.4.2 – No. of registered Alumni:

5.4.3 – Alumni contribution during the year (in Rupees) :

0

5.4.4 – Meetings/activities organized by Alumni Association :

Alumni Memorial Lectures and Outreach programmes are organized.

CRITERION VI – GOVERNANCE, LEADERSHIP AND MANAGEMENT

6.1 – Institutional Vision and Leadership

6.1.1 – Mention two practices of decentralization and participative management during the last year (maximum 500 words)

The organizational structure of HBNI is indeed truly decentralized. The responsibilities for selection and admission of students, payment of fellowships, guidance and monitoring of progress of students, redressal of grievances of students, organization of exams and other such activities 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 academic rigor. A Standing Academic Committee is set up at each CI that prescribes the course work for the students and also forms the Doctoral Committee. Every CI/OCC has one or more Deans (Academic), depending on the disciplines handled by the CI/OCC, and one Dean (Student Affairs) and a Nodal Officer who handle all the academic Governance and students' welfare activities. Participative Management: The Academic Council of HBNI has, as its members, Directors of all the CIs/OCC as well as convenors and coconvenors of Boards of Studies. Deans (Academic) are invitees to the meetings of the Academic Council. All major decisions on academic programs and processes are arrived at by discussion in the Academic Council with participation of all important functionaries of HBNI. This has ensured that the institutions are able to meet their individual objectives and at the same time, adhere to a common set of academic standards and processes. Similarly, the Standing Committee of Deans (SCD) of HBNI, chaired by Vice Chancellor, has as its members Deans (Academic) and Deans (Student Affairs) of all CIs and OCC. The finer aspects of academic governance are discussed in detail in the meetings of SCD. Case Study: Revision of Ordinances of HBNI The Ordinances of HBNI, which govern the conduct of all academic programs, were formulated in 2013. Subsequently, based on the decisions taken by Academic Council and other bodies on various topics, guidelines were issued to students, faculty as well as CIs/OCC. These guidelines covered a number of important issues and during last year (2017-18), it was decided that the ordinances need to be revised to incorporate all the guidelines and provide them a statutory base. Also, considering various developments in the field of higher education, and guidelines issued from time to time by bodies such as UGC, many changes had to be made in the ordinances. Further, ordinances had to address new courses which were started in the intervening period. Considering the comprehensive changes required, the ordinances were first drafted through several detailed deliberations within the Central Office. These were then discussed in meetings of the Standing Committee of Deans, where Deans (Academic) from all CIs and OCC participated and shared their views. The ordinances were then discussed in the Academic Council, where the Directors of CIs/OCC as well as academic experts from outside HBNI provided a number of important inputs. The revised ordinances were placed in the Council of Management which also made many important suggestions. The revised ordinances issued in Dec. 2018 had the participation of all the academic functionaries.

6.1.2 – Does the institution have a Management Information System (MIS)?

Yes

6.2 – Strategy Development and Deployment

6.2.1 – Quality improvement strategies adopted by the institution for each of the following (with in 100 words each):

Strategy Type	Details
Teaching and Learning	<p>Doctoral students are encouraged to enrich themselves by taking up courses beyond mandatory one year of course work to broad base their knowledge. Such courses could be in the form of selfstudy courses, open seminars or minor RD project. Similarly, MTech, students during oneyear course in training school are given mini projects to be carried out under the guidance of senior scientists. The project work is evaluated by a committee. The evaluation procedure includes a presentation by the students also visit various nuclear installations as a part of their course of work. Students from Health Sciences practice in hospitals as a part of their academic programs. Viz. MD/ DM/ MCh/ Nursing etc.</p>
Admission of Students	<p>A meritocratic admission policy with predefined minimum standards are followed. It has two steps as follows i. National level test (On line or Offline) ii. Interview by a Committee appointed by Head of the CIs/OCC. For different courses number of centres is different. For low applicant/ intake courses centre is mainly at the CIs. For high applicant/intake courses centres are at National level. The no. of examination centres for the year 2017 for OCES, NEST, JEST is 62,123 and 39 respectively.</p>
Research and Development	<p>The Research and Development by the CIs/ OCC provide valuable support to sustain and expand the indigenous nuclear sciences and engineering programme across the DAE RD Centres in the country. They are also engaged in the nonpower applications of nuclear technologies for use in industry applications, agriculture and food, medical, health care advanced research. All the research undertaken by the CIs/ OCC have strong community linkages. The RD undertaken by the CIs/ OCC are the primary mission of the DAE mandate. The researches undertaken across the RD centres are peer reviewed by external eminent experts and the annual progress reports are discussed in their</p>

respective apex management bodies. The RD centres have their mechanism to conduct annual reviews of the research works, outputs and application undertaken. Each of the units fine tune their research focus and outputs following the annual review feedbacks so obtained.

Library, ICT and Physical Infrastructure / Instrumentation

The library, ICT and related infrastructure including the RD equipment instrumentation already available in the CIs/ OCC are latest technology based and as available in the best institute in sector. The Libraries are equipped as per latest specifications and every effort has been made to make available e journal, digital scientific publications on the click of the mouse for the students and faculty to access at all times. All the labs, student residences are wifi enabled which allow students to access such information as per their time and duration. On ICT enabled resources, HBNI has facilitated making available the NPTEL, SWAYAM and e pathshala the virtual lectures and technology enabled lectures for access to the DAE ecosystem. As part of making this a practice, the HBNI Ordinance also allow sourcing such courses and earn credits on self learning basis. All the RD centres/ Units within the CIs/ OCC have state of art lab equipment and instrumentation for undertaking research in the specialized fields. The research fellows have option to undertake/ conduct part of the research in one or more of the research establishments as part of the thesis. Similarly, students of the medical and health sciences practice in a hospital as part of their PG and research programmes.

Curriculum Development

The university follows a systematic process for the design and the development of curriculum for various academic programmes, which are explained below. The curriculum development for MTech/ MSc (Engg)/ MPhil is carried out by a subcommittee of experts constituted for this purpose by the subject specific Training School Committees (TSC). The TSCs base their recommendations on evolution (or introduction of new) of DAE programmes during the period since the last review

and feedback from students. The report of the subcommittee is reviewed by the respective TSC. The revised syllabus incorporating the recommendations of the TSC is then forwarded to the Board of Studies (BoS) of respective discipline for the ratification of the suggestions and recommendations. The recommendations of the BoS is place in the Academic Council for ratification and approval. This process is carried out once in three years on a holistic basis. However, minor modifications if required are carried out on a case by case basis in an ongoing manner and duly ratified in the meetings immediately following the revision by the above committees as state above.

DipRP/ DMRIT/ DFIT These programmes come under Board of Studies in Medical and Health Sciences and to conduct this programme a Standing Academic Committee has been constituted in BARC/TMC. Any revision to the syllabus is approved first by the standing committee and then by the BoS. The syllabus went through a major revision recently as a result of a report of a committee specifically appointed for this purpose. MD/ MCh/ DM The conduct of these programmes including any revision of syllabus is managed by the Board of Studies in Medical and Health Sciences and the guidelines of the Medical Council of India. The BoS meets periodically and deliberates on the recent trends, development and introduces new specializations that may be needed to generate manpower in the specialized medical field. MSc (Nursing) Conduct of this programme including any revision of syllabus is governed by Board of Studies in Medical and Health Sciences and the guidelines of the Nursing Council of India. PhD and Integrated PhD Course work part of the programme is designed and approved by CI level academic committees and approved by BoS. Additionally, Student specific doctoral committees look into the requirements of individual students and prescribe additional courses which have to be taken as selfstudy courses. Syllabi for such courses are tailor made. With regard to the MSc part of the programme, the curriculum is designed by the faculty based on current national and international

trends in Masters level education in Physics, Chemistry and Mathematics. It is then run through Board of Studies and their feedback is incorporated before finalizing the curriculum. Student feedback is taken both during the course as well as at the end of the course and based on the feedback the required changes in the course curriculum, research methodology and examination system is made for effective learning of the subject. The feedback process is monitored and implemented by the Graduate committee of the Institute. MSc (5Year Integrated) This programme is conducted only at NISER. The course structure of the programmes is designed by the experts consisting of eminent scientists in the field and frozen for a minimum of 3 years. The syllabus for individual courses in any program is proposed by the faculty and submitted to the Undergraduate Committee of the BoS (UGCS) of the respective school. It is discussed and sent to Undergraduate Committee of the Institute (UGCI) and then sent to the BoS. The BoS of the CIs of NISER meets once in every 3 months to ratify the above. Finally, it is discussed and approved by the Board of Studies of CI and Academic Council of HBNI. Once approved it is included into the course curriculum as a core course or elective for the students to choose following Choice Based Credit system.

Examination and Evaluation

All the CIs follow the system of two semesters and a summer semester pattern of study phase concluded by an end semester examination. Two/ three rounds of examinations are held in all the semesters. Such examination pattern makes it close to continuous evaluation system. In addition to the examinations, assignments are given to the students by many course instructors and evaluated periodically. All doctoral courses conducted by CIs/OCC follow semester systems. HBNI expects a doctoral thesis to be a significant original and independent contribution to knowledge in a chosen field of study and be of such lasting value as to merit publication. It should demonstrate an ability to select an important problem and deal with it completely including an ability to

effectively communicate what has been achieved through the research activity. PhD thesis is expected to be short, not longer than 300 pages. PhD evaluation process followed by HBNI has the following key steps: A general comprehensive examination in the beginning of the PhD programme to evaluate the broad based knowledge of the students Annual progress reviews by the students' specific doctoral committees Pre synopsis seminar Permission to submit the thesis only after the student has published research papers in the peer reviewed journals and the number of publications required depending on the discipline and topic Thesis evaluation by 2 external reviewers, preferably one reviewer from abroad Final public viva voce examination by the doctoral committee along with one external examiner.

Human Resource Management

The quality improvement strategies in human resources across all the CIs/ OCC are focused to meet the intended objectives of the RD centres and activities are surrounded to achieve these objectives as per the plans. In achieving this, the CIs/ OCC have the following in place: Faculty Empowerment Strategies: All the faculty members have excellent academic and research credentials and many of them have fellows of prestigious academies. The faculty are encouraged to publish in the peer reviewed journals and participate in the national/ international conferences. Faculty members are also encouraged to pursue most advanced research, in the national and international institutions with the aim that they bring value addition research in their specialised areas and sector. The faculty are also encouraged to participate in the international collaborative research projects for Example, CERN, ITER, FERMI Lab etc. Faculty are also allowed to pursue research through extramural grants available with other DAE institutions viz., BRNS etc. With the objective to bring in quality perspectives and trends to other peer institutions. The HBNI faculty also serve on the governance bodies, academic bodies and such other statutory bodies of various educational institutions. The research

fellows also extended foreign travel assistance for presenting their research work and publication in the national and international scientific for a, symposium with the support of DAE/ HBNI grants. This provides ample opportunity to interact with their international peers and exchange ideas.

Conducive Green Living campus facilities: The campuses of all the CIs/ OCC are spread in vast sprawling green campus with all modern amenities for the living of faculty and their family. They are self contained with all amenities including children education until the higher secondary level. The school is affiliated to CBSE and quality education is being imparted to them. The campus has hospital, market place and community centre for all social gathering and such events. The campus is also eco friendly where possible have adopted such technologies of biogas, waste utilization/ recycling processes and water recharge resources.

All the campuses are equipped with adequate sports and recreation facilities for use of the staff, faculty and members in the colony.

Faculty Promotion Policies: The promotion policies for the faulty are fair and transparent, which are based on the merit based. The individuals are appraised annually and interviewed for promotions in accordance with the set procedures (approved by the apex body). The meritbased promotion schemes have ensured that the performers are able to move up and not merely based on the seniority. The grant in aid institutions have well formulated promotion policy for the faculty, which are decided based on the recommendations of the Promotion Committee comprising of internal and external experts, which are again based on the performance and recommendations of the experts (peers) through letters.

Industry Interaction / Collaboration

With regard to consultancy, situation is again different from other universities. Every member of the faculty in R D centers is recruited as a scientific officer and they are engaged in projects assigned to him/ her that includes projects having application in respective industrial units of the DAE or for possible deployment outside the DAE. This is

true for IPR as well. Faculty are members of various committees for the regulatory matters for the review of nuclear research, safety and related facilities. In case of other institutions, faculty work on large research projects or high impact research area.

6.2.2 – Implementation of e-governance in areas of operations:

E-governance area	Details
Student Admission and Support	Online fee payment has been introduced from the previous year. All students have access to the online portal for fee payment. This is also as per the policy of the Govt. of India's digital initiative.
Examination	CIs/ OCC are conducting online examination as per the applicable procedures and regulations of the BoS.
Finance and Accounts	Use of such software for accounting as per govt. of India guidelines are followed. HBNI is following the govt. of India's guidelines for the application of such software and processing of student matters including the Foreign Travel Assistance.

6.3 – Faculty Empowerment Strategies

6.3.1 – Teachers provided with financial support to attend conferences / workshops and towards membership fee of professional bodies during the year

Year	Name of Teacher	Name of conference/ workshop attended for which financial support provided	Name of the professional body for which membership fee is provided	Amount of support
2019	Faculty of HBNI	Various National and International Conferences in Year 2018 19	All Scientific Societies Professional Bodies in the areas of specializations	21000000
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6.3.2 – Number of professional development / administrative training programmes organized by the University for teaching and non teaching staff during the year

Year	Title of the professional development programme organised for teaching staff	Title of the administrative training programme organised for non-teaching staff	From date	To Date	Number of participants (Teaching staff)	Number of participants (non-teaching staff)
2019	Advanced Teaching Skills	Harvard Advanced Teaching	07/06/2019	08/06/2019	5	0

	course for teaching staff	Skills				
2018	GST Yesterday Today Tomorrow ATI, Mumbai	GST Yesterday Today Tomorrow ATI, Mumbai	02/07/2018	04/07/2018	0	2
2018	Reinventin g Libraries : Digital innovation and technologies" by IGCAR, Kalpakkam	Reinventin g Libraries : Digital innovation and technologies" by IGCAR, Kalpakkam	06/08/2018	09/08/2018	0	2
2018	Financial Management " by ATI, DAE	Financial Management " by ATI, DAE	03/12/2018	07/12/2018	0	2
2018	Mentoring" by ATI, DAE	Mentoring" by ATI, DAE	10/12/2018	12/12/2018	1	2
2019	"Reservati on in Services" by IGCAR, Kalpakkam	"Reservati on in Services" by IGCAR, Kalpakkam	18/01/2019	19/01/2019	1	2
2019	Gender Sen sitisation " by IGCAR, Kalpakkam	Gender Sen sitisation " by IGCAR, Kalpakkam	25/02/2019	25/02/2019	0	4
2019	Intensive Workshop on noting and drafting" by ATI, DAE	Intensive Workshop on noting and drafting" by ATI, DAE	13/03/2019	15/03/2019	0	4
2019	Management Developmen t programme" by ATI, DAE	Management Developmen t programme" by ATI, DAE	17/03/2019	17/03/2019	0	2
2019	Knowledge in Tally software" by IPR, Ahmedabad	Knowledge in Tally software" by IPR, Ahmedabad	22/03/2019	25/03/2019	0	1

2019	"Court Cases" by IGCAR, Kalpakkam	"Court Cases" by IGCAR, Kalpakkam	28/03/2019	29/03/2019	0	1
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6.3.3 – No. of teachers attending professional development programmes, viz., Orientation Programme, Refresher Course, Short Term Course, Faculty Development Programmes during the year

Title of the professional development programme	Number of teachers who attended	From Date	To date	Duration
Faculty Induction development Programme of HBNI	220	22/10/2018	23/10/2018	1
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6.3.4 – Faculty and Staff recruitment (no. for permanent recruitment):

Teaching		Non-teaching	
Permanent	Full Time	Permanent	Full Time
23	0	0	18

6.3.5 – Welfare schemes for

Teaching	Non-teaching	Students
<p>The campus in the R and D Centres of the CIs/ OCC are provided with residences for majority of the staff and faculty. These government accommodations are in the vicinity of the Institutes. There are welfare schemes for medical as per the government regulations, guidelines, including their family is covered under the Contributory Health Services Scheme. A family welfare scheme following the government of India is also applicable to them. The campuses have schools for kids of all faculty and staff members. Recreational facilities, yoga room, indoor games facilities, and student focussed cultural activities form part of the campus life for</p>	<p>The campus in the R and D Centres of the CIs/ OCC are provided with residences for majority of the staff and faculty. These government accommodations are in the vicinity of the Institutes. There are welfare schemes for medical as per the government regulations, guidelines, including their family is also covered under the Contributory Health Services Scheme. A family welfare scheme following the government of India scheme is also applicable to them. The campuses also have school education for their kids of all faculty and staff members.</p>	<p>All the campus have own hospitals, student Centres and activities as per the plans of the institute. Students have access to these facilities as per their needs and choices.</p>

teachers and staff.

6.4 – Financial Management and Resource Mobilization

6.4.1 – Institution conducts internal and external financial audits regularly (with in 100 words each)

HBNI academic and related activities are audited as per the statutory functions. The Planning and Monitoring Board of HBNI reviews the academic plans envisaged for the year and reviews the progress made in the previous year. The Planning and Monitoring Board also advice on the future vision, directions and road map for all the academic activities. As per the statutory provision, statutory auditor for financial procedures and process are undertaken. The Finance Committee also recommends the statutory provisions for the institute and the recommendations are placed before the Council of Management for concurrence. Thus the Council of Management serves as an apex body for the institute functions and activities.

6.4.2 – Funds / Grants received from management, non-government bodies, individuals, philanthropies during the year(not covered in Criterion III)

Name of the non government funding agencies /individuals	Funds/ Grnats received in Rs.	Purpose
JB Joshi Endowment funds, other non government, and corporates for medical oncology	188100000	Towards Corpus for Endowment Lectures, research in oncology
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6.4.3 – Total corpus fund generated

188100000

6.5 – Internal Quality Assurance System

6.5.1 – Whether Academic and Administrative Audit (AAA) has been done?

Audit Type	External		Internal	
	Yes/No	Agency	Yes/No	Authority
Academic	Yes	UGC AICTE committee visited and reviewed academic activities in the HBNI Central Office, CIs/ OCC	Yes	Planning Monitoring Board, Academic Council and Council of Management
Administrative	Yes	Financial audit as per Govt. of India provisions	Yes	Administration by HBNI Management Committee and Council of Management and Finance Audited as per Govt. notifications

6.5.2 – What efforts are made by the University to promote autonomy in the affiliated/constituent colleges? (if applicable)

not applicable

6.5.3 – Activities and support from the Parent – Teacher Association (at least three)

The programmes offered in the CIs are at the post graduate level and primarily the interaction with the parents of the students happen as per needs and demands, as the CIs are dealing with matured students who are capable of putting their perspective as per the requirements. Efforts through Alumni are also made to actively interact with parents.

6.5.4 – Development programmes for support staff (at least three)

The support staff are guided to undertake short courses conducted by the Govt. of India institutions and ATI, Mumbai in a variety of areas such as RTI, purchase procedures, managing the staff personal matters as per the rules and regulations of the govt. of India announced time to time, and education management courses conducted by IIMs etc. with the aim to upgrade their skills and knowledge in office management. Emphasis is also made for use of Hindi typing and office management purposes.

6.5.5 – Post Accreditation initiative(s) (mention at least three)

1. Introduction of new courses as per demand having emphasis on employability
2. Student Centric Initiatives including digital initiatives for online fee payment, streamlining the academic progress and their processes
3. Institution Digital Initiatives covering recording of lectures and making available in the form of e lectures for access to all, providing NPTEL based courses and SWAYAM courses as part of main courses

6.5.6 – Internal Quality Assurance System Details

a) Submission of Data for AISHE portal	Yes
b) Participation in NIRF	Yes
c) ISO certification	Yes
d) NBA or any other quality audit	Yes

6.5.7 – Number of Quality Initiatives undertaken during the year

Year	Name of quality initiative by IQAC	Date of conducting IQAC	Duration From	Duration To	Number of participants
2018	Meeting of the IQAC	20/04/2018	20/04/2018	20/04/2018	12
2018	HBNI Colloquium	11/06/2018	11/06/2018	11/06/2018	45
2018	Technical Lectures on Quality Aspects	20/08/2018	20/08/2018	20/08/2018	45
2018	Revision of Ordinances	19/12/2018	19/12/2018	20/12/2018	60

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CRITERION VII – INSTITUTIONAL VALUES AND BEST PRACTICES

7.1 – Institutional Values and Social Responsibilities

7.1.1 – Gender Equity (Number of gender equity promotion programmes organized by the institution during the year)

Title of the programme	Period from	Period To	Number of Participants

			Female	Male
Promotion of Medical and Health Programmes for women	06/08/2018	24/08/2018	20	15
Promotion of Work Ethics in Scientific Laboratory (BARC Training School)	01/08/2018	15/08/2018	10	60
Gender Equity Save Life Save Campus Role of Youth Women Safety	15/06/2018	18/06/2018	100	100

7.1.2 – Environmental Consciousness and Sustainability/Alternate Energy initiatives such as:

Percentage of power requirement of the University met by the renewable energy sources

The contribution of power requirement met by renewable/ alternate energy sources: All the CIs/ OCC have implemented the Govt. of India regulations to meet the power/ energy requirement using solar energy, alternate energy systems as per the norms. CIs accordingly have set up solar panels for power generation to meet the institutional energy needs. Clean Green Campaign: All the CIs/ OCC are following the Government of India guidelines and have implemented generation and utilization of renewable energy sources. Each CI/ OCC have adopted the use of renewable energy as per the policies, accordingly budgets were made available. All the students in the Constituent institutions are engaged in Swachaata Abhiyan, tree planting in the campus and common places in their regions to commemorate notified days which have direct contribution to SDGs. These activities helped students inculcate a habit for conservation of environment and natural resources. All institutions of DAE are extremely conscious about environment as can be seen from the greenery in the campuses. At Trombay campus of BARC, a Nisurgaruna plant has been operating to generate and process waste generated in the kitchen. It generates cooking gas and manure. A water harvesting scheme has also been implemented in the Trombay campus. For disposal of hazardous chemical waste, a plant has been set up in BARC. The chemistry laboratories encourage use of 'green chemistry' methodologies. Similar to BARC, another Nisurgaruna plant to process kitchen waste is installed at RRCAT Indore. Tree planting and growing of flowers is given special emphasis on all campuses and this has resulted in beautiful ambience in the campuses. Tree cover attracts birds. Greenery of IoP attracts hundreds of migratory birds every winter enroute to Chilka lake of Odisha. As part of environmental monitoring programme, studies on physio chemical, biological and geo chemical characteristics of coastal environment (water, biota and sediment) were conducted at IGCAR to meet MoEF regulation. Results of studies on biofouling organism, phytoplankton, zooplankton and fish diversity in the coastal water indicated high diversity and high density indicating the healthiness of the Kalpakkam coastal environment. Among antifouling paints screened, one was found suitable for use at MAPS water intake gate. Results of studies on dissolved heavy metal in Kalpakkam sea water indicated that the coastal water is not polluted with heavy metals. A new fish species to the world of fishery science has been identified and named as Scolopsis igcarensis, in recognition of IGCAR's contribution to marine diversity study. Water quality studies on ground water samples from Kalpakkam region were carried out for

fluoride and nitrate content, fluoride content were below permissible limit, however, nitrate contents were beyond the limit in some of the areas. In one of the major CI, BARC about 60K units through Renewable Energy per year is installed.

7.1.3 – Differently abled (Divyangjan) friendliness

Item facilities	Yes/No	Number of beneficiaries
Ramp/Rails	Yes	5
Rest Rooms	Yes	5
Provision for lift	Yes	5

7.1.4 – Inclusion and Situatedness

Year	Number of initiatives to address locational advantages and disadvantages	Number of initiatives taken to engage with and contribute to local community	Date	Duration	Name of initiative	Issues addressed	Number of participating students and staff
2018	2	2	10/10/2018	1	Role of Youth and Women safety	Safe life and safe campus	200
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7.1.5 – Human Values and Professional Ethics Code of conduct (handbooks) for various stakeholders

Title	Date of publication	Follow up(max 100 words)
Code of Ethics	21/08/2019	<p>Homi Bhabha National Institute was created by Department of Atomic Energy by academically integrating ten of its institutions under its administrative control. One more (NISER) was added subsequently as an Offcampus centre of HBNI. Ethics and integrity have been the core values of DAE institutions and HBNI, from its inception, has taken all necessary steps in ensuring these qualities among its faculty and students. HBNI is committed to fostering an environment of academic rigour and ethical values. This note describes the policy elements of HBNI with regard to ethics and integrity. This code of ethics shall apply to all</p>

		<p>the faculty members, students, researchscholarsand supporting staff. The CIs/OCC of HBNI have articulated a Code of Ethics, which will be binding on the staff members and students of those organizations, in addition to the Code of Ethics outlined here.</p> <p>(Detailed document available in the website)</p>
<p>Promotion of Work Ethics in Scientific Laboratories</p>	<p>01/08/2018</p>	<p>HBNI has zero tolerance for any form of academic dishonesty. Students as well as faculty shall always adhere to the highest standards of academic integrity. Any incidence of unethical practice will adversely impact the standing and reputation of the Institute, besides providing undue disadvantage to a section of students/faculty, and therefore, every student and faculty of the institute is responsible for maintaining a high standard of ethics and shall take proactive steps to maintain such standards and never abet any unethical practice.</p> <p>In the process of interpretation of data, preparation of research papers / reports or making presentations, they shall always ensure that due credit is given for other's work, and in no circumstances, indulge in plagiarism. Students and faculty shall also resist and bring to the notice of the appropriate authority, any instance of plagiarism or unethical practice observed by them.</p> <p>(Detailed document available in the website)</p>

Promotion of Medical and Health programmes	06/08/2018	A workshop was conducted for the students faculty and staff of the Centre including Hospital in the out reach of health and medical programmes, blood donation and organ donation. The health and safety aspects was also highlighted.
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7.1.6 – Activities conducted for promotion of universal Values and Ethics

Activity	Duration From	Duration To	Number of participants
Participative Workshop on the Preparation of Institutional Values Ethics Policy for HBNI	06/09/2019	06/09/2019	35
Work Ethics in Scientific Laboratories	01/08/2018	14/08/2018	25
Safe Life Safe Campus Role of Youth Women Safety	15/06/2018	19/06/2018	200
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7.1.7 – Initiatives taken by the institution to make the campus eco-friendly (at least five)

All CIs/ OCC of HBNI are extremely conscious about environment carbon footprint, as can be seen from the greenery in the campuses. In the Trombay campus of BARC, a Nisurgaruna plant has been operating to generate and process the waste generated from the kitchen. It generates cooking gas and organic manures. (i) A water harvesting scheme has also been implemented in the Trombay campus. For disposal of hazardous chemical waste, a plant has been set up at the BARC campus. (ii) The Chemistry laboratories encourage use of 'green chemistry' methodologies. A Nisurgaruna plant to process kitchen waste is installed at BARC, a CI of HBNI. (iii) Tree planting and growing of flowers is given special emphasis on all campuses and this has resulted in beautiful ambience in the campuses. Tree cover attracts birds. Greenery of IoP attracts hundreds of migratory birds every winter when they are on their way to the Chilka lake of Odisha. (iv) As part of environmental monitoring programme, studies on physiochemical, biological and geochemical characteristics of coastal environment (water, biota and sediment) were conducted at IGCAR to meet MoEF regulation. Results of the studies on biofueling organism, phytoplankton, zooplankton and fish diversity in the coastal water indicated high diversity and high density indicating the healthiness of the Kalpakkam coastal environment. Among antifouling paints screened, one was found suitable for use at MAPS water intake gate. Results of studies on dissolved heavy metal in Kalpakkam seawater indicated that the coastal water is not polluted with heavy metals. A new fish species to the world of fishery science has been identified and named as Scolopsis igcarensis, in recognition of IGCAR's contribution to marine diversity study. (v) Water quality studies on ground water samples from Kalpakkam region were carried out for fluoride and nitrate content, fluoride content were below permissible limit, however, nitrate contents were beyond the limit in some of the areas. Ambient air quality monitoring at different places of IGCAR was continued to meet MoEF and AERB requirements. (vi) At TMC

(Kharghar Campus), a biogas plant is installed that processes kitchen waste. Biological and toxic waste is collected separately for disposal. Vermiculture is practiced on the campus that generates manure. The animal facility has solar heating panels that provide hot water. The campus has several medicinal plants and trees.

7.2 – Best Practices

7.2.1 – Describe at least two institutional best practices

(i) Facilitating academic research using advanced experimental facilities available with DAE Institutions (ii) Capacity building in cancer treatment to meet national need

Upload details of two best practices successfully implemented by the institution as per NAAC format in your institution website, provide the link

http://www.hbni.ac.in/main/dsp_doc.html?nm=agar/inst_bst_prctcs.pdf

7.3 – Institutional Distinctiveness

7.3.1 – Provide the details of the performance of the institution in one area distinctive to its vision, priority and thrust in not more than 500 words

One of the major distinguishing characteristics of HBNI lies in its uniqueness as a research university, imparting knowledge and skills in the areas of nuclear sciences and engineering, in addition to science and engineering disciplines, with a mission to pursue excellence to propel/boost indigenous nuclear and related technological capabilities. Nuclear science and engineering is an interdisciplinary subject and any institute involved in its development should have expertise in several branches, viz. physical sciences, chemical sciences, life science, engineering sciences, health sciences and mathematics. The eleven institutions under DAE which are the Constituent Institutions (CIs) and one offcampus centre (OCC) pursue R D in such domains, taking advantage of their academic strength in specific areas. To pursue research by inquisitive and fresh minds for achieving breakthroughs, the CIs and OCC have established a wide range of facilities ranging from tabletop set up to mega science facilities such as research reactors, accelerators, tokamaks, etc. Computational resources available to faculty and students are quite extensive and faculty are well trained to build own instrumentation and facilities. Doctoral students are from all branches of science and engineering having a relation with nuclear technology. They work on problems related to the mandate and deliver a lot in terms of research output. Increased intake of doctoral students has contributed a lot towards realizing the full potential of the research infrastructure available and helped in accelerating the pace of developing indigenous technologies. The success indicators in the advancement of knowledge in nuclear science and technology through research and innovation are illustrated below:

- The publication profile of the University is very impressive in its content and also admirable in terms of its diversity. The average total number of journal publications is around 2300 per year with an hindex of the institute is 76.
- The total number of students completing the PhD program per year is around 200 and the same number for M.Tech. is 100.
- A large number of faculty members are Fellows of different academies and have received various awards and recognition for their work including Academic Fellowships, and prestigious Civilian awards.
- Technology control regime is an established practice in the nuclear field. Such embargo has been used as an opportunity to develop advanced tools and experimental facilities indigenously.

The academic programs of HBNI have been able to make a distinctive impact in several domains critical for the advancement of the country's nuclear program. Examples of such important contributions include studies related to the safety of various reactor systems, development of novel materials and development and

demonstration of processes that form part of the nuclear fuel cycle. The above examples clearly illustrate the success in academic terms, of the distinctive approach pursued by HBNI.

Provide the weblink of the institution

http://www.hbni.ac.in/main/dsp_doc.html?nm=agar/inst_dstntvns.pdf

8.Future Plans of Actions for Next Academic Year

Homi Bhabha National Institute has significantly contributed to the indigenous development of nuclear science and technology by adding to the fund of knowledge in this unique domain, generating valuable human resources and providing useful inputs to mission programs. The academic programs in the area of medical and health sciences have led to a significant addition to the Nation's strengths in medical oncology. The University has a great potential to ramp up its contributions, expand its scope and coverage of programs and provide required human resources for nuclear energy program, comprehensive cancer care, mega science research, research in the frontier areas of science and technology and research and development in key areas that can provide benefits to the society. The plans of actions for the next academic year include 1. Introduction of additional skill based courses for example M.Sc in Nuclear Medicine and Molecular Imaging Technology, and Hospital Radiopharmacy 2. Introduction of more value added courses like certificate course on foreign language, technical communication skills, computational skills to PhD students 3. Short term courses to DAE employee student on a specialized topic like Nuclear Law and Severe Nuclear accidents phenomenology will be conducted 4. Development of e resource and printed materials on nuclear science and engineering including a draft of Hindi glossary of nuclear terms 5. Enhancing the capabilities of the online portal for various activities relevant to students and faculty 6. Development of new programs to address industry requirement by taking industry experts on the board to prepare the course material and deliver lectures on the specialized areas 7. Promoting excellence in science and technological research by giving awards to students for their outstanding research work on "Foundation Day".