



## Yearly Status Report - 2016-2017

### Part A

#### Data of the Institution

Part A	
<b>Data of the Institution</b>	
<b>1. Name of the Institution</b>	TATA INSTITUTE OF FUNDAMENTAL RESEARCH
Name of the head of the Institution	Prof. Sandip Trivedi
Designation	Director
Does the Institution function from own campus	Yes
Phone no/Alternate Phone no.	02222782306
Mobile no.	9892105000
Registered Email	iqac@tifr.res.in
Alternate Email	director@tifr.res.in
Address	1, Dr. Homi Bhabha Road, Navy Nagar, Colaba,
City/Town	Mumbai
State/UT	Maharashtra
Pincode	400005

2. Institutional Status					
University	Deemed				
Type of Institution	Co-education				
Location	Urban				
Financial Status	central				
Name of the IQAC co-ordinator/Director	Prof. Amol Dighe				
Phone no/Alternate Phone no.	02222782432				
Mobile no.	9967396593				
Registered Email	iqac@tifr.res.in				
Alternate Email	deangs@tifr.res.in				
3. Website Address					
Web-link of the AQAR: (Previous Academic Year)	<a href="https://www.tifr.res.in/NAAC/tifrSSR.pdf">https://www.tifr.res.in/NAAC/tifrSSR.pdf</a>				
<b>4. Whether Academic Calendar prepared during the year</b>	Yes				
if yes,whether it is uploaded in the institutional website: Weblink :	<a href="https://www.tifr.res.in/~sbp/new2015/Academic_Calendar_2016.pdf">https://www.tifr.res.in/~sbp/new2015/Academic_Calendar_2016.pdf</a>				
5. Accrediation Details					
Cycle	Grade	CGPA	Year of Accrediation	Validity	
				Period From	Period To
1	A+	3.68	2016	02-Dec-2016	01-Dec-2021
<b>6. Date of Establishment of IQAC</b>	15-Feb-2016				
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		

Preparing SSR for NAAC Accreditation (see the attachment for more entries)	15-Feb-2016 250	12
<a href="#">View File</a>		

**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 special status conferred	NA	Not Applicable	2017 0	0
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**9. Whether composition of IQAC as per latest NAAC guidelines:**

No

Upload latest notification of formation of IQAC

No Files Uploaded !!!

**10. Number of IQAC meetings held during the year :**

0

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

No

Upload the minutes of meeting and action taken report

No Files Uploaded !!!

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

No

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

The major task of the initial IQAC (which was formed before the 1st NAAC accreditation of TIFR) was to prepare the SSR for NAAC accreditation and oversee the process of Accreditation. The SSR was completed in June 2016, and the NAAC accreditation obtained in Dec 2016.

Procedures needed to have the Hyderabad off-campus of TIFR (called TIFR-H) approved by the UGC were completed. The visit of the UGC team to Hyderabad took place in April 2017, and TIFR-H was approved as an off-campus in August 2017.

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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	Achivements/Outcomes
To follow procedures needed to have the Hyderabad off-campus of TIFR (TIFR-H) approved by the UGC.	The visit of the UGC team to Hyderabad took place in April 2017, and TIFR-H was approved as an off-campus in August 2017.
To prepare the SSR for NAAC Accreditation and oversee the process of Accreditation	The SSR was completed in June 2016 and NAAC Accreditation was obtained in December 2016
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**14. Whether AQAR was placed before statutory body ?**

Yes

Name of Statutory Body	Meeting Date
Institute Academic Council	30-Sep-2020

**15. Whether NAAC/or any other accredited body(s) visited IQAC or interacted with it to assess the functioning ?**

Yes

Date of Visit

24-Nov-2016

**16. Whether institutional data submitted to AISHE:**

Yes

Year of Submission

2017

Date of Submission

13-Apr-2017

**17. Does the Institution have Management Information System ?**

Yes

If yes, give a brief description and a list of modules currently operational (maximum 500 words)

Datanet is the panTIFR Management Information Systems, which is TIFR's Integrated Information System (TIIS) for accounting, budgeting, procurement, material receipts, and inventory. Another module MANCH is used for sharing minutes of meetings and wider consultation among the faculty members. Additionally, individual centers have developed independent local modules to cater to their needs. [HBCSE] HBCSE at Mumbai has developed its own data management system for registering and keeping track of all Olympiad students from the second level exam til the international event. [NCRA] NCRA, Pune

has its own software system PACTS, which is used for Purchase, Accounts, and Stores transactions. Additionally, it manages the NCRA medical scheme, and has separate modules for the student training program and visiting student research program. [CAM] CAM at Bangalore has its own separate webbased interface for indenting and procurements of items. List of Modules: Datanet LDAP MANCH PACTS

## 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	PhD-Biol	Biology	01/08/2016
<a href="#">View File</a>			

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	Science Education	01/01/2017	Teaching practice and school internship/ design of learning resource Part 1 (SCE-103.2)	01/01/2017
PhD or DPhil	Biology	01/08/2016	Research Methodology (BIO-100.1)	01/08/2016
<a href="#">View File</a>				

#### 1.2 – Academic Flexibility

1.2.1 – New programmes/courses introduced during the Academic year

Programme/Course	Programme Specialization	Dates of Introduction
PhD or DPhil	Biology	01/08/2016
<a href="#">View File</a>		

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
PhD or DPhil	Biology	01/08/2016
Integrated(PG)	Biology	01/08/2016

PhD or DPhil	Chemistry	01/08/2016
Integrated(PG)	Chemistry	01/08/2016
PhD or DPhil	Computer Systems Science	01/08/2016
Integrated(PG)	Computer Systems Science	01/08/2016
PhD or DPhil	Mathematics	01/08/2016
Integrated(PG)	Mathematics	01/08/2016
PhD or DPhil	Physics	01/08/2016
Integrated(PG)	Physics	01/08/2016
PhD or DPhil	Science Education	01/08/2016
MSc	Biology	01/08/2016
MSc	Wild Life Biology and Conservation	01/08/2016

### 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
Academic writing	15/06/2017	10
Research Methodology	01/08/2016	52
Science Journalism Course	01/08/2016	46
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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
PhD or DPhil	Science Education	1
<a href="#">View File</a>		

### 1.4 – Feedback System

1.4.1 – Whether structured feedback received from all the stakeholders.

Students	Yes
Teachers	Yes
Employers	No
Alumni	No
Parents	No

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

Feedback Obtained
<p>On the academic front, the online anonymous feedback system is used for students where the questionnaire in a Google form is distributed and students are asked to fill it without disclosing their identity. This exercise is carried out at the end of each semester. Some programs like PhD-Phys at the Main Campus engages with the students twice in a semester to obtain this feedback about the courses taught, in the middle of a semester and at the end</p>

of the semester before the final examination. The middle of the semester feedback is used to make appropriate changes in the teaching like pace, the difficulty level of the assignments, etc. For each course, the students evaluate the pedagogical aspects such as course contents, course methodology, pedagogical ability, expertise, originality, personal skills with students, the overall impact of the course, etc. This feedback is used by the teachers to improve the courses. Both the sets of feedbacks are shared with the course instructors. The feedback also includes that on the tutorials and tutors. In some programs, feedbacks about the course syllabi are also obtained and then the respective subject board carries out the fine-tuning of the syllabi based on this feedback from teachers and students. In HBCSE, at the end of the entire course work by a student, comprehensive feedback is obtained. The feedback is factored into redesigning the overall course structure. On the campus life issues, regular feedback on hostel issues is also obtained by the Hostel Committee from hostel residents in NCRA every 2-3 months, and action is taken based on this input.

## 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	Biology	29	4581	25
<a href="#">View File</a>				

### 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
2016	Nil	174	Nil	260	Nil

### 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
260	260	12	48	28	5
<a href="#">View File of ICT Tools and resources</a>					
<a href="#">View File of E-resources and techniques used</a>					

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

Across all the subject boards, each student gets a research advisory committee (RAC) usually comprised of three members, one of whom is the thesis advisor of the student. This committee is usually formed at the time of Ph.D. registration. The primary objective of this committee is to actively mentor the student throughout his/her thesis work by regularly meeting and discussing various issues pertaining to the thesis work progress. This committee meets the student at least once every year to take stock of the students progress. Apart from that, the members of the committee (other than the thesis advisor) regularly interact with the student informally and

discuss issues that the student is facing and offer help if required to address them. The committee gives a report on the students progress at the end of the academic year which is taken into consideration while deciding the extension of the research fellowship of the student. Any grievances that arise for the student are first brought to the RAC that actively seeks to address the issues and provide redressal for the student. In the Biology Subject Board, the thesis committee actively mentors the student right from his/her entry to the graduate school discussing choices of courses, details of thesis work, etc. In the Physics Subject Board, before registration for the thesis, the student is either assigned to a mentor or a three-member internal committee is formed to actively mentor the student. The mentor discusses various academic as well as non-academic issues with the students to help them adjust to the graduate student life at the institute. The mentors also discuss any problems for which the students need assistance of any kind. In the Mathematics Subject Board, the initial couple of years involve rigorous course work where the feedback from the instructors and graduate studies committee is taken regularly and used to mentor students in through their course work. In the Science Education Subject Board, every new student is assigned to a mentor who guides the student through the course work. At the end of two years, the student is asked to take a comprehensive exam and then carry out the fieldwork. The outcome of these activities results in the student joining a thesis advisor for the desired thesis problem. For the students who join the M.Sc. programme, their academic progress is monitored regularly by faculty members of the respective department. The students give regular seminar presentations which are attended by all the faculties and appropriate feedback is given to them.

Number of students enrolled in the institution	Number of fulltime teachers	Mentor : Mentee Ratio
484	260	1:2

## 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
342	248	94	16	260

### 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
2016	Vidita Vaidya	Professor	K. T. Shetty Oration Award
<a href="#">View File</a>			

## 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 examination
PhD or DPhil	PhD-Biol	August Semester	31/12/2016	16/01/2017
<a href="#">View File</a>				

### 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
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Nill

320

0

**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)

[https://main.tifr.res.in/maincampus/deemed\\_university.php](https://main.tifr.res.in/maincampus/deemed_university.php)

**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
PhD-Biol	PhD or DPhil	Biology	14	14	100

[View File](#)

**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)

NA

**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	Kanchan Garai (see the attachment for more entries)	DST SERB Early Career Research Award	08/08/2016	DST-SERB

[View File](#)

**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
TIFR Research Scholarship (see the attachment for more entries)	1825	DAE

[View File](#)

**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	1825	DAE	26915	26915

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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
Workshop on Global Perspectives on building your business	NCBS, Bengaluru	26/08/2016
Seminar on Bio-Diversity Act its Provisions	NCBS, Bengaluru	29/09/2016
Mathematics of Complex Systems	ICTS, Bengaluru	28/07/2017
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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
The experiment on low cost Michelson interferometer (see the attachment for more entries)	S. R. Pathare and V. V. Kurmude	Indian Association of Physics Teachers (IAPT)	24/10/2016	First prize in the National Competition for Innovative Experiments in Physics
<a href="#">View File</a>				

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
C-CAMP (see the attachment for more entries)	Bioincubator	BIRAC -Bio technology Ignition Grant for the intial 18 months and then various othe r/private funds	Innaccel Technologies	Noxeno-A safer and easier nasal foreign body extractor for clinicians in under-served areas	01/08/2016
<a href="#">View File</a>					

### 3.4 – Research Publications and Awards

3.4.1 – Ph. Ds awarded during the year

Name of the Department	Number of PhD's Awarded
Department of Astronomy and Astrophysics	2
Department of Biological Sciences	8
Department of Chemical Sciences	2
Department of Condensed Matter and Material Science	7

Department of High Energy Physics	3
Department of Nuclear and Atomic Physics	1
Department of Theoretical Physics	1
School of Mathematics	2
School of Technology and Computer Science	4
National Centre for Radio Astrophysics	3
Centre for Applied Mathematics	3
National Centre for Biological Sciences	18
Tata Institute of FUNDamental Research Hyderabad	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)
National	Department of Biological Sciences	1	0
<a href="#">View File</a>			

#### 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
Department of Chemical Sciences (see the attachment for more entries)	1
<a href="#">View File</a>	

#### 3.4.4 – Patents published/awarded/applied during the year

Patent Details	Patent status	Patent Number	Date of Award
Intracellular pH Sensor Using Nucleic Acid Assemblies (see the attachment for more entries)	Published	US12/474550	01/08/2016
<a href="#">View File</a>			

#### 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
A parabolic analogue of the higher-order	Agnid Banerjee with Nicola Garofalo	J Differential Equations	2016	0	Centre for Applied Mathematics TIFR	Nil

comparison theorem of De Silva and Savin (see the attachment for more entries)					
<a href="#">View File</a>					

### 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
A parabolic analogue of the higher-order comparison theorem of De Silva and Savin (see the attachment for more entries)	Agnid Banerjee with Nicola Garofalo	J Differential Equations	2016	Nil	Nil	Centre for Applied Mathematics TIFR
<a href="#">View File</a>						

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

Number of Faculty	International	National	State	Local
Attended/Seminars/Workshops	130	139	15	57
Presented papers	81	79	1	25
Resource persons	50	48	5	9
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### 3.5 – Consultancy

#### 3.5.1 – Revenue generated from Consultancy during the year

Name of the Consultant(s) department	Name of consultancy project	Consulting/Sponsoring Agency	Revenue generated (amount in rupees)
School of Technology and Computer Science	Credit risk modelling	Center for Advanced Financial Research and Learning (CAFRAL), RBI	700000
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#### 3.5.2 – Revenue generated from Corporate Training by the institution during the year

Name of the	Title of the	Agency seeking /	Revenue generated	Number of trainees
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Consultan(s) department	programme	training	(amount in rupees)	
National Center for Biological Sciences (see the attachment for more entries)	Animal Model/Design, Management, Imaging and Flow Cytometry	Multiple Academic and Non Academic Institutions from India and Abroad	834000	87
<a href="#">View File</a>				

### 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
Seminar (see the attachment for more entries)	DST	1	Nil
<a href="#">View File</a>			

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
NA	NA	NA	Nil
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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
NA	NA	NA	Nil	Nil
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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
Scientific research-Ultrascructure of Actomyosing ring (see the attachment for more entries)	Mithilesh Mishra DBS, Grant Jenson, Caltec	NIH	1825
<a href="#">View File</a>			

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/	Duration From	Duration To	Participant
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		industry /research lab with contact details			
Reading Projects (see the attachment for more entries)	CEBS-TIFR Joint Projects	CEBS Mumbai	01/08/2016	31/07/2017	1
<a href="#">View File</a>					

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
Tata Communications (see the attachment for more entries)	01/08/2016	Sharing of information between TCL and NCRA about the ARVI antennas.	1
<a href="#">View File</a>			

## 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
3518.15	3518.15

4.1.2 – Details of augmentation in infrastructure facilities during the year

Facilities	Existing or Newly Added
Class rooms	Existing
Class rooms	Newly Added
<a href="#">View File</a>	

### 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
Libsys7	Fully	EJB Rel 1.0	1990
Libsys	Fully	7	1995
KOHA	Fully	16.11.06.000	2014
KOHA	Partially	17.11.06.000	2016
NewGenLib	Partially	3.12	2016

4.2.2 – Library Services

Library Service Type	Existing		Newly Added		Total	
Text	56826	19714624	2349	4804973	59175	24519597

Books						
Reference Books	71770	5646	237	1131318	72007	1136964
e-Books	47176	1664947	6682	17332420	53858	18997367
Journals	88613	29565030	344	28270056	88957	57835086
e-Journals	7082	33777120	5065	96363113	12147	130140233
Digital Database	9	207885	5	11788532	14	11996417
CD & Video	3388	Nil	48	162747	3436	162747
Others (specify)	2816	90408	6	40	2822	90448
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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
G Nagarjuna	Invitation to CLIX (Connected Learning Initiative)	metaStudio (GNOWSYS Studio)	01/06/2017
P Ajith and G Srinivasan (Raman Research Institute - Retired Visiting Professor, Indian Institute for Astrophysics)	A Journey through the Universe	Using lifesize UVC server for the lectures recording and filmora software for the video processing	17/05/2017
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#### 4.3 – IT Infrastructure

4.3.1 – Technology Upgradation (overall)

Type	Total Computers	Computer Lab	Internet	Browsing centers	Computer Centers	Office	Departments	Available Bandwidth (MBPS/GBPS)	Others
Existing	4082	880	2508	21	99	372	2710	3954	1310
Added	214	36	102	0	18	14	146	0	200
Total	4296	916	2610	21	117	386	2856	3954	1510

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

3954 MBPS/ GBPS
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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
--------------------------------------------	------------------------------------------------------------------------

Multimedia production team.	<a href="https://www.youtube.com/channel/UCBoz08Kb4GiVIanFv8VUwmg">https://www.youtube.com/channel/UCBoz08Kb4GiVIanFv8VUwmg</a>
Tandberg MXP 1700	<a href="https://www.youtube.com/user/TIFRCAM">https://www.youtube.com/user/TIFRCAM</a>
Tandberg MXP 6000	<a href="https://www.facebook.com/TIFRCAM">https://www.facebook.com/TIFRCAM</a>
LifeSize Room 220	<a href="https://www.youtube.com/user/TIFRCAM">https://www.youtube.com/user/TIFRCAM</a>
Lifesize UVC Video center, OBS (Open Broadcaster Software), Lifesize Codec, Filmora video editor, Adobe Suite, iMovies, YouTube editor etc	<a href="https://www.youtube.com/ictstalks">https://www.youtube.com/ictstalks</a>

#### 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
2010.98	2010.98	5636.51	5636.51

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)

TIFR has different dedicated sections that help in the maintenance and utilization of academic, physical, and support facilities that help in smooth operations of its research as well as teaching. The physical infrastructure such as buildings, power supply, air-conditioning, and ventilation, water supply is looked after by the Technical Services (TSR) section in Mumbai. Similar technical committees are present in all the off campuses at Mumbai, Pune, Bengaluru, and Hyderabad. For building sophisticated scientific equipment there is a dedicated Central Workshop (CWK) apart from smaller workshops in different academic departments. The Central Workshop is equipped with precision fabrication facilities including several computer-controlled CNC machines. There is also a separate Low-Temperature facility (LTF) that provides cryogenic liquids (helium and nitrogen) for scientific experiments to all users in the institute. The state-of-the-art equipment present in all the campuses are maintained by specific academic departments but are available for all users across the institute. The advanced equipment for research and education is maintained by a 100-strong highly skilled permanent scientific personnel attached to various departments. For all the departments on the main campus, TIFR provides common computing facilities through its Computer Centre and Communication Facilities (CCCF). It hosts an email server, web-server, High-performance computing (HPC), and several workstations. It also provides seamless WiFi connectivity throughout the campus. The section also supervises the activities of Lecture Theater and Auditorium given the increasing importance of ICT in organizing lectures/seminars/virtual meetings over the internet. Similar facilities are also available at each of the campuses. For any technical work to be carried out by the centralized technical team, an institute member can make an online request through the DataNet, a dedicated centralized management portal which has been developed in-house. Laboratory space is allocated by the Space Allocation Committee, which keeps track of the needs of the Departments and their research programs for space. The space for laboratory and offices are allocated based on scientific merit and equitable distribution. Upon the retirement of a faculty member or the winding up of a laboratory, space is returned to the committee for further allocation. This ensures efficient utilization of space. The Main Campus has a gymnasium, indoor



badminton court, Yoga rooms, and two large playgrounds for football /cricket athletics. These facilities are maintained by the TIFR Sports Club. Similarly, the hostel, canteen, and other facilities are looked after by the respective committees comprised of representations from faculties, administrative, technical, and scientific staff as well as students. Similar arrangements are also in place at all the off campuses.

<https://main.tifr.res.in/>

## 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	Research Fellowship	482	168874000
Financial Support from Other Sources			
a) National	International Student Travel Grant by Department of Biotechnology DST International Travel Support DBT International Travel Award (see the attachment for more entries)	3	300000
b) International	Nature Travel Grant Award Biophysical Society Travel Award GRC financial aid (see the attachment for more entries)	3	170000

[View File](#)

#### 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
Personal Counselling (see the attachment for more entries)	01/09/2016	15	TIFR Main Campus

[View File](#)

#### 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

2016	NA	Nil	Nil	Nil	Nil
No file uploaded.					

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
1	1	2

## 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
NA	Nil	Nil	NA	Nil	Nil
No file uploaded.					

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
2016	6	PhD and Integrated PhD	Department of Biological Sciences	Weill Cornell Medicine, NY Univ. Wisconsin, Madison Vienna Institute of Technology Dana-Farber Cancer Institute, Boston Univ. of Minnesota	Post-Doctoral Research
<a href="#">View File</a>					

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	3
GATE	1
No file uploaded.	

5.2.4 – Sports and cultural activities / competitions organised at the institution level during the year

Activity	Level	Number of Participants
Founders Day Sports Tournaments, Main Campus (see the attachment for more entries)	In-House	200

[View File](#)

### 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/ Internaional	Number of awards for Sports	Number of awards for Cultural	Student ID number	Name of the student
2016	NA	National	Null	Null	NA	NA
No file uploaded.						

5.3.2 – Activity of Student Council & representation of students on academic & administrative bodies/committees of the institution (maximum 500 words)

TIFR Students Society (TSS) on the Main Campus is an elected student body that serves as a point of contact between the students and the institute administration. The elected members of TSS (a sports secretary, a canteen secretary, a hostel secretary, a cultural secretary, a library in-charge and a mov.in-charge) look after the maintenance of students hostels and also supervise day-to-day operations of the students canteen in TIFR residential colony. Apart from that, TSS monitors library facilities in the institute and also organizes numerous recreational and cultural activities for students. It arranges private screening of movies every week. TSS holds annual sports tournament for Football, Volleyball, Cricket, Badminton, Chess, Table Tennis, etc., and promotes cultural events like celebrations of various festivities, Freshers party, Music events, Student-faculty interaction dinner, etc. Students contribute to most of these activities although TIFR supports some activities that deal with the improvement of infrastructure. HBCSE also has a Students' committee, consisting of three members selected by the students and appointed by the Centre Director, which liaises with the faculty and administration to resolve student-related issues. In HBCSE, the Annual Research Meet is an informal and supportive forum for presentation, discussion, sharing, and debate over academic research which is organized entirely by Research Scholars. TIFR has student representation on • Canteen Committee, Science Popularization and Public Outreach Committee, Founder's Day Committee at TIFR Colaba • Canteen Committee, Sports Committee, Library Committee, Hostel Committee at HBCSE • The Hostel Committee, Library Committee, Canteen Committee, and Computer Facilities Committee at NCRA • Canteen Committee at CAM • Campus Services Cell (looking after issues related to the canteen, Fitness centre, Health Promotion Centre, safety issues and Transport), Sports and Recreation Committee, and Cultural Committee at ICTS

### 5.4 – Alumni Engagement

5.4.1 – Whether the institution has registered Alumni Association?

Yes

TIFR Alumni Association (TAA) is registered as a Society. It was formally established on April 29, 2000. The Institute has already received crucial support from its members towards fulfilling its main objectives. It has become one of the most important driving forces for the TIFR Endowment Fund. In years to come, the natural bond between the Institute and its alumni is expected to be further strengthened. We will remain highly indebted to our alumni for their continued commitment towards our objectives and our mission of learning, research, and teaching. The day to day affairs of TAA is managed by an Executive Committee. It conducts lectures of public interest which is open to all. It also actively partners with the TIFR Endowment Fund to institute awards to students and members of TIFR. An annual e-newsletter is published and

distributed to all its members via email. Efforts are on to enroll new members and take up additional activities to further the interest of its parent institute, Tata Institute of Fundamental Research.

5.4.2 – No. of registered Alumni:

488

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

0

5.4.4 – Meetings/activities organized by Alumni Association :

**Awards for Faculties and Students:** Award in Science Education - Given to any serving or past member (still active in the field of Science Education) of the institute - biennially Prof. Sukumar Biswas Ph.D. Student Award - a yearly award given to students pursuing a Ph.D. in physics Shri Ramakrishna Cowsik Medal and Smt. Saraswathi Cowsik Medals - given to a regular or past member for contributions to an outstanding research paper - Yearly TAA Excellence Award - given to a faculty member for outstanding work in his/her field - Yearly TAA Patent Award - given to a member for contribution to outstanding work in applied science TAA Zita Lobo Memorial Award - Given to a non-academic member of the Department of Biological Sciences for outstanding supportive work TAA Excellence in Teaching Award - given to a faculty member for excellence in teaching and guiding Ph.D. Students - Yearly TAA Geeta Udgaonkar Award - given to a Ph.D. student for the best thesis in Physics - Yearly TAA harish Chandra Memorial Award - given to a Ph.D. student for the best Ph.D. thesis in mathematics or computer sciences TAA Zita Lobo Award - given to a student of the Department of Biological Sciences for the best Ph.D. thesis - Yearly TAA Sasken Award - Given to a student for the best Ph.D. Thesis in Technology and Computer Sciences - Yearly TAA B. M. Udgaonkar Award - given to a Ph.D. student for the best thesis in Science Education - Biennially Public Lectures National Science Day Lecture on The top scientific breakthrough of 2016: The detection of gravitational waves by LIGO: February 26, 2017

## **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)

1. The constitution of Subject Boards is decentralized. It is ensured that each Subject Board has at least one representative from each campus that it has a presence in. In addition, the academic issues of the students on individual campuses are mostly handled by the Academic Advisory Committee (AAC) on that campus, which coordinates with multiple subject boards. The centres are also given the freedom to structure the courses and syllabi for the graduate school component under various subject boards. These are approved by the respective subject boards and the Academic Council. 2. The Faculties of all schools and centres have a continuous peer-review system for all aspects, including the development of curricula, appointments, promotions, choice of research programs, funding, etc. This leads to a distributed leadership, ensures accountability, and at the same time assuring academic freedom that is essential for a research institution to grow to its full potential. Particularly, the process of the appointment of a new faculty member in the institute involves consultation and evaluation at various levels. This includes scrutiny of the research proposal and research credentials at the individual department level in terms of evaluation of the job talks given by the applicant, assessment based on the reports on the candidate's credentials, and proposal from external reviewers who are leading experts in the subject. At a

later stage, the application and the collected reviews are scrutinized in the larger committee that is comprised of senior faculty members from various departments. Ultimately, the application is discussed at the faculty level in Natural Science Faculty for the Physics, Chemistry and Biology subjects and Mathematics Faculty, Computer Science Faculty for their respective subjects before giving a formal recommendation to the institute's Governing Council through Director. This methodology is followed across all centres of the institute.

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
Curriculum Development	<p>TIFR selects its students via a nationwide competitive examination followed by interviews, for which more than 20000 students appear every year. As a result, we get very good students, and our challenge is to make them even better and to help them develop their latent scientific talent so that they become comparable to their peers in the best universities across the world. From the teaching perspective, this involves keeping a continuous tab of new developments in the subjects and going on modifying our course contents in their light. Besides this continuous development, every few years the various Subject Boards revisit their syllabi and update them. We also introduce graduate students to the research groups in the institute working in the frontline areas of research in the form of lab visits and semester-long projects. This helps in molding their scientific talent to absorb the ways of doing frontline scientific research.</p>
Teaching and Learning	<p>From the learning perspective, the TIFR endeavors to provide an enabling environment to our students, which is rich in intellectual stimulation, and at the same time has enough interaction with scientists in the area and supervision and feedback by the teachers. The time they spend in the excellent library and laboratories that we have built over the years are of great help to the students to learn their discipline, in conjunction with our formal courses and examinations. We always try to bring a sense of creative play to all our teaching/learning</p>

interactions. Short laboratory orientations and semester-long projects are part of these efforts where students are introduced to the ways of carrying out the front line scientific research. This also helps students get familiar with the research area closest to their choice.

**Examination and Evaluation**

The rules for extensions of students were formalized, in the background of the increase in the student fellowships and restriction on the time that be taken for Ph.D. The coursework related rules for Ph.D. registration are strictly adhered to.

**Research and Development**

Each faculty of the institute is encouraged to apply for grants to fund their research activities. This includes the periodic plan proposals to the Department of Atomic Energy. These proposals are vetted at the institute level before their submission to the funding agencies. Moreover, a periodic review is carried out for various departments and centers where the external subject experts' committee comprised of the world-renowned scientists visits the institute and interacts with the institute members, and gives a detailed assessment of the activities of the departments. Institute strongly encourages collaborations and research visits by the members.

**Library, ICT and Physical Infrastructure / Instrumentation**

The library committee oversees the functioning of the library, and a computer committee oversees the ICT infrastructure. Continuous efforts are made to expand access to online journals as well as the book collection. Members are encouraged to suggest new reference books and textbooks be added to the existing collection. Efforts are made to connect all the TIFR libraries via VPN. The computer committee is responsible for the upgrade of the ICT infrastructure both in terms of hardware and software. Campus-wide WiFi connectivity is also implemented on all the campuses. Video conferencing units are added for remote meeting organization.

**Human Resource Management**

TIFR's recruitment of the faculty entirely focuses on research achievements and scholarship of the candidates. This way, we are able to

recruit the best scientific manpower in the country, and also the cream of returning young Indian scientists who have been awarded their Ph.Ds or postdoctoral fellowships abroad. TIFR follows the Tenure Track system for the young faculty members joining the institute. Once a young faculty member joins TIFR, he/she begins to take part in the nurture of students, and by and by assumes more responsibilities including lecturing and being the formal guide of a student. Thus, TIFR faculty members begin as excellent scientists and then grow into the role of active and enthusiastic teachers. Besides the Faculty, TIFR has a large support staff. TIFR's policy is to treat them as partners in its larger aims and to encourage them to take responsibility, to make innovations, and to grow with the job.

Industry Interaction / Collaboration

There have been some research projects funded by the industry, and some industries have formal MoUs with TIFR that facilitate collaborations. Internships of people from the industry in TIFR, and access to industry-level technology to TIFR members, has been of mutual benefit.

Admission of Students

The Subject Board for Mathematics discontinued the oral interviews for admissions, instead started giving shortlisted students another written test. This is expected to lead to more objective student selection.

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

E-governance area	Details
<p>Planning and Development</p>	<p>TIFR has an internal Information Systems Development Group, with dedicated staff. The ISDG looks after the information technology requirements and plan of execution for the Institute, developing online procedures for various academic, administrative, and financial processes in the Institute, including the Colaba campus and the Centres and Field Stations. The ISDG works in close collaboration with the relevant Sections of the Institute, adapting existent systems for online functioning and developing new procedures, if necessary to facilitate these.</p>
<p>Administration</p>	<p>The movement of files with approval</p>



from authorities at successively higher levels is gradually being moved to Datanet and LDAP, though the process is not complete. This includes applications, such as leave, reimbursement, LTC applications, etc. On the financial side, the tendering process is now largely electronic. Most bookings of rooms, accommodation, transport, canteen facilities, photographic cell, etc. are now done electronically. Bidding for residential accommodation in Institute quarters is done purely electronically.

**Finance and Accounts**

TIFR has built its own Integrated Information System (TIIS), which is an integrated Enterprise Resource Planning (ERP) solution for TIFR which includes Personal Information System, Payroll, Pension, Provident Fund, Procurements, Material Receipts, Inventory, Budget, Accounting, Finance, and Accommodation. TIIS was implemented at TIFR Main Campus, and other campuses are in the process of transferring from Tally and a few other software to TIIS. In addition to TIIS, Datanet provides information to staff members on their desktops, on e.g. service record, salary, purchase orders, indent status, etc. Financial transactions of some of the government departments are done through the PFMS software.

**Student Admission and Support**

Web-based admission portal was adopted in collaboration with M/s Embitel, Bengaluru in the year 2008. This is used exclusively for managing the application process for the admission written test. We continuously keep upgrading it based on the experiences of candidates as well as institute administration.

**Examination**

Since the student to faculty ratio is very small pan-TIFR, the need for adopting e-governance has not been felt so far.

**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
2016	Gotam Jarori (see the	Gordon Research	NA	251615



attachment for more entries)

Conference on Tropical Infectious Diseases, 03/12/2017 - 03/17/2017 Galveston TX United States.

[View File](#)

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)
2016	NA	NA	01/08/2016	01/08/2016	Nil	Nil

No file uploaded.

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
NA	Nil	01/08/2016	01/08/2016	0

No file uploaded.

6.3.4 – Faculty and Staff recruitment (no. for permanent recruitment):

Teaching		Non-teaching	
Permanent	Full Time	Permanent	Full Time
16	Nil	33	Nil

6.3.5 – Welfare schemes for

Teaching	Non-teaching	Students
All permanent teachers and their dependents are members of a Contributory Health Services Scheme (CHSS) which provides medical support. This access is also extended to the retired members. A free annual medical checkup is provided to all the teachers. Apart from this, the following activities were taken up towards the welfare of the teaching staff in the	All permanent non-teaching staff members and their dependents are members of a Contributory Health Services Scheme (CHSS) which provides medical support. This access is also extended to the retired members. A free annual medical checkup is provided to all the teachers. Additionally the following activities were taken up towards the	Students are provided with the free medical facilities that are existing in the institute. Main Campus: The students have access to a select panel of specialists from the city of Mumbai for medical treatments with subsidized fees. Financial help towards medical treatment is also provided on a case by case basis. Students have

institute: Main Campus: • Conducted First Aid Program for staff members in coordination with St. John Ambulance (India), Indian Red Cross Society. • Organized lecture on "Homeopathy and emerging lifestyle diseases" • Lecture by Ms. Parish Mazumdar from Tata Memorial Hospital on the eve of "World No Tobacco Day" HBCSE: All teaching staff has access to the community centre in neighbouring Anushaktinagar with a swimming pool and other facilities. CAM: • A General Physician is made available for consultation on campus two times a week. ICTS: • Sports initiatives like Marshal Art training for students and staff members. • Health screening camps being arranged periodically.

welfare of the teaching staff in the institute: Main Campus: • Organized a workshop to train staff members for acting in a play • Conducted First Aid Program for staff members in coordination with St. John Ambulance (India), Indian Red Cross Society. • Organized lecture on "Homeopathy and emerging lifestyle diseases" • Lecture by Ms. Parish Mazumdar from Tata Memorial Hospital on the eve of "World No Tobacco Day" • Financial support to two staff members for participating in sports competitions. HBSCE: All non-teaching staff has access to the community centre in neighbouring Anushaktinagar with a swimming pool and other facilities. ICTS: • Sports initiatives like Marshal Art training for staff members. • Health screening camps being arranged periodically.

access to the recreation centre on the campus. HBCSE: Students have free medical care for OPD and hospitalization. They have access to sports and gym facilities on campus. NCRA: All students are enrolled in the institute medical scheme CAM: The students are covered via a separate health insurance scheme that is fully paid from the centres budget. Also, a GP is made available for consultation on campus two times a week. ICTS: • Health insurance scheme for all the students in which there is a provision of general OPD facilities and Annual Health Check-up without any waiting period. • Sports initiatives like Marshal Art training for students. • Health screening camps being arranged periodically. NCBS: Students are covered under the Group Mediclaim policy wherein inpatient treatment up to Rs. 3 lakh is covered.

#### 6.4 – Financial Management and Resource Mobilization

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

The Institute has its pre-audit cell for internal financial audits. The Statutory Auditors, appointed with the approval of the Council of Management of TIFR perform half-yearly as well as a yearly financial audit. M/s. G D. Apte and Company has performed the audit work of the Institute from F.Y. 2016-17. The Statutory auditor visits every Center F.S yearly as well as a half-yearly audit. Additionally, the Internal Inspection Wing (IIW) of the Department of Atomic Energy conducts an annual audit of the Institute. Moreover, a team of Auditors of Comptroller and Auditor General of India also conducts the annual audit.

##### 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
INFOSYS, TIFR ALUMINI ASSOCIATION ETC.	34244000	ENDOWMENT, AWARD
No file uploaded.		

##### 6.4.3 – Total corpus fund generated

**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	No	None	Yes	DAE, through Director, TIFR (Project Plan Proposals)
Administrative	No	None	No	None

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

Not applicable as there are no affiliated colleges.

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

As the TIFR Graduate School caters to only post Graduate students, the institute does not have a Parent-Teacher Association.

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

The institute organized an Intensive Training Fire Prevention Fire Fighting programme for the security staff from June to November 2016 for better preparation to handle related emergencies. Administrative Training was organized for the support staff with the help of instructors from DAE

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

1. Procedures needed to have the Hyderabad off-campus of TIFR (called TIFR-H) approved by the UGC were completed. The visit of the UGC team to Hyderabad took place in April 2017, and TIFR-H was approved as an off-campus in August 2017.
2. The course structure for new programmes to be started at TIFR-H was designed by the respective Subject Boards.
3. The major task of the initial IQAC (which was formed before the 1st NAAC accreditation of TIFR) was to prepare the SSR for NAAC accreditation and oversee the process of Accreditation. The SSR was completed in June 2016, and the NAAC accreditation obtained in Dec 2016.

6.5.6 – Internal Quality Assurance System Details

a) Submission of Data for AISHE portal	Yes
b) Participation in NIRF	No
c) ISO certification	No
d) NBA or any other quality audit	No

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
2016	Preparation of SSR for NAAC accreditation (see the attached file for	15/02/2016	15/02/2016	28/10/2016	12

more)

[View File](#)

## 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
Women's day talk	08/03/2017	08/03/2017	42	8
Play "Main Aurat Hoon" directed by: Manjul Bhardwaj)	08/03/2017	08/03/2017	50	50
A Public Lecture on "Women in sciences" as part of celebrations for International Women's Day 2017 (Speaker: Corinne A. Manogue, Oregon State University) (HBCSE)	16/03/2017	16/03/2017	50	50
A programme titled "'Why 'whisper' when we can talk?" (?????-???? ?????????? ????? ??????)" on the occasion of 'World Menstrual Hygiene Day' (May 28) [Speakers: Anita Patil (Ex-Medical Social Worker, BARC Hospital) and Rohini Karandikar (Visitin	02/06/2017	02/06/2017	50	50
Parents' gender roles	12/08/2016	12/08/2016	30	50

and the child's future - Dr. Bhooshan Shukla (NCRA)				
What is Gender? - Sadhana Dadhich (at GMRT)	16/09/2016	16/09/2016	20	40

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

In the Main Campus, the institute Guest House uses solar heaters for hot water supply. 3 of total power requirement at the CAM center is met by solar power whereas in the ICTS about 4.3 (15kW) of power requirement is met by solar and wind power. At the NCBS about 1.7 (28kW) of power requirement is met by solar energy. At the ICTS Bengaluru, Sewage treatment plant of capacity 11.5kLD is commissioned. At all the centres, the hazardous chemicals are collected and disposed of with the help of a certified professional vendor.

7.1.3 – Differently abled (Divyangjan) friendliness

Item facilities	Yes/No	Number of beneficiaries
Physical facilities	Yes	35
Provision for lift	Yes	37
Ramp/Rails	Yes	38
Braille Software/facilities	Yes	Nil
Rest Rooms	Yes	5
Scribes for examination	Yes	Nil
Special skill development for differently abled students	Yes	Nil

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
2016	Nil	Nil	01/08/2016	0	NA	NA	Nil
No file uploaded.							

7.1.5 – Human Values and Professional Ethics Code of conduct (handbooks) for various stakeholders

Title	Date of publication	Follow up(max 100 words)
Guidelines on Academic Ethics	01/08/2016	The guidelines on academic ethics were released on 4th June 2012. The link to the

guidelines is made available on the institute website (Weblink: <https://www.tifr.res.in/webdocs/TIFR-doc-ETHICS.pdf>). Besides, every year, the new batch of research scholars who take admission to the institute programmes are made familiarised with these guidelines and a special orientation is carried out which is also a part of the research methodology course in graduate school.

#### 7.1.6 – Activities conducted for promotion of universal Values and Ethics

Activity	Duration From	Duration To	Number of participants
Sadbhavana Diwas (see the attachment for more entries)	19/08/2016	19/08/2016	1232

[View File](#)

#### 7.1.7 – Initiatives taken by the institution to make the campus eco-friendly (at least five)

1. Herbal pesticides were introduced for campus 2. The usage of paper cups, plastic water bottles, and tissues were reduced. 3. Composting of leaves in the pit was initiated. 4. The campus continues to use the pre-existing facility of the Solar Water Heating System in the hostel and the canteen with an installed capacity of 8500 liters per day. 5. Use of solar heating for water heating wherever possible. 6. Changing CFL lights to LEDs. 7. Commissioning of Solar and Wind based power and sewage treatment plant in ICTS Campus. 8. Rainwater harvesting pits were made on the NCBS campus

### 7.2 – Best Practices

#### 7.2.1 – Describe at least two institutional best practices

**Best Practice 1: TIFR Integrated Information System (TIIS) and Datanet**

1. Title of the Practice TIFR Integrated Information System (TIIS) and Datanet

2. Objectives The main objective of this system is to automate TIFR's core administrative functions like payroll, pension, PF, establishment, accounts, budget, procurements, and materials management with an integrated approach, thereby reducing the effort required of staff members, avoiding data redundancy, and increasing overall work efficiency and transparency in the functioning of the institute. All administrative information and records are available to authorized users of the institutes through a web-based interface available on the institute's intranet. An up to date record of financial progress and budget status is also available. Many of the paper-based processes have been replaced with computerised workflows on the TIFR Datanet. The institute canteen operations are also computerised and made cashless with a unique QR-code based authentication system that allows deductions from employees' salary directly.

3. The Context or challenging issues: TIFR was one of the first institutes to adopt such practices. The inherent complexities of government processes and the academic setup provided hardly any alternatives for adopting/customizing any 'known' standard package from the market. The system was therefore built in-house. The challenge has been in defining the

complex processes, with little documentation available, and then designing the system keeping in mind the diverse user groups in the institute with varying levels of computer skills. The architecture is complex as it supports other centers, field stations, and campuses of TIFR at various locations connecting and using the system over the network. It allows 24-hour operations and ensures backups at different locations.

4. The Practice

- i. TIFR has built its TIIS (TIFR's Integrated Information System) which is an integrated Enterprise Resource Planning (ERP) solution for TIFR which includes Personal Information System, Payroll, Pension, Provident Fund, Procurements, Material Receipts, Inventory, Budget, Accounting, Finance, and Accommodation.
- ii. TIFR Datanet is a web-based information and workflow portal built in addition to TIIS. It provides information to staff members on their desktops, e.g. service record, salary, purchase orders, indent status, etc.
- iii. Most of the administrative workflows are automated and provided under Datanet. These include Online indent requisitions, online guesthouse bookings, lecture room bookings, transport (vehicle) bookings, canteen service, gate-pass management, cash purchases, and workshop requests.
- iv. Accommodation Allotments are also automated where users bid for available flats and flats are allotted according to the users seniority using this computerized system.
- v. Datanet also includes a facility for generating appraisal forms online by fetching employee details. The system provides various notifications to staff members via emails including bank credits, claims processing, etc.
- vi. Since the system is in-house, it is very responsive to changes in rules and user requests for modifications. There is no dependence on outside vendors.

5. Evidence of Success

The process of automating any administrative process includes a study and analysis of the overall workflow. In developing the systems for TIIS, BPR (Business Process Re-engineering) was included as the first step in this process wherein the process flow was analyzed and re-engineered taking into account the technology and system capabilities and the use of best practices. Many of the processes at TIFR like budgetary approvals, cash purchases, gate passes, procurements, etc., are now well defined and documented with little scope for errors. The system ensured a uniform application of rules like leave, payments, budgetary approvals, etc., at all locations. Many of the systems became very efficient.

For example, allotting of housing flats earlier required scheduling and arranging a physical meeting. This was replaced by online bidding and allotment of housing flats through the system automatically. Similarly, the period for closing of accounts and having the audit was reduced from several months to less than a month. Operations like canteen systems became streamlined with the introduction of a cashless system running on Android-based tablets.

6. Problems encountered and resources required

The main problems encountered include a lack of well-documented systems and processes. Hence, most of the systems had to undergo several changes even after release. Connectivity issues with centers (located in other cities) is another bottleneck that needs to be constantly monitored. The lack of manpower for the development of systems contributed to the delay in releasing systems.

7. Notes: This system is adapted to an environment that combines research and teaching, and hence would be useful even for other academic and research institutions.

Best Practice 2: Synopsis scrutiny and feedback

1. Title of the Practice Synopsis scrutiny and feedback
2. Objectives Ph.D. theses written by the students of TIFR are the culmination of their years of research in TIFR. It is important that the final products of this work, viz., the synopsis, and the thesis, should be of high quality. Not just the advisor and the thesis committee, but also other experts in the field, as well as faculty members in the general subject area but not necessarily experts in the specific field, should be convinced of the high quality of the thesis work. This acts as the final internal quality control from the university before the thesis goes out to the external examiner.
3. The Context or challenging issues: While the advisor and the Thesis Committee of a student strive to ensure a quality thesis, it is always advisable to have an outside



perspective on the importance of the work done. Moreover, TIFR policy is that for students getting a Ph.D. from the university, it is not enough to be able to talk with peers in their specific subjects they should also be able to address scientists from other areas and convince them of the importance of their work. To gauge the understanding of the student, a seminar is a good method. Of course, a final thesis viva-voce is given by the student, however, that is too late by then to take any corrective measures that do not jeopardize the career of the student. Therefore it is advisable to have an internal mechanism that ensures that any lacunae in the synopsis and thesis work are identified and corrected well in time.

4. The Practice While the general practice in universities is to have a Thesis Committee that approves the submission of Synopsis, the practice adopted by many TIFR Departments is: i. There is an open Synopsis seminar that is well advertised, where any member of the institute can be present and ask questions. ii. The Synopsis Seminar Evaluation Committee consists of local experts in the area of work, as well as at least one faculty member from a different area. The committee is a mix of theorists and experimentalists to provide a comprehensive overall perspective. The advisor is not a part of the evaluation committee. iii. The Evaluation Committee members have the responsibility of examining the work thoroughly. Even after the actual seminar, they are given 5 days within which they can give written feedback to the student and the advisor via an online form provided for this purpose, which may be anonymous. They may also contact the student/advisor directly and ask for certain changes to be made in the thesis. iv. The Synopsis is accepted by the University only after all the evaluation committee members have agreed to the Synopsis, with changes made, if any. v. This process is overseen by the Subject Board Convener.

5. Evidence of Success As a result of this practice, the quality of the Synopses (and hence consequently, the theses), increases. In some cases, comments from the evaluation committee members have acted as a wake-up call to the student, who has then improved the contents and the presentation substantially, sometimes also redoing some of the experimental checks. Another important visible result is that most of the theses sent to the external examiners are accepted in their current form, or with only minor changes requested. The last quality-control stage, in the form of Synopsis scrutiny, has surely played an important role in this.

6. Problems encountered and resources required This Best Practice has been in operation since the inception of the TIFR Deemed University and has been well-accepted. Although it means an additional responsibility for the faculty members, however, the student-faculty ratio in TIFR is rather small, and this is not a large burden, given the net advantages. Also, it was necessary to ensure that this process of extensive feedback does not result in unnecessary delays in the submission of the Synopsis. To minimize the time delay and make the process easier for evaluation committee members and the students, we developed a web-based form, which would be accessible to only the evaluation committee members.

7. Notes: This Practice is adaptable in institutions that have wide in-house expertise. It utilizes this expertise for the benefit of the students as well as the university as a whole.

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

<https://www.tifr.res.in/NAAC/TIFRBestPractices2016-17.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

Department of Nuclear and Atomic Physics houses the experimental facilities that are unique to TIFR and not easily available in labs around the world. It fashions laser pulses from a 100 terawatt, femtosecond laser to suit



experiments that probe the evolution of the excited matter (plasma) on femtosecond scales simultaneously with micrometer spatial resolution, unmatched anywhere else. All experimental setups are built at TIFR and several innovations are implemented for temporal and spatial measurements. The laser itself is manipulated to obtain maximum flexibility in its parameters and achieve the best focusing conditions. The laser has been upgraded locally to powers of 150 TW this year and with the recently implemented adaptive focusing the intensity can now reach 1020 W/cm<sup>2</sup>, matching some of the best laboratories around the world. The success of these efforts also reflects in the vibrant collaboration with groups from Europe, Japan, and the US which use this state of the art laser system for their experiments. The major physics interest in this area arises from the fact that we can create extremely hot plasmas that are simultaneously ultra-dense: A highly excited state of matter found otherwise only in stellar atmospheres. For instance, it is possible to create plasmas with temperatures of a few keV which have free electron densities of the order of 10<sup>24</sup>/cm<sup>3</sup>! Also, these plasmas contain 'hot electrons' that are extremely energetic, going all the way up to tens of MeV energies (relativistic electrons). These hot electrons can propagate out of the plasma as a highly directional beam or they can transfer their energy to the ions leading to MeV and GeV ion generation. They can also lose their energy by way of ultra-hard x-ray radiation. The interesting aspect of all these emissions is that they are of femtosecond duration, thus leading to a variety of ultrafast radiation sources. These hot electrons are also responsible for the generation of the largest magnetic fields known on the earth- hundreds of megagauss! And these magnetic fields also have ultrafast duration. Research in this area not only addresses cutting edge questions in basic science on matter and radiation, but is also enormously important for laser fusion, laboratory astrophysics, novel x-ray sources, particle acceleration, and so on. Using this system the UPHILL group at TIFR Mumbai has demonstrated the turbulent giant magnetic fields in intense laser produced dense plasma which has been acknowledged to be capable of simulating astrophysical magnetic turbulence in the laboratory (Nature Commun 2017, the highlight in Nature Physics 2017). The group has also demonstrated the efficient, high energy, compact tabletop terahertz radiation source using this laser system (Nature Commun 2017). These intense (~ few MV/cm), broad-band (> 30 THz) terahertz pulses can drive major advances in ultrafast dynamics, nonlinear THz optics, and bio-material imaging. The group has demonstrated the generation of broad-band (~ 70 THz), high energy (~ 76 mJ/pulse) THz pulse in non-polar liquids with remarkably high conversion efficiency > 10<sup>-3</sup>.

Provide the weblink of the institution

<https://www.tifr.res.in>

## 8.Future Plans of Actions for Next Academic Year

1. To start participating in the NIRF scheme for Indian University ranking: TIFR has so far participated in the National Institute Ranking Framework of MHRD. With the NAAC accreditation obtained, it was decided to start participating in this yearly exercise. 2. To start a course on Scientific Writing for graduate students across the subjects: It is observed that, while most of the TIFR students do excellent research during their Ph.D., the writing skills of many of them may not be as good. This is sometimes noticed and remarked by the examiners of project reports as well as thesis reports. In any case, an important skill for a scientist is to be able to convey their research to peers as well as the public. While TIFR students are all postgraduate or doctoral students, and hence do not have to do any language courses, a refresher course focusing on scientific writing would be very important. 3. To get one lecture room furnished with facilities like lecture-recording, videoconferencing, and live-streaming: Two new classrooms had recently been furnished in TIFR Mumbai, where lectures for small

classes of about 20 students each can be held. While the facilities of projectors and wifi connectivity were already available, one of these classrooms could be converted into a video-conferencing room, which can be used especially for lectures that can be transmitted live to other institutions, for example to the other TIFR campuses.