ANNUAL QUALITY ASSURANCE REPORT 2018-19

BITS Pilani

Pilani | Dubai | Goa | Hyderabad

BITS Pilani
Pilani Campus

BITS Pilani
Dubai Campus

BITS Pilani
K K Birla Goa Campus

BITS Pilani
Hyderabad Campus

SUBMITTED TO **NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL (NAAC)**
BANGALORE – 560072

innovate   achieve   lead

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The Annual Quality Assurance Report (AQAR) of the IQAC

All NAAC accredited institutions will submit an annual self-reviewed progress report to NAAC, through its IQAC. The report is to detail the tangible results achieved in key areas, specifically identified by the institutional IQAC at the beginning of the academic year. The AQAR will detail the results of the perspective plan worked out by the IQAC. *(Note: The AQAR period would be the Academic Year. For example, July 1, 2012 to June 30, 2013)*

Part – A

1. Details of the Institution

1.1 Name of the Institution

> BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI

1.2 Address Line 1

> VIDYA VIHAR

Address Line 2

> JHUNJHUNU DIST.

City/Town

> PILANI

State

> RAJASTHAN

Pin Code

> 333031

Institution e-mail address

> registrar@pilani.bits-pilani.ac.in

Contact Nos.

> +91-1596-515298

Name of the Head of the Institution:

> PROF. SOUVIK BHATTACHARYYA
> (Vice-Chancellor-BITS,Pilani)

Tel. No. with STD Code:

> +91-1596-515247

Mobile:

> 9836833100

Name of the IQAC Co-ordinator: Prof. Mani Sankar Dasgupta

Mobile: 9829227459

IQAC e-mail address: dasgupta@pilani.bits-pilani.ac.in

1.3 **NAAC Track ID** *(For ex. MHCOGN 18879)*   RJUNGN10005

1.4 **NAAC Executive Committee No. & Date:**   EC(SC)/20/A&A/2.3
   (For Example EC/32/A&A/143 dated 3-5-2004.
   This EC no. is available in the right corner- bottom
   of your institution's Accreditation Certificate)

1.5 Website address: http://www.bits-pilani.ac.in

Web-link of the AQAR: http://www.bits-pilani.ac.in/AwardsandAccreditations

1.6 Accreditation Details

Sl. No.	Cycle	Grade	CGPA	Year of Accreditation	Validity Period
1	1st Cycle	A*****	-	07/02/2000	5years
2	2nd Cycle	A	3.71	29/01/2009	5years
3	3rd Cycle	A	3.45	16/12/2016	5years

1.7 Date of Establishment of IQAC :   DD/MM/YYYY   25/05/2004

1.8 AQAR for the year *(for example 2010-11)*   2018-19

1.9 Details of the previous year's AQAR submitted to NAAC after the latest Assessment and Accreditation by NAAC ((*for example AQAR 2010-11submitted to NAAC on 12-10-2011)*

   i.   AQAR _____20-02-2019_____ (DD/MM/YYYY)

1.10 Institutional Status

   University   State ☐   Central ☐   Deemed ☑   Private ☐

   Affiliated College   Yes ☐   No ☑

   Constituent College   Yes ☐   No ☑

   Autonomous college of UGC   Yes ☐   No ☑

   Regulatory Agency approved Institution   Yes ☑   No ☐

(eg. AICTE, BCI, MCI, PCI, NCI)

   Type of Institution   Co-education ☑   Men ☐   Women ☐

                  Urban ☐   Rural ☑   Tribal ☐

Financial Status   Grant-in-aid   UGC 2(f)   UGC 12B

               Grant-in-aid + Self Financing ☐   Totally Self-financing ☑

1.11 Type of Faculty/Programme

   Arts ☐   Science ☑ Commerce ☐   Law ☐   PEI (Phys Edu) ☐

   TEI (Edu) ☐ Engineering ☑   Health Science ☐   Management ☑

   Others   (Specify)   .   PHARMACY

1.12 Name of the Affiliating University *(for the Colleges)*   NA

1.13 Special status conferred by Central/ State Government-- UGC/CSIR/DST/DBT/ICMR etc

                              DEEMED UNIVERSITY

3

Autonomy by State/Central Govt. / University

University with Potential for Excellence	-	UGC-CPE	-
DST Star Scheme	-	UGC-CE	-
UGC-Special Assistance Programme	-	DST-FIST	19
UGC-Innovative PG programmes	-	Any other (*Specify*)	
UGC-COP Programmes	-		

2. IQAC Composition and Activities

2.1 No. of Teachers   10

2.2 No. of Administrative/Technical staff   -

2.3 No. of students   1

2.4 No. of Management representatives   1

2.5 No. of Alumni   1

2. 6 No. of any other stakeholder and
     community representatives   1

2.7 No. of Employers/ Industrialists   2

2.8 No. of other External Experts   1

2.9 Total No. of members   17

2.10 No. of IQAC meetings held   5

2.11 No. of meetings with various stakeholders: No. 5   Faculty 2

Non-Teaching Staff Students 2   Alumni   Others 1

2.12 Has IQAC received any funding from UGC during the year?   ~~Yes~~   No √

If yes, mention the amount   NA

2.13 Seminars and Conferences (only quality related)

   (i) No. of Seminars/Conferences/ Workshops/Symposia organized by the IQAC

Total Nos. | 5 | International | | National | 1 | State | | Institution Level | 4

   (ii) Themes   Quality Teaching, Research and QS Ranking of Indian Universities

2.14 Significant Activities and contributions made

Various stake holders of quality initiatives in the institute are brought together by IQAC and it served as a platform to generate ideas and suggestions for improvements, laying emphasis on quality aspects and promoting participative discussions. Emphasised on enhancing research activities through quality publications (in SCOPUS listed journals), organizing workshops/conferences/schools/ in periodic manner and through participation in student exchange and faculty sabbatical as well as University and Industry immersion program of the institute.

IQAC members have made various suggestions, recommendations on the following matters.

- Academic improvement and curricular development and change in course structure
- Empowering researchers through enhanced internal funding to tap external funding
- Industry collaborations and faculty immersion programs
- Promotion of result oriented learning structure.
- Enhancing the quality of student placement.
- Through activities of Teaching Learning Center
- Through activities of Intensive Teaching Workshop

Please Ref. **Annexure 2.14** for details

2.15 Plan of Action by IQAC/Outcome

The plan of action chalked out by the IQAC in the beginning of the year towards quality enhancement and the outcome achieved by the end of the year *

Plan of Action	Achievements
1. As a quality improvement initiative, IQAC recommended monetory support for undergraduate students for their innovative project work under faculy mentorship or without.	This was discussed at various level and accordingly approved by authority. Total of 50L was provided by institute as funding for undergraduate students' project support during the year 2018-19 in the 3 Indian campuses of BITS Pilani.
2. In keeping with National goal in improving quality of life for citizen through improved sanitation, IQAC recommended introduction of curriculum focusing this aspect.	In 187th Senate held on 7th February 2019, a new program of study is approved. M.E. in Sanitation Science Technology and Management under clause 187.14
3. In order to enhance exposure of First Degree students to advanced and high quality research, IQAC suggested streamligning of the process of such students seeking to do their final year thesis work abroad at reputed research Labs.	The matter has been discussed in various platform and a set of Guidelines for thesis abroad is formulated. In 188th senate the necessary guidelines are passed under clause 188.08

*Attached the Academic Calendar of the year as **Annexure 2.15**

2.16 Whether the AQAR was placed in statutory body   Yes ☑   No ☐

Management ☑   Syndicate ☐   Any other body ☐

Provide the details of the action taken

Functional heads / In-charges of every department are sensitised about the importance of data collection and verification for AQAR.

The Management understands the importance of AQAR, a must-to-do exercise for maintaining the quality of all related exercise in Academic sphere at the highest level and thus helping the University to move on the right track. The University would prepare AQAR every year and would be submitting to NAAC.

Criterion – I

1. Curricular Aspects

1.1 Details about Academic Programmes (*for details please refer **Annexure 1.1***)

Level of the Programme	Number of existing Programmes	Number of programmes added during the year	Number of self-financing programmes	Number of value added / Career Oriented programmes
PhD	All disciplines	-	-	-
PG	18	2	-	20
UG	10	-	-	10
PG Diploma	-	-	-	-
Advanced Diploma	-	-	-	-
Diploma	-	-	-	-
Certificate	7	2	-	9
Others	6	-	-	6
Total	41	4	-	45

Interdisciplinary	-	-	-	-
Innovative	-	-	-	-

1.2 (i) Flexibility of the Curriculum: CBCS/Core/Elective option / Open options
     (ii) Pattern of programmes:

Pattern	Number of programmes
First Semester	First Degree – 10 Higher Degree – 18 PhD
Second Semester	First Degree – 10 Higher Degree – 18 PhD

1.3 Feedback from stakeholders*   Alumni ☐   Parents ☐   Employers √   Students √
     (On all aspects)

      Mode of feedback   :   Online √ Manual √ Co-operating schools (for PEI) ☐

*(for details please refer **Annexure 1.3***)

1.4 Whether there is any revision/update of regulation or syllabi, if yes, mention their salient aspects.

> BITS Pilani is a deemed University and revision, update, changes in curriculum, introduction of new courses and improvements in pedagogy are regularly brought forward by the departments and are incorporated after the approval of the Institute Senate. There is also comprehensive review of curriculum and structure with involvement of external subject experts and industrial persons in every 5 years.

1.5 Any new Department/Centre introduced during the year. If yes, give details.

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NA.
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2.1 Total No. of permanent faculty

Total	Asst. Professors	Associate Professors	Professors	Others
720	429	191	86	14

2.2 No. of permanent faculty with Ph.D.   636

2.3 No. of Faculty Positions Recruited (R) and Vacant (V) during the year

Asst. Professors		Associate Professors		Professors		Others		Total	
R	V	R	V	R	V	R	V	R	V
29	-	3	-	2	-	3	-	37	-

2.4 No. of Guest and Visiting faculty and Temporary faculty   107   15   -

2.5 Faculty participation in conferences and symposia:

No. of Faculty	International level	National level	State level
Attended	174	186	-
Presented papers	174	172	-
Resource Persons	64	113	-

2.6 Innovative processes adopted by the institution in Teaching and Learning:

- Teaching Learning Center (TLC) activities
- Intensive Teaching Workshop (ITW) for all newly joined faculty members
- Continuous Feedback System
- Continuous Evaluation
- Return of evaluated copies to students for all examinations
- Display of Model Solution of every test paper along with marking scheme
- Recording and distribution of classroom lectures
- A few courses are offered on Moodle platform in flip class room mode
- Video content developed for Laboratory experiments and for a few courses.
- Offering online courses through the MOOCs
- Online Feedback process was explored for a few courses on Moodle platform

*Refer **Annexure 3.11 (equivalent to Annexure 2.6)** for details regarding activities under TLC & ITW*

2.7   Total No. of actual teaching days during this academic year

Pilani	Hyderabad	Goa	Dubai
167	167	164	200

2.8   Examination/ Evaluation Reforms initiated by the Institution (for example: Open Book
       Examination, Bar Coding, Double Valuation, Photocopy, Online Multiple Choice Questions)

- Institute has mandatory 20 % minimum evaluation component in open book format for first degree courses and 40 % for higher degree course.
- Evaluated answer scripts of all the examinations are returned back to the students
- Students can apply for recheck without any additional fee. Complete transparency and uniformity is ensured
- There is also a provision of grade scrutiny after the final grade has been awarded.
- Institute has efficient in house reprographic facilities for production of question papers ensuring complete confidentiality.
- There is a provision to conduct online multi choice question based examinations using Moodle and most courses make use of this facility.
- Model answer of each evaluation component made available to the students
- AI based digital evaluation system was initiated with Real Learning Pvt. Ltd. (an alumni startup). The system takes scanned copies of answer sheet and provides an online portal for evaluation.

2.9   No. of faculty members involved in curriculum restructuring/revision/syllabus development
       as member of Board of Study/Faculty/Curriculum Development workshop.

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Curriculum restructuring/revision/syllabus development is followed in a structured manner in BITS, Pilani. There is a Departmental Committee on Academics (DCA) in each department. DCA normally has 5-8 faculty members from the department. Any change/modification/addition in terms of course, programme etc. is initially screened by DCA and later with its recommendation, the proposal is forwarded to Cross Campus Committee on Academics (CCDCA). CCDCA has 2-3 members from each department in each campus. Having reached on consensus on any change/modification /addition, it is presented to the Senate for its approval. Around 250 faculty members as member of Senate are involved in the highest level of decision making regarding curriculum and structure revision.

2.10 Average percentage of attendance of students

No mandatory minimum number of attendance requirements however attendance record is maintained for the purpose of record.

At the three Indian campuses of BITS Pilani, there is no mandatory minimum number of attendance requirements however attendance is maintained for the purpose of record. There is requirement of 75% minimum attendance at BITS Pilani Dubai campus in first year and 60% in subsequent years.

2.11 Course/Programme wise distribution of pass percentage:
* *Please refer to **Annexure 2.11** for details*

Title of the Programme	Total no. of students passed
UG	10931
PG	1299
Ph.D.	987

2.12 How does IQAC Contribute/Monitor/Evaluate the Teaching & Learning processes:

IQAC plays a critical role by providing various suggestions to the statutory authorities of the universities for implementation. Few contributions made by the IQAC to improve the quality of education include curriculum review and expert committee visits to assess all discipline programmes across departments, establishment of the teaching learning centre, strengthening of faculty and course feedback systems, increase in assignment based and open book components in curriculum and fine grained grading of students,etc.

2.13 Initiatives undertaken towards faculty development

Faculty / Staff Development Programmes	Number of faculty/staff benefitted
Refresher courses	-
Faculty Improvement Programme	**Annexure 2.13**
HRD programmes	-
Orientation programmes	BITS Pilani (Pilani, Goa and Hyderabad) - 24 (induction program)
Faculty exchange programme	BITS Pilani (Pilani, Goa and Hyderabad) - 6
Staff training conducted by the university	27 Training Programs attended by 334 participants
Staff training conducted by other institutions	-
Summer / Winter schools, Workshops, etc.	40 Workshops
Others	

2.14 Details of Administrative and Technical staff

Category	Number of Permanent Employees	Number of Vacant Positions	Number of permanent positions filled during the Year	Number of positions filled temporarily
Administrative Staff and Technical Staff	1085	-	74	-

Criterion – III

3. Research, Consultancy and Extension

3.1 Initiatives of the IQAC in Sensitizing/Promoting Research Climate in the institution

* *Please refer to **Annexure 3.6** for details*

> Inorder to transform BITS into a research led university and to enhance research outputs of the university, several measures have been placed by IQAC before the Statutory Authorities to be implemented: include recruitment of research focused faculty, introduction of research initiation grant , competitive research initiation grants, seed grants, OPERA awards for new faculty and Chair Professorships to senior faculty, increase of Professional allowance for faculty to the tune of 1 lakh/annum, introduction of Part Time Ph.D programme, revamping of Ph.D course structure , introduction of provision of co-supervisor, giving letter grades to thesis/Dissertation to encourage undergraduate/graduate research activities.

3.2 Details regarding major projects

	Completed	Ongoing	Sanctioned	Submitted
Number	42	216	118	429
Outlay in Rs. Lakhs	1058.49	6226.26	2955.25	23369.60

3.3 Details regarding minor projects

	Completed	Ongoing	Sanctioned	Submitted
Number	21	14	53	24
Outlay in Rs. Lakhs	28.23	17.44	68.25	85.60

3.4 Details on research publications   *Refer to **Annexure 3.4** for details*

	International	National	Others
Peer Review Journals	701	76	Nil
Non-Peer Review Journals	Nil	Nil	Nil
e-Journals	Above publications are also available electronically		
Conference proceedings	379	409	Book chapter-19 Erratum-03 Editorial-03 Letter-01

3.5 Details on Impact factor of publications (for 2018-19 only)

Range | 0-35.2 | Average | 1. | h-index | 12 | Nos. in SCOPUS | 851 |

3.6 Research funds sanctioned and received from various funding agencies, industry and other organisations

*Please refer to **Annexure 3.6** for details*

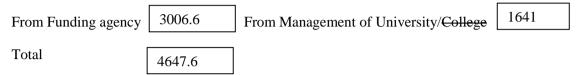| Nature of the Project	Year	Total grant(Sanctioned in Lakhs)	Received in Lakh
Major projects	2018-19	1843.07	1520.91
Minor Projects	2018-19	13.65	7.4
Interdisciplinary Projects	2018-19	574.14	119.34
Industry sponsored	2018-19	373.19	207.54
Consultancy	2018-19	70.948	28.31
Projects sponsored by the University/ College	2018-19	324.64	324.64
Other	2018-19	131.65	134
Total		**3331.288**	**2342.14**

3.7 No. of books published   i) With ISBN No. [5]   Chapters in Edited Books [22]

ii) Without ISBN No. [1]

3.8 No. of University Departments receiving funds from

UGC-SAP [_]   CAS [_]   DST-FIST [16]

DPE [ ]   DBT Scheme/funds [1]

3.9 For colleges   Autonomy [ ]   CPE [ ]   DBT Star Scheme [ ]

INSPIRE [ ]   CE [ ]   Any Other (specify) [ ]

3.10 Revenue generated through consultancy   [Rs. 86.21 Lakh]

3.11 No. of conferences organized by the Institution   [63]

3.12 No. of faculty served as experts, chairpersons or resource persons   103

3.13 No. of collaborations   International 6   National 15   Any other -

3.14 No. of linkages created during this year 4

3.15 Total budget for research for current year in lakhs :

From Funding agency 3006.6   From Management of University/~~College~~ 1641

Total   4647.6

3.16 No. of patents received this year (**Pilani, Goa, Hyderabad, Goa**)

* *Please refer to **Annexure 3.16** for details*

Type of Patent		Number
National	Applied	24
	Granted	1
International	Applied	0
	Granted	0
Commercialised	Applied	0
	Granted	1

3.17 No. of research awards/ recognitions   received by faculty and research fellows
of the institute in the year

Total	International	National	State	University	Dist	College
53	24	29	-	-	-	-

3.18 No. of faculty from the Institution who are Ph. D. Guides and students registered under them

850

* *Please refer to **Annexure 3.18** for details*

3.19 No. of Ph.D. awarded by faculty from the Institution   112

* *Please refer to **Annexure 3.19** for details*

3.20 No. of Research scholars receiving the Fellowships (Newly enrolled + existing ones)

JRF 92   SRF 44   Project Fellows 90   Any other 612

3.21 No. of students Participated in NSS events: University level 709   State level -

National level 17   International level -

3.22 No. of students participated in NCC events: University level -   State level -

National level -   International level -

3.23 No. of Awards won in NSS: University level -   State level -

National level 1   International level -

3.24 No. of Awards won in NCC: University level -   State level -

National level -   International level -

3.25 No. of Extension activities organized

University forum -   College forum -

NCC -   NSS 39   Any other **Nirmaan and Abhigyan**

3.26 Major Activities during the year in the sphere of extension activities and Institutional Social Responsibility

BITS Pilani has a vibrant eco-system for its ISR and extension activities. Students in campus, Staff and faculty members, with support of Alumni and University management drive the effort. NSS, Nirman, Abhigyan are flagship initiatives of BITS Pilani engaged in empowering community nearby through education and adoption of villages for implementation of Govt. schemes.

Criterion – IV
4. Infrastructure and Learning Resources

4.1 Details of increase in infrastructure facilities:

Facilities	Existing	Newly created	Source of Fund	Total
Campus area	210201	13749	internal	223950
Class rooms	173	22	internal	195
Laboratories	152	7	internal	152
Seminar Halls	22	6	internal	28
No. of important equipments purchased ($\geq$ 1-0 lakh) during the current year.	-	-	Capex & Govt. Grant	235
Value of the equipment purchased during the year (Rs. in Lakhs)	-		Capex	3594
Others: (Pilani Campus) a) Auditorium b) Telepresence Hall c) Library d) Hostels e) Staff quarters f) Dining g) Medical center h) Student Activity Centre	a) 1no b) 1no c) 1 d) 11 e) 221 f) 2 g) 1 no h) 1 no	a) 0 b) 0 c) 0 d) 0 e) 24 f) 0 g) 0 h) 0		a) 1 b) 1 c) 1 d) 11 e) 245 f) 2 g) 1 h) 1

4.2 Computerization of administration and library

- Additional Wifi Access Points expansion in hostel blocks
- Physics lab networking-data point installation and configuration
- E-document device (Wacom) for remote teaching
- E-campus solution phase 1 implementation with 28 Printers and Self Kiosk for payment

Internet line upgrade from 200 Mbps to 550 Mbps to students' network

Three hostels upgraded WiFi infrastructure from outdoor access points (AP) to Indoor Aps for better QoS.

ILL increased from 600 Mbps to 5Gbps for all campus put together.

Upgraded Cyberoam by including Outbound Sparm and WAF modules.

Upgraded software Matlab (R2018), Mathematica, ANSYS (15), Microsoft Windows (10), Linux (Ubuntu 18), Pro-e, Origin Pro (9.4).

Upgraded Network infrastructure by adding 100 more new access points and 100 more indoor APs.

Replaced older switches with WS 3650 PSL PoE switches.

Added 56 seats in Computer Lab.

Installed Multi-media facility (Amplifiers, Mixers, Speakers and Mics) in 38 class rooms

Purchased and implemented SSL certification for the domain.

Upgradation of Single sign on mechanism for all users.

Upgraded Cyberoam by including Outbound Sparm and WAF modules.

Upgraded software Matlab (R2018), Mathematica, ANSYS (15), Microsoft Windows (10), Linux (Ubuntu 18), Pro-e, Origin Pro (9.4).

Upgraded Network infrastructure by adding 100 more new access points and 100 more indoor APs.

Replaced older switches with WS 3650 PSL PoE switches.

Upgraded Anti-virus (Seqrite Endpoint Security 17.0)

Data center Infrastructure upgraded and 2 more server class machines added.

All multi-mode fibres across the campus changed to Single mode fibres.

4.3 Library Details

Pilani Campus	Existing		Newly added		Total	
	No.	Value	No.	Value	No.	Value
Text Books	12334	--	131	--	12465	--
Reference Books	*209212	--	1961	--	211173	--
e-Books- Purchased (Perpetual Access)	1244	2061336	149	1500224	1393	3561560
e-Books- Access provided by UGC-INFLIBNET-E-ShodhSindhu	100000+	---	--	---	100000+	--
Journals	186	1135533	--	--	186	1135533
e-Journals	38799	17436224	307	766875	39106	18203099
Digital Database	34	38039000	2	2549918	36	40588918
CD & Video	2396	--	01	13060	2397	--

Goa Campus	Existing		Newly added		Total	
	No.	Value	No.	Value	No.	Value
Text Books	6143	7,735,022.46	81	319,753.03	6224	8,054,775.49
Reference Books	1372	10,227,982.24	6	85,199.82	1378	10,313,182.06
e-Books	0	0	0	0	0	0
Journals	76	2,293,075.59	3	817,720.00	79	3,110,795.59
e-Journals	8	1,836,580.20	3	817,720.00	11	2,654,300.20
Digital Database	17	29,740,560.59	0	0	17	29,740,560.59
CD & Video	1678	0	0	0	1678	0
Others (specify)	0	0	0	0	0	0

Hyderabad Campus	Existing till 31.03.19		Newly added (from 01.04.19 to 30.06.2019)		Total	
	No.	Value (Rs.)	No.	Value (Rs.)	No.	Value (Rs.)
Books	32500	19,655,218	125	57,500	32625	19,712,718
Text / Reference Books	9250	5,618,406	32	10,250	9282	5,628,656

	No.	Value	No.	Value	No.	Value
e-Books	3685	3,193,551	0	0	3685	3,193,551
Journals	74	4,126,032	0	0	74	4,135,551
e-Journals	7460	69,007,589	0	0	7460	69,007,589
Digital Database	10	19,774,672	0	0	10	19,774,672
CD & Video	750	461,374	0	0	750	461,374
HBR Case Studies	50	29,050	0	0	50	29,050

Dubai Campus	Existing		Newly added		Total	
	No.	Value	No.	Value	No.	Value
Text Books	1271	184399.28	77	11002.01	1348	195401.29
Reference Books	20429	3250485.84	917	188765.64	21346	3439251.48
e-Books from MIT Press Procured (Perpetual Access)			722		722	31358
Journals	46	58521			46	58521
e-Journals	6386	282314	275	35805	6661	318119
Digital Database	5		1		6	
CD & Video	1543		12		1555	
Others (specify) Magazines Newspapers e-Newspapers Back Volumes Theses Book Bank	57 6 2 712 465 664	20996 2400 140	76 10 294		57 6 2 788 475 958	20996 2400 140

4.4 Technology up gradation (overall)

Computer Centre Hyderabad Campus 2018-19

1. Replaced old CISCO core, distribution and access switches   with CISCO new generation nexus switches.
2. Four more hostels have been provided with WiFi infrastructure. With this all hostels in the campus have WiFi connectivity.
3. Internet bandwidth to campus has been increased from existing 878 Mbps to 1033 Mbps.
4. Firewall upgradation from existing Cyberoam to Sophus (with high availability configuration) is done.
5. Installation of **eScan TTS** anti-virus for Business (14.0.1400) is done

6. Laid two runs of 144 core OFC (fiber backbone) on the periphery of the campus to provide redundant LAN connectivity.
7. Upgraded throughput license of Radware Linkproof load-balancer from 1 Gbps to 2 Gbps.
8. Air Conditioning provision is made by installing Split AC units at 11 locations where Distribution switches are placed.
9. New SW added to CC Labs during 2018-19 for academic use-

Software	No licenses
HDM4	10
NI AWR DESIGN ENVIRONMENT	40
PTV VISION	25
ROBOT STUDIO	50
SAP 2000	10
Scrivener for Windows	5
TRNSYS 18	10

10. Technology up gradation (overall) pertaining to Computer Centre (HW)

	Total Computers	Computer Labs	Internet	Browsing Centres	Computer Centres	Office	Depart-ments	Others
Existing	896	421	yes	--	-	475	-	-
Added	201	64	yes		-	137	-	-
Total	1070	485				475-27+137 =585		27 (buyback by Fac)

Note: The HW procured by Departments/Divisions and old systems available as scrap in stores which cannot be used, not included here.

Library
- KOHA – Library Management Software – Multi user
- Digital Library – 11 computers
- OPAC (Online Public Access Catalogue) – 4 computers
- Help Desk – 2 computers
- Back office – 6 computers
- LMS Server – 1 No
- Dspace Server – 1 No.
- Self Issue / Return Kiosk – 1No.
- RFID Security Gates – 2nos.
- Public Addressing System with 15 Speakers – 1 No.
- CCTV Cameras with System – 10 nos.
- WIFI Access points – 04 Nos.
- Photocopier/printer in library – 01 No
- Photocopier Machine is out sourced for students – 01 No.
- Library has the seating capacity of 550 nos.
- Library had provided flexi seating arrangements like (Sofa's-12nos. and Bean Bags-8nos.)

- For easy access the library collections are separated by different section like Text / Reference Section, General Reference Section, Periodical Section, Young Learners, General Stack and Reading Area.
- There are four discussion rooms are there for the use of students/faculty.

Library seminar hall with the seating capacity of 200 with LCD projector and Aircodintioner to organize library user awareness programme and seminars/workshops by other department.

Computer Centre Pilani Campus 2018-19

1. Increased Internet Bandwidth from 1.25Gbps to 3.25 Gbps
2. Wi-Fi Connectivity in six number of hostels by installing 218 number of access points.
3. Deployment of LAN based network to 180 staff quarters
4. Upgraded MATLAB (R2019A), ANSYS(18.1), Antivirus(7.0), Microsoft Windows (10) and Linux
5. Deployment of Complaint Management System.
6. CCTV Deployment in Animal house.
7. Digital Signage Deployment across the Institute.
8. Deployment of Lecture Recoding Equipment is two Class Rooms.
9. Setup of three Studios for Content Creation and development
10. As part of Securing existing Network Infrastructure, following Activities have been Carried out.
    - Replacement of old Cyberoam 2500ING Firewall with Sophos XG 750.
    - Deployment of Active directory for user authentication
    - Deployment of pulse secure for identify based network access control.
    - Deployment of Ex9204 Core Switch.
11. To improve Computing Infrastructure.
    - 4 Number of GPU based compute node has been added.
    - 2 number of SMP Servers.
    - upgraded 40 number of old desktop of machines in IPC Labs.

	Total Computers	Computer Labs	Internet	Browsing Centres	Computer Centres	Office	Depart-ments	Others
Existing	816	300	Yes		234	82	200	
Added	167	85	-		061	05	016	
Total	983	385			295	87	216	

4.5 Computer, Internet access, training to teachers and students and any other programme for technology upgradation (Networking, e-Governance etc.)

> Whenever there is technology upgradation, training to teachers and Students is always provided.

4.6 Amount spent on maintenance in lakhs :

   i) ICT

                        70.41 lacs

   ii) Campus Infrastructure and facilities

                        Pilani 430 lacs, Goa 850 lacs, Hyderabad 748 lacs

   iii) Equipments

                        15.23 lacs

   iv) Others

                        -

Total :   1642.64 lacs

Criterion – V
5. Student Support and Progression

5.1 Contribution of IQAC in enhancing awareness about Student Support Services

1. IQAC recommends continuous evaluation with components like quiz, assignment, Mid-semester and comprehensive examination spread out over the entire semester engaging students better with courses which help students to perform better.

2. IQAC recommends course handout along with learning objective for every course is made available to students at the beginning of the semester, which also contains definite set of objectives, lecture plan, tutorial and the evaluation components detail.

3. As per recommendation of IQAC, smaller tutorial sections for the courses with large number of students are arranged. This ensure better faculty-student, student-student interaction (through flipped mode tutorial class), guidance (extra hour of discussion beyond the lecture and tutorial hours) and monitoring.

4. Sharing lecture notes, lecture videos, conducting quiz in Moodle ensures better connectivity with students and is encouraged.

5. Recorded lecture sessions / teaching aids are made available to students in appropriate IT platform.

6. Specialized and popular courses are made available to the students of all BITS campuses using the Tele-Presence Classroom facility of the University. This ensures accessibility of courses and instructor(s) by any student irrespective of his/her physical location.

7. Under quality initiative, online courses through the MOOCs using MIT edx is initiated, which are also accessible to outside BITS population

8. All laboratories, library, hostels, class rooms cafeteria, and administrative blocks are made Wi-Fi enabling acquisition and dissemination of knowledge easier.

9 Introduction of project component in the disciplinery and elective courses give ample opportunity to students to learn things beyond the syllabus and thus engage the student with course more effectively

5.2 Efforts made by the institution for tracking the progression

1. For each and every course there is a handout. The students are provided with the handout of the course(s) made by the respective Instructor-in-charge(s) in which the objectives, learning outcomes, lecture and tutorial time schedule, extra meeting hour outside the scheduled class hours, dates and time of test(open/close book) and comprehensive examination(open/close book), quiz/assignment/project report/ seminar components are announced.

2. Measures like ICT enabled classrooms, smaller tutorials for better interaction, knowledge sharing and guidance, to carry forward the classroom discussion well beyond the class hours, more discipline oriented project courses, study project, design project, computer project and last but not the least the independent learning platforms like Sandbox etc. helps in creating a student centric learning environment.

3. The institute provides access to open source, nationally and internationally available online teaching and learning resources such as NPTEL lectures, OCW etc. The institute library has a portal which supports 32 online databases including Online Public Access Catalogue (OPAC) which provides access to over 235000 print e-books. These databases put together provide access to over 11000 full text journals.

4. Campus-wide network with data ports, wired and Wi-Fi connectivity is maintained so as to ensure internet facility at all hostel rooms, cafeteria, library, staff quarters, all laboratories and administrative blocks within the campus.

5. Students whose CGPA are found to be 4.5 or below, comes under the category called ACB (Academic Counselling Board) automatically. An ACB student is closely mentored/closely monitored by a ACB faculty appointed by the Instruction Division.
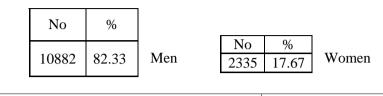
5.3 (a) Total Number of students

Campus	UG	PG	Ph. D.	Total
Pilani	4149	672	368	5189
Goa	3133	245	272	3659
Hyderabad	3649	373	347	4369
Total	10931	1299	987	13217

(b) No. of students outside state

Campus	UG	PG	Total
Pilani	3230	607	3837
Goa	2859	249	3108
Hyderabad	2582	319	2901
Total	8671	1175	9846

(c) No. of international students

Pilani	Goa	Hyderabad	Total
51	68	112	231

No	%	
10882	82.33	Men

No	%	
2335	17.67	Women

Last Year						This Year					
General	SC	ST	OBC	Physically Challenged	Total	General	SC	ST	OBC	Physically Challenged	Total
*						*					

* Admission is based purely on merit and this information are not captured.

Demand ratio | UG-59.9, PG-9.01 | Dropout % | 0.005% |

*Please refer to **Annexure 5.3** for details*

5.4 Details of student support mechanism for coaching for competitive examinations (If any)

> The Institute enables external experts to coach for GATE, GMAT, and CAT examinations, etc. After regular university classes students are free to attend these classes. Career guidance on how to prepare for and what to expect while pursuing Civil Services is also given.
>
> Talks by eminent administrative heads, and high performers in public arena, business leaders, scientists, distinguished alumni etc., are arranged regularly to motivate the students and offer career guidance in competitive examinations.

No. of students beneficiaries | Many students are getting good results in these competitive exams |

5.5 No. of students qualified in these examinations (*We do not collect this data)

NET [   ]   SET/SLET [   ]   GATE [   ]   CAT [   ]

IAS/IPS etc [   ]   State PSC [   ]   UPSC [   ]   Others [   ]

5.6 Details of student counselling and career guidance

The Placement unit conducts career guidance through 5-6 student mentoring sessions across 3 Indian campuses in one academic year. The participants are generally pre-final year & final year students. The pre-final year sessions generally are on preparatory tips for internships, scope on sector/profile etc. Statistics of previous years are shared with students for their guidance.

For final year students, the initial sessions are on placement registration, resume building, interview tips etc. Before the start of each placement cycle, the placement unit shares the policy, rules & top companies who will be visiting campus. This process repeats again after 1st Phase of placements (each cycle) where students are mentored on upcoming roles. These sessions are exclusive of training sessions which are also conducted by Placement team which focus on skill-gap analysis & interview preparation. Placement team in collaboration with industry experts guide students on future career aspects after engg.

No. of students benefitted | 710

5.7 Details of campus placement

On campus			Off Campus
Number of Organizations Visited	Number of Students Participated	Number of Students Placed	Number of Students Placed
375	2355	1975	219

*Please refer to **Annexure 5.7** for details*

5.8 Details of gender sensitization programmes

In each campus there is Gender Champions and a committee of students who undertake various activities to strengthen the potential of young boys and girls to advocate for gender equality and monitor progress towards gender justice under the guidance of Nodal Teachers.
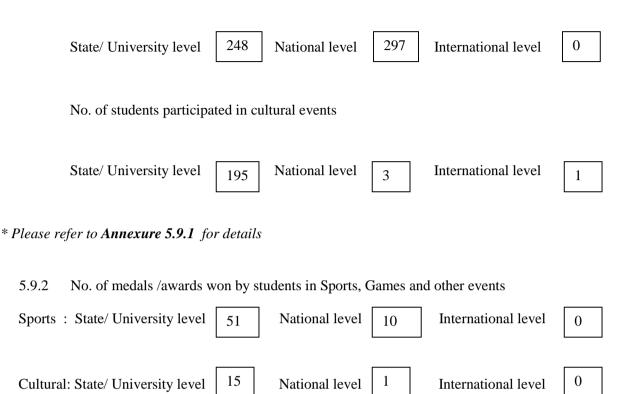
To maintain a working and learning environment free of intimidation, fear, bullying, revenge, retaliation in which students, faculty, and staff can develop intellectually, professionally, personally, and socially, 'Gender Champions' and 'Internal Complaints Committees' formally take care of Gender Sensitization Program in the Institute.

Campus level Internal Complaints Committees (ICC) with members from faculty, staff and students entertain any kind of harassment complaint; also organize seminars/workshops/talks on gender related issues from time to time.

*Please refer to **Annexure 5.8** for details*

5.9 Students Activities

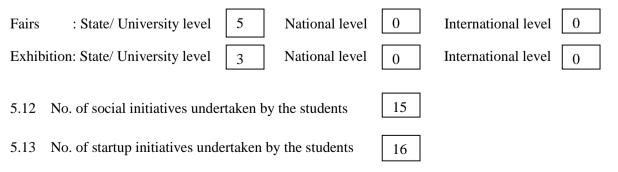   5.9.1   No. of students participated in Sports, Games and other events

    State/ University level | 248 | National level | 297 | International level | 0 |

    No. of students participated in cultural events

    State/ University level | 195 | National level | 3 | International level | 1 |

*Please refer to **Annexure 5.9.1** for details*

    5.9.2   No. of medals /awards won by students in Sports, Games and other events

Sports : State/ University level | 51 | National level | 10 | International level | 0 |

Cultural: State/ University level | 15 | National level | 1 | International level | 0 |

5.10 Scholarships and Financial Support

	Number of students	Amount
Financial support from institution	4892	194494549.00
Financial support from government	1055	-
Financial support from other sources	101	-
Number of students who received International/ National recognitions	3	$7000

*Please refer to **Annexure 5.10** for details*

5.11   Student organised / initiatives

Fairs   : State/ University level | 5 | National level | 0 | International level | 0 |

Exhibition: State/ University level | 3 | National level | 0 | International level | 0 |

5.12   No. of social initiatives undertaken by the students | 15 |

5.13   No. of startup initiatives undertaken by the students | 16 |

5.14 Major grievances of students (if any) redressed: NA

Criterion – VI

6. Governance, Leadership and Management

6.1 State the Vision and Mission of the institution

BITS Vision

BITS Pilani is focusing on enhancing its undergraduate program in engineering and the sciences by including more opportunities for research. BITS Pilani is striving to become one of the top three technical universities in India and one of the top 25 technical universities in Asia.

BITS Mission

BITS Pilani mission is to advance knowledge and educate students in science, technology, and other areas of scholarship that will best serve the nation and the world in the 21st century.

The Institute is committed to generating, disseminating, and preserving knowledge, and to working with others to bring this knowledge to bear on the world's great challenges. BITS is dedicated to providing its students with an education that combines rigorous academic study and the excitement of discovery with the support and intellectual stimulation of a diverse campus community. We seek to develop in each member of the BITS community the ability and passion to work wisely, creatively, and effectively for the betterment of humankind.

6.2 Does the Institution have a management Information System

---

Yes, the Institute has a comprehensive ERP system implemented across all 4 campuses of the university bringing in automation in all functions of the Institute.

6.3 Quality improvement strategies adopted by the institution for each of the following:

6.3.1 Curriculum Development

Curriculum is comprehensively revised via a participatory process. Curriculum restructuring/revision /syllabus development is followed in a structured manner in BITS, Pilani. There is a Departmental Committee on Academics (DCA) in each department. DCA normally has 5-8 faculty members from the department. Any change/modification/addition in terms of course, programme etc. is initially screened by DCA and later with its recommendation forwarded to Cross Campus Committee on Academics (CCDCA). CCDCA has 2-3 members from each department and each campus which deliberate on the proposal. Having achieved consensus on any change/modification/addition, it is presented to the Senate for its approval.There is also comprehensive review of curriculum and structure with involvement of external subject experts and industrial persons every 5 years.Curriculum development is monitored and supported by the team of Dean, Academics (UG) and Dean, Academics (PG).

6.3.2 Teaching and Learning

- Teaching workshops: about 2-3 per Year

- Invited Expert lectures: about 5-6 per Department per Year

- Online Tele-Presence Class Room: 01 (about 4 courses per semester)

- Wireless LCD projectors: All the class rooms

- All the Class rooms with Wi-Fi connections

- Feedback is obtained from faculty, student, industries, practice school organizations, campus interview teams, alumni and parents. Structured feedback is collected anonymously from students regarding each course.

- Departmental Committee of Academics (DCA) reviews the handouts of all the courses offered by a department

6.3.3 Examination and Evaluation

The process of review of the question papers of all the courses offered by a department with the assistance of the Departmental Committee of Academics has been arrived for ensuring the quality of question papers. The departments successfully completed this process by March 2019 and have also shared it with the respective course instructors.

6.3.4 Research and Development

PhD students are provisionally admitted by Institute wide admission test which consists of written test and interview.

A separate PhD qualifying examination is conducted for all provisionally admitted students.

Regular monitoring of progress of research by Departmental Research Committee (DRC). And Doctoral Advisory Committee DAC through report and presentations.

At least two publications in SCOPUS- Indexed Journals/conference proceedings, is mandatory to submit PhD thesis.

BITS Pilani has increased fellowship support to selected PhD students from Rs 25000/- to Rs 31000/- per month.

6.3.5 Library, ICT and physical infrastructure / instrumentation

1) Library is completely automated using **KOHA** an open source library management software. All the modules like Acquisition, Cataloguing, Circulation, report generation including Web-OPAC have been well utilized.

2) **RFID** enabled circulation system is implemented and the entire book collection of has been RFID tagged. The library has provided the self issue/return Kiosk known as **Smartserve**. The RFID security gates are helping in monitoring the issued books as well as counting the number of users visiting the library on daily basis. **RFID Smartstock** instrument is helping the library staff in stock verification and searching the missing books in the library.

3) An Interactive Library portal **infoBITS** has been developed which gives the opportunity to all the users to access the information, library catalogue, Institutional Repository, Audio Visual collection and online databases including E-Journals and E-Books. Through this portal, the users can communicate with the library i.e to recommend books, seek help for books not found on the shelf, if databases not working, proving feedback on library resources and sand services, submission of their original poems, write-ups, etc.

4) New spaces like **E-zones, AC reading rooms, Brainstorm Room, Group Discussion Room, G.D Birla Rare Books Section, Preservation Laboratory, Digitization Laboratory, Innovation Zone and MakerSpace etc** support the Research and development, innovative activities in the campus. A dedicated space called **Research Zone** to support research scholars with all the necessary facilities has been created. All these facilities are helping the library to fulfill the modern users requirements and also helping us to enhance the library resources usage.

5. In order to improve the quality of the services provided, the library has successfully implemented quite a few new facilities which are being used well by the students. Some of them are a state-of-the-art **Brainstorm Room** a naew **Group Discussion Room**, and A **Snack Vending machine.**

6) The Library also organized a two day **Regional Institutional Repository Workshop** in collaboration with National Digital Library of IIT Kharagpur from 25-26 February 2019 and celebrated World Book and Copyright Day on 23 April 2019 to promote reading habits.

7) In last one year more than 10 **User specific information literacy programs** were conducted for students, research scholars and faculty members. Databases training programs from various publishers were also conducted to the users to make them utilize the library subscribed databases.

8) **Flexible library timing** to suite the users, one month before the examinations the library working hours has been extended from 9 am to 2 am and during the Midterm and Comprehensive examinations **24X7.**

9) Resource sharing using **Inter Library Document Request Service** and **DELNET** to facilitate the users with the unavailable resources.

10) The value added services like Books@My desk, Daily News, infoBITS Bulletin, Inter library loan, Plagiarism Checking software, online feedback, Research Support, One Search are very useful to our users which are part of our services through the library portal

11) To inculcate the reading habits among the users, we organized various activities like **"Basant Book festival"** from 4-9 Feb.2019 during this book exhibition many senior faculty members talked about the importance of Books and reading and panel discussion on Print Books Vs E Books were held. Library celebrated **World Book and Copyright Day** on 23 April 2019 to promote reading habits. Besides, we also organised **Summer Reading Challenge** during which over 1200 books were issued to the students for their summer vacation reading.

12) With the help of NIRMAN **Design a Bookmark to Save Lives** was held on 3rd Feb'19 to educate the students about the importance of Blood Donation.

13) Development of **BITS Pilani Heritage Gallery** is in final stages. This photo gallery is to showcase the historical, cultural, educational and rich legacy established by this great institute and how it has evolved from Patashala to the current status of **Institute of Eminence** in the country. It will have a display of framed photographs and many other important documents and literature in a chronological order of all four campuses. A digital content and a platform is also developed with the help of students worked as TAs for this project. The digital content on and about BITS Pilani is developed and collected from various sources and made available for the users to access in this gallery.

6.3.6 Human Resource Management

> 1. Professional Allowance
> 2. Sabbatical Leave
> 3. Extraordinary Leave
> 4. Consultancy & Testing Projects

6.3.7 Faculty and Staff recruitment

> 1. On-Campus Tenured
> 2. On-Campus Non-Tenured
> 3. Off-Campus Tenured
> 4. Off-Campus Non-Tenured
> 5. Non-Teaching Recruitment

6.3.8 Industry Interaction / Collaboration

- Concerted effort towards enhancement of Industry interaction in terms of engagement for collaborative research, Work integrated Learning, Industry immersion program for faculty and Internship program for students.

- Strengthened the feedback system to improve the overall PS (Internship) experience for students as well as the host organization

- New cell by name "Quality Assurance and Assessment Cell" was formed to enhance the quality of the PS reports submitted by students

- Identification of domain specific faculty members to guide students during PS-II course.

- Availability of skill gap courses for the benefit of students prior to PS-II for a few domains

- Preparation of domain specific course handout with specific learning outcomes for PS-I students.

- Structured orientation programme for PS-I students through activity mapping, process mapping, process improvement mapping at the host organization.

- Faculty visit to various organizations to identify the assignments well in advance prior to PS-I

- Gap lectures by the senior executives for the benefit of PS-I students at the host organization.

- Project specific and course specific allotment of students for PS-II course for few select organizations.

- Domain specific evaluation in the form of quiz during PS-II courses.

- Participation of organization mentor during the evaluation components to improve the evaluation and assessment.

6.3.9 Admission of Students

We have strengthened the question bank for FD as well as for HD admissions by making new questions. Based on analytics carried out on the scoring pattern for BITSAT exam, this time we updated the FD question bank with significant number of new questions. The average scoring rate at different score levels have seen a decrease compared to earlier years.

A greater focus is now given on the admission of candidates who hold the foreign passport and we have received increased number of applications for International admissions for three of the Indian campuses at Pilani, Goa and Hyderabad.

Higher degree admissions this time were open to students with GATE/GPAT scores. The number of seats for higher degree admissions were also increased. Students were admitted to M.E/MPharm programmes with BITS Higher degree test scores and also with GATE/GPAT scores to improve quality admits.

6.4 Welfare schemes for

Teaching	Professional development fund of 1 laks per year Children, Spouse, Self-education benefit Medical benefits Contributory PF Gratuity Sabbatical leave, Immersion scheme - University and Industry Research Initiation Grants Seed grant, Opera, Competitive Research Grant Relocation allowance LTC
Non teaching	Children, Spouse, Self-education benefit Medical benefits Contributory PF Gratuity LTC
Students	➢ **GOVERNMENT:** Railway travel concession for students travel. ➢ **INSTITUTE FINANCIAL SUPPORT:** Approx. **Rs.276900.00** for students participating in various events. ➢ **STUDENT AID FUND** : **44** students are benefitted during AY 2018-19 **STUDENT GROUP MEDICALIM POLICY**: Rs. **867758.00** was released towards medical expenses for the students during 2018-19.

6.5 Total corpus fund generated   Nil

6.6 Whether annual financial audit has been done   Yes √   No

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

Audit Type	External		Internal	
	Yes/No	Agency	Yes/No	Authority
Academic	-	-	-	-
Administrative	Yes	SR Batliboi & Associates LLP	Yes	Aneja Management Consultants, Mumbai

6.8 Does the University/ Autonomous College declares results within 30 days?

For UG Programmes   Yes √   No ☐

For PG Programmes   Yes √   No ☐

6.9 What efforts are made by the University/ Autonomous College for Examination Reforms?

Right from its inception, BITS has been vigorously pursuing reforms in examinations as suggested by various education commissions. As a result, the following processes have become standard practices to be followed by all faculty in all courses over the past four decades. During the period under review, they have been further strengthened. BITS believes that learning and evaluation go hand in hand. So whenever new pedagogies are adopted, it necessitates in new methods of evaluation, which have been developed.

1) Continuous evaluation throughout the semester, including a Mid Test and a final comprehensive examination.

2) Various types of evaluation suiting the needs of individual courses, viz., written tests, written quiz, online quiz, lab examination, seminar presentation, group discussion, viva. In the case of project type courses, submission of a final report before deadline and presentation/viva; in the case of industry internship (called Practice school in BITS) different kinds of evaluation components viz., diary writing, seminar, report, quiz, etc.

3) Every course must have at least 20 % open book evaluation in first degree courses and at least 40% in higher degree courses. During the period under review, a new academic regulation is finalized for the open book component.

4) Number of courses where online examination components are there has increased during the period under review. These are conducted through Moodle software.

5) A beginning has been made to offer some courses in the flipped mode, where course material in video form is available to students and class room interaction is used for more involved discussion of the topics. The materials in digital form for these courses contain embedded quizzes so that the student can self -evaluate himself.

6) There is mandatory display of model answer key before distribution of answer books

7) There is a provision of grade scrutiny also after the final grade has been awarded

8) Institute has efficient in house reprographic facilities for production of question papers

6.10 What efforts are made by the University to promote autonomy in the affiliated/constituent colleges?

Not Applicable

6.11 Activities and support from the Alumni Association

BITS Alumni Association Chapters are spread across different cities in India such as Delhi (NCR), Mumbai, Bangalore, Hyderabad, Indore, Pune, Jaipur etc. These chapters regularly organize different events. BITSAA International incorporated in USA is actively involved in channelizing connect with Alumni across the Globe. There are other prominent chapters across countries.

Alumni association provide monetary support for student research and entrepreneurial initiatives and community service as well as towards corpus fund generation.

*** Please refer to **Annexure 6.11** for details*

6.12 Activities and support from the Parent – Teacher Association

Not Applicable

6.13 Development programmes for support staff

S.No	Training Program	Campus	No of Participants
1	Excel Training Program (Beginner & Intermediate stage)	Pilani	28
2	Academic Leadership Excellence Programme	Pilani	1
3	Workshop on Labour Contract & Compliance	Pilani	5
4	Prevention of Sexual Harassment Workshop	Pilani	2
5	Seminer on EPF, ESIC, Bonus & Gratuity	Pilani	6
6	Employee Productivity Enhancer	Pilani	21
7	Certification Course on 'Basic Life Support'	Goa	26
8	Higher Education Leadership Programme	Goa	1
9	High Impact Presentation Skills	Goa	7
10	Workshop on MS-Excel	Goa	30
11	Library Technology Conclave	Goa	2
12	Labour Law with Latest Amendments	Goa	3
13	MATLAB (Raspberry - Pi) and Microcontroller	Goa	2
14	ERP-HR / Payroll Capability Building Workshop	Goa	3
15	Solidworks software training	Goa	2
16	First Aid Awareness Training Program	Hyd	50
17	Microsoft Excel Training Program	Hyd	28
18	Defensive Driving Training	Hyd	5
19	Labour Law Orientation Program	Hyd	32
20	Advance Course on Electrical Safety, Electrical Saftey Audit and Risk Management.	Hyd	1
21	HR & Payroll workshop	Pilani / Goa / Hyd	19
22	Fire Safety Training	Dubai	37
	Total No. of Participants (Institute Wide)		**311**

6.14 Initiatives taken by the institution to make the campus eco-friendly

Initiatives taken by administration to encourage cashless transaction at all campuses.

The Maintenance Unit has planted saplings as part of efforts for carbon neutrality. Around 2000 saplings were planted to refurbish and to maintain landscaping at the campus and 500 saplings were planted for "Haritha Haram" to support the green drive of Telangana State Government at Hyderabad campus.

Maintenance Unit had taken certain measures to conserve water through renovation of existing STP for effective utilization of re-cycled water for landscaping, construction of a new STP with latest MBBR technology work, providing pressmatic taps with water aerators to minimize wastage of water. The Division is also contemplating to utilize rain water/certain extent of underground water for flushing and urinals in the academic blocks and hostel buildings and store the rain water by creating an artificial pond inside our campus and feasibility study is in process. Major renovation of Academic blocks and residential quarter is undrer way.

In order to conserve energy, LED lights were provided across the campus. Additional solar street lights were added to the existing alongside the campus pathways & outer Road and initiated the work on 1 MW solar roof top power plant which will be ready for commissioning in October 2018.

Adequate Trash Bins were provided across the campus to control the littering of the waste material and food waste generated from Students' Mess is being treated in-situ through thermophilic biomethanation process and the biogas thus produced is being utilized as supplement fuel in the hostel kitchen for cooking.

As part of Hazardous Waste Management, e-waste generated is collected and sent either to e-waste dealer or to the collection point prescribed by pollution board and sewage water is being treated and the treated water is utilized for entire landscape area inside our campus and once the new STP is starts functioning, treated water can be used even for flushing.

Criterion – VII

7. Innovations and Best Practices

7.1 Innovation introduced during this academic year which have created a positive impact on the functioning of the institution. Give details.

- Mobile application for LMS developed
  - Browse the content of courses anytime anywhere
  - Receive instant notifications

- RFID technology and Self check-in and check-out KIOSK facility at library resulted
  - Quick & Efficient Circulation Operations
  - Enhanced Security for Library Items
  - Seamless Inventory Management
  - Emerging Technology Experience for Library users

- Waste disposal: All faculty / staff residences are provided with Blue / Green waste bins to enable waste segregation at source.
  - Green campus

- Sandbox lab is inaugurated where facilities such as laser printer, laser cutter, 3D printer and electronic tools to support creative projects by students outside classroom and curriculum.
  - Boost to student creative projects

- Library halls are renovated with meeting rooms and projector facilities are made available for the use by faculty and students.
  - Facilitate professional discussion

- In addition to the wired internet connections Faculty / Staff residence areas are now Wi-Fi enabled.
  - Introduce redundancy, ensure 24x7 availability of internet connection

- All financial transactions are fully digitized.
  - Better checks and balance and better MIS

- Department-wise training on designing/formulating course learning outcomes
  - Incorporation of learning outcomes in course handouts

*Please refer to **Annexure 7.1** for details*

7.2 Provide the Action Taken Report (ATR) based on the plan of action decided upon at the beginning of the year

1. Emphasising importance of Quality publication by faculty, and research scholars are emphasised. IQAC has a mandate to ensure quality of journal/conference proceeding publication. As per its recommendation, all the departments have worked out a list recommended of peer-reviewed journals, conference proceedings in categories like Tier 1, Tier 2 and Tier 3 which are in compliance with the UGC recommended list of Journals and are either SCI-indexed, SSCI indexed or SCOPUS indexed. Faculty, Ph.D. students, Higher degree students and undergraduate are publishing their work in those journals and conference proceedings.

2. Based on quality initiative the Departments have organized invited lecture by several eminent personalities. To encourage and ensure diversity in these talks and to encourage a greater student engagement, many alumnus, having well cherished achievements are also called for interaction with students and faculty.

3. The IQAC webpage set up by the University has been periodically updated with new information necessary for building transparency in the appointment teaching and non-teaching staff and their promotion, in admission of students in several undergraduate and postgraduate programmes and University research activities and its other outreach activities connecting Industries, Universities in India and abroad.

4. A 360° feedback is encouraged. Assessment of all the course Instructors by the students has been made effective apart from qualitative course feedback from students. Based on the feedback received, teachers have taken necessary corrective measures. Based on the feedback received from the students and also external experts and industry personals, the course content of several courses have been is updated.

5. To boost confidence among the various stake holders of Quality, IQAC organized direct interaction of administrative as well as teaching faculty with reputed ranking agency like Times Higher Education (THE), Quacquarelli Symonds (QS) etc.

7.3 Give two Best Practices of the institution *(please see the format in the NAAC Self-study Manuals)*   *** Refer Annexure 7.3**

A) **University Review**

The University Review Council comprises the Vice-Chancellor, the Advisor to Chancellor and the Executive Assistant to Chancellor. It undertakes reviews periodically (lately once a Semester) at university level as also at the campus level. It is a very intensive exercise over 2 days probing every academic department and every function of the Institute. Through these reviews, BITS would like to:

a. continuously improve all critical academic and non-academic processes leading to continuous improvement in the Institute's reputation

b. grow in a quality way and ensure the Institute remains financially sustainable

c. rapidly contemporize every aspect of its way of working

Scope of the reviews are as follows

- Faculty and HR: Capacity and capability, Expectations, Faculty Engagement, Support, Rewards, Recognition, Talent pipeline etc.

- Research: Expectation, Contribution, Outcomes, Resources used etc.

- WILP & Industry Engagement: Execution of the Transformation Project and outcomes; Relevance, Rigour, Quality of WILP Programmes offered etc.

- Student Intake & Mix (FD, HD), Academic Programmes: Growth and Mix of Students; Relevance, Rigour, and Quality of Academic Programmes offered etc.

- Student Placements: Employability, Employer perception etc.

- Regulations and Accreditation

- International Programmes & Collaboration: Growth & matrix of student exchanges, Faculty exchanges & MOUs with other universities

- Academic Departments: Expectation, Contribution, Outcomes, Resources used

Outcomes of the reviews held so far

- Significant improvement in Faculty retention rate
- Value of Research projects applied vs approved has been augmented, Patents filed and approved has been tremendously improved
- PhD stipend is at par with IITs, % of Students placed has been increased
- International collaborations with only reputed institutes which gives opportunity to gain international experience to faculty and students by spending a semester in the partnering institution
- Students number has been significantly improved
- Curriculum review for all the departments have been done twice
- Institutional Knowledge Analysis cell was created to provide data with analysis to internal & external stakeholders for evidence based decision making and strategic planning
- Tremendous improvement in alumni support
- Role of Examination Committee in ensuring the same standard on teaching-learning and also ensuring the grades awarding by comparing MGPA, grades ranges of campuses.

Reviews held till date

	University Review	**Campus Review**
1	14 July 2015 (Pilani)	7 Jan 2016 (Goa)
2	4 Oct 2015 (Hyd)	3 April 2016(Dubai)
3	6 Jan 2016 (Goa)	5 April 2016(Hyd)
4	8 April 2016 (Pilani)	7 April 2016 (Pilani)
5	21 Sep 2016 (Pilani)	22 Sep 2016 (Pilani)
6	16 May 2017 (Hyd)	17 May 2017 (Hyd) June 14 2017 (Dubai)
7	17 Oct 2017 (Pilani)	18 Oct 2017 (Pilani)
8	14 March 2018 (Goa)	15 March 2018 (Goa)
9	8 Jan 19 (Goa)	9 Jan 19 (Hyd)
10	25-Jun-19 (Goa)	26-Jun-19 (Goa)

B)   Basic Condition Evaluation

Basic Condition Evaluation is a well-designed assessment framework developed by Corporate Business Excellence. BCE format has been further modified by MABEC to take care of Campus activities. The process helps a campus to know the adequacy of its basic processes, conditions and standards which are needed for smooth running of the campus. It is seen that Campus having good level on BCE are able to sustain the achieved level of high performance.

The assessment framework provides guidelines to gauge key processes on three view points. Processes are categorized as:

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1. 5S forWorkplace Organising /Basic Upkeep
   (5S: Sort, Straighten, Shine, Standardize, Sustain)

2. Safety, Health, Environment

3. Maintenance

4. Operation

Assessment requires the processes to be examined from the following three viewpoints and all three Indian campuses have been assessed already in this framework:

    a. Physical condition
    b. System
    c. Behavior.

7.4 Contribution to environmental awareness / protection

i) Energy conservation Use of Energy Efficient Equipment
- Insulation of Hot Water Pipes
- Dual Layered Glass to prevent Green House Effect
- Propagation of CFL/LED and Energy Rated equipment's and fixtures in the whole campus
- Master Switches installed in for each class room
- CRT monitors being replaced with LCD/LED Monitors
- Thermostat controlled cooling systems

ii) Use of renewable energy: Solar Powered Street Lighting; Solar Powered Water Heating System.

iii) Water harvesting-

- New Academic Block is equipped with Rain Water Management System with Channelized Drain & Pipe Network, Rain Water Holding Tank, Pumps and Ground Water Recharge Pits.

- Approx. 2km of Storm Water Drain Line is also provided with four rain water recharge pits

- Rain Water Harvesting & Recharge Pits are provided at numerous locations of the campus.

iv) Efforts for Carbon neutrality- Tree plantation is carried out at regular interval to achieve carbon neutrality to cover the most open areas. Institute residents are encouraged to use bicycle as a transport medium within the campus. All the wastes generated in the campus are taken care of as per norms. Sustained effort put towards reduction of waste generation and to reduce electricity usage through increased reliance on renewable sources of energy.

v)   Plantation: Plantation drives to increase the green cover and replacement of deceased plants. We have self-sufficient staff quarters as well as external housekeeping contractors for maintenance of landscape.

vi) Hazardous waste management: Scientific handling of hazardous waste and adequate measures to provide an eco-friendly environment within the campus.

vii) E-waste management: e-waste generated is collected discretely and sent either to e-waste dealer or to the collection point prescribed by pollution control board.

7.5 Whether environmental audit was conducted?   Yes [√]   No [   ]

7.6 Any other relevant information the institution wishes to add.

Project Lakshya

BITS initiated a Strategic Planning exercise called Project Lakshya with support from Boston Consulting Group (BCG). Key actions to be undertaken

- Detail out, refine and refresh the specifics of the strategy to achieve the vision
- Define and create alignment on the action plans and goals/ targets
- Bring the faculty and staff fully on board with the plan
- Detail out the financial plan in light of the strategy

Following five focus areas were identified:

- Research & Innovation
- Programs, Curriculum, Pedagogy and Quality Assurance
- Faculty
- Industry Connect
- Alumni Relations

Nielson study

A group of alumni proposed to look at measures to improve placements team engagement with the potential employers that visit / do not visit BITS campuses. The team recommended a market research study to help define the Brand Value Proposition will primarily indicate where does BITS Pilani as an educational institution stand on key performance and image metrics amongst the stake holders. Nielsen, a leading market research company, was engaged to carry out this study. The research study has been completed. BITS has implemented some of the suggested steps to reap benefits leading to having one of the best Placement statistics in the country.

Aon Hewitt

BITS Pilani had initiated a study with AON Hewitt on key responsibilities (also called Job Description) of various positions across BITS Pilani, such as University / campus Deans, HODs, Managers etc. This brought in standardization and clarity in deliverables and expectations of employees.

Continuous and Transparent Evaluation

BITS Pilani, since its inception, has been following a continuous evaluation system. All evaluation components are internal – conducted and evaluated by the faculty who is/are teaching the course and at the same time centrally monitored. The components of evaluation (tests, quizzes, take-home

assignments, laboratory exercises, seminars, reports etc.) are specified with weightages, duration, and time in the handout issued by the teacher in the beginning of the semester. For each component, the teacher evaluates and returns the answer sheets to the students within a week of completion of that component. The model answers and marking scheme are also displayed. The student has the right to seek a clarification or re-evaluation. The teacher considers all such requests, clarifies, and/or re-evaluates the answers, and returns it to the student. Further redress mechanisms are available to the students in the form of an examination committee in each campus. The process of internal evaluation is robust enough such that only about one in a thousand students or less has had ever to approach the examination committee.

Auditing from Aditya Birla Group Auditors

BITS Pilani had initiated auditing through Corporate Management Audit team of Aditya Birla Group; they audited various divisions at Pilani and Goa campuses and submitted their recommendations. The same study is ongoing in Hyderabad campus as well. This study highlighted the negatives and positive areas of the concerned division and brought in standardization and clarity in deliverables.

Review by Aneeja Management Consultants:

Every year Aneeja Management Consultants visit all four campuses and review the progress made in various divisions. This year in Pilani they reviewed the following areas:

- Admissions and SWD
- Facility Management
- Implementation of 7th Pay commissions
- Government Grants
- WILP Program
- Scholarship and Waiver of Fees
- Yield per Academic Program

8. Plans of institution for next year

- Large scale installation of solar power generation systems across the campuses.
- Upgrading waste management and disposal facilities
- Establishing and upgrading state of the art laboratory facility for research
- Enhancing Wi-Fi coverage in campus
- Augmentation of class room and sports facilities

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