

B.S.ABDUR RAHMAN UNIVERSITY

THE ANNUAL QUALITY ASSURANCE REPORT (AQAR) OF THE IQAC

2014-2015

INTERNAL QUALITY ASSURANCE CELL

**B.S.ABDUR RAHMAN INSTITUTE
OF SCIENCE AND TECHNOLOGY**

Vandalur, Chennai – 600 048, India
Accredited by NAAC with 'A' Grade
(Estb. u/s.3 of the UGC Act, 1956)
www.bsauniv.ac.in



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UNIVERSITY**

B.S.ABDUR RAHMAN INSTITUTE OF SCIENCE & TECHNOLOGY
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Dr. V.M. PERIASAMY
Vice Chancellor (Officiating)

LR. NO. 41 : VC-BSAU :2015

10th June, 2015

To

Prof. Dr. Jaspal Singh Sandhu,
Director,
National Assessment and Accreditation Council,
P.O. Box No.1075,
Nagarbhavi,
Bangalore - 560 072.

Sir,

Sub : Submission of Annual Quality Assurance Report (AQAR)
For the year 2014-15 - Cycle I - Regarding.

Ref : Track Id : TNUNGN11169

I am pleased to submit the Annual Quality Assurance report (AQAR) for the year 2014-15. The AQAR has been uploaded on our website on 10th June, 2015

With best wishes,

Yours sincerely,

V.M. Periasamy
10/6/2015

(Dr. V.M. PERIASAMY)
Vice Chancellor (Officiating)
and
Chairman, IQAC

Encl.: Annual Quality Assurance Report (AQAR)

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The Annual Quality Assurance Report (AQAR) of the IQAC

Part – A

1. Details of the Institution

1.1 Name of the Institution

B.S. Abdur Rahman Institute of Science & Technology

1.2 Address Line 1

Seethakathi Estate

Address Line 2

GST Road, Vandalur

City/Town

Chennai

State

Tamilnadu

Pin Code

600 048

Institution e-mail address

bsar@bsauniv.ac.in

Contact Nos.

+ 44 - 22750005, 22750202,
22750006, 22751347

Name of the Head of the Institution:

Dr. V.M. PERIASAMY

Tel. No. with STD Code:

+ 44 - 22751347, 48, 50, 75

Mobile:

9444116550

Name of the IQAC Co-ordinator:

Dr. T.R. RANGASWAMY

Mobile:

9444450072

IQAC e-mail address:

dean_acad@bsauniv.ac.in

1.3 NAAC Track ID (For ex. MHCOGN 18879)

TNUNGN 11169

1.4 NAAC Executive Committee No. & Date:

EC(SC)/ 01A&A/ 080 dated 05.05.2014

*(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:

www.bsauniv.ac.in

Web-link of the AQAR:

www.bsauniv.ac.in/NAAC-AQAR2014-15.DOC

For ex. <http://www.ladykeanecollege.edu.in/AQAR2012-13.doc>

1.6 Accreditation Details

Sl. No.	Cycle	Grade	CGPA	Year of Accreditation	Validity Period
1	1 st Cycle	A	3.08	2014	5 years
2	2 nd Cycle	-	-	-	-
3	3 rd Cycle	-	-	-	-
4	4 th Cycle	-	-	-	-

1.7 Date of Establishment of IQAC :

DD/MM/YYYY

02.09.2013

1.8 AQAR for the year (for example 2010-11)

2014 – 2015

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

This is first one for 2014-15

- i. AQAR _____ (DD/MM/YYYY)
 ii. AQAR _____ (DD/MM/YYYY)
 iii. AQAR _____ (DD/MM/YYYY)
 iv. AQAR _____ (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)

Nil

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

Not Applicable

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

Autonomy by State/Central Govt. / University	-		
University with Potential for Excellence	-	UGC-CPE	-
DST Star Scheme	-	UGC-CE	-
UGC-Special Assistance Programme	-	DST-FIST	Civil & ECE depts. applied for FIST
UGC-Innovative PG programmes	-	Any other (<i>Specify</i>)	Minority
UGC-COP Programmes	-		

2. IQAC Composition and Activities

2.1 No. of Teachers	13
2.2 No. of Administrative/Technical staff	6
2.3 No. of students	Nil
2.4 No. of Management representatives	1
2.5 No. of Alumni	Nil
2.6 No. of any other stakeholder and community representatives	2
2.7 No. of Employers/ Industrialists	Nil
2.8 No. of other External Experts	Nil
2.9 Total No. of members	22
2.10 No. of IQAC meetings held	4

2.11 No. of meetings with various stakeholders: No. Faculty
 Non-Teaching Staff Students Alumni Others

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

If yes, mention the amount

2.13 Seminars and Conferences (only quality related)

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

Total Nos. International National State Institution Level

(ii) Themes

2.14 Significant Activities and contributions made by IQAC

- Introduced value added certificate / diploma programmes in various departments.
- Starting of new integrated programme M.Sc & Ph.D in School of Life Science.
- Mandatory registration of Ph.D by staff members.
- Revision of Lesson Plan format incorporating several parameters of outcome based teaching and learning process.
- Revised format for feedback on teachers by students.
- Root cause analysis for the poor performance by the students in the examinations is carried out.

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
<ul style="list-style-type: none"> • Outcome Based Education 	<ul style="list-style-type: none"> • Lesson Plan format was revised incorporating several parameters of outcome based teaching and learning process.
<ul style="list-style-type: none"> • Starting of Value Added programme 	<ul style="list-style-type: none"> • Introduced value added certificate / diploma programmes in various departments.
<ul style="list-style-type: none"> • Starting of new integrated programme 	<ul style="list-style-type: none"> • Started M.Sc & Ph.D integrated programme in School of Life Science.
<ul style="list-style-type: none"> • Mandatory registration of Ph.D by staff members. 	<ul style="list-style-type: none"> • More than 95% of the faculty members are registered for Ph.D.
<ul style="list-style-type: none"> • Enhancement of Teaching Learning Process 	<ul style="list-style-type: none"> • Revised the feedback format for teachers. • Root cause analysis was carried out for poor performance by the students in the examinations. • Board of Studies of each department carried out minor modification of syllabus for some of the courses as per the industrial needs.
<ul style="list-style-type: none"> • Academic & Administrative Audit 	<ul style="list-style-type: none"> • Academic & Administrative Audit was held on 1.04.2015

* Attach the Academic Calendar of the year as Annexure.

Please See Annexure – I

2.15 Whether the AQAR was placed in statutory body Yes No

Management Syndicate Any other body

Provide the details of the action taken

Initiation of work for NAAC accreditation was approved in the sixth meeting of academic council held in June 2013 (vide item no. 6.3.5). AQAR is one of the activities after NAAC visit.

Part – B

Criterion – I

1. Curricular Aspects

1.1 Details about Academic Programmes

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	17	1	All our programmes are self financing programmes.	-
PG	25	1		-
UG	14	-		-
PG Diploma	1	-		-
Advanced Diploma	-	-		-
Diploma	-	1		2
Certificate	-	1		3
Others	-	-		-
Total	57	4	-	5
Interdisciplinary	-	-	-	-
Innovative	-	-	-	-

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

Pattern	Number of programmes
Semester	39
Trimester	1
Annual	0

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

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

*Please provide an analysis of the feedback in the Annexure (*Please see Annexure –II*)

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

Yes
Minor revision of syllabus in some courses of all programmes was carried out such as inclusion of case studies, design, etc.
Lateral entry scheme was introduced and the regulation and syllabus for MCA is updated from the academic year 2014-15 onwards.

Regulation with regards to attendance requirement was modified for UG and PG programmes and approved in Academic Council held on July 2014.

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

Nil

Criterion – II

2. Teaching, Learning and Evaluation

2.1 Total No. of permanent faculty

Total	Asst. Professors	Associate Professors	Professors	Others
354	258	24	60	12

2.2 No. of permanent faculty with Ph.D.

125

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
22	-	1	-	4	-	10	-	37	-

2.4 No. of Guest and Visiting faculty and Temporary faculty

-

12

-

2.5 Faculty participation in conferences and symposia:

No. of Faculty	International level	National level	State level
Attended	88	123	18
Presented papers	122	98	5
Resource Persons	16	26	10

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

- | | |
|---|--|
| <ul style="list-style-type: none"> • Concept based instruction • Project based learning • Outcome based instruction • Activity based learning • Focused group discussion | <ul style="list-style-type: none"> • Live case study • Flipped classroom • Role Play • Video based learning • Experimental learning |
|---|--|

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

184

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

- External Academic Audit was conducted at department level to ensure the question paper standard by expert members from leading institutions like Anna University, IIT Madras etc.
- Department Academic Audit was conducted to ensure the standard of question paper by senior faculty of the concerned department.
- Multiple components like Assignment, Seminar, Model quiz etc. were the components for internal assessment.
- Every theory course in the B.Tech program shall have a total of four assessments during a semester. The weightage for the first 3 CAT is 45% and for the 4th assessment (semester end examination) is 50%. The weightage given for attendance is 5%.
- Appearing for semester end examination for each course is mandatory and a student should secure a minimum of 40% marks in each course in semester end examination for the successful completion of the course.
- Every practical course will have 60% weightage for continuous assessment and 40% for semester end examination. However, a student should have secured a minimum of 50% marks in the semester end practical examination.
- If a student fails to earn the minimum 75% attendance while doing any course he/she will be awarded “I” grade in that course.
- Students awarded, “I” grade in a core course should register and re-do that course whereas for an elective course, he/she has the option to either redo the same elective or to choose a new elective.
- Minimum credit requirement to move to the higher semesters are:
 - Not less than a total of 20 credits, to move to the 3rd semester
 - Not less than a total of 40 credits,
 - (20 for lateral entry) to move to the 5th semester
 - Not less than a total of 60 credits,
 - (40 for lateral entry) to move to the 7th semester

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

118	119	70
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2.10 Average percentage of attendance of students

85%

2.11 Course/Programme wise distribution of pass percentage:

Title of the programme	Total no. of students appeared	Division				
		Distinction %	I %	II %	III %	Pass %
B.Tech. Civil Engg.	92	4.35	46.74	23.91	-	75
B.Tech. Mech. Engg.	187	5.88	44.92	20.86	-	71.66
B.Tech. Polymer Engg.	16	18.75	56.25	6.25	-	81.25
B.Tech. EEE	44	2.27	45.45	34.09	-	81.82
B.Tech. ECE	154	13.64	46.10	20.78	-	80.52
B.Tech. E&IE	29	6.90	17.24	13.79	-	37.93
B.Tech. CSE	108	15.74	49.07	18.52	-	83.33
B.Tech. IT	44	6.82	47.73	31.82	-	86.36
B.Tech. Aerospace Engg.	26	7.69	50.00	15.38	-	73.08
B.A. Islamic Studies	109	9	22	35	-	88
M.B.A	117	14.53	71.79	13.68	-	100.00
M.C.A	116	14.66	67.24	13.79	-	95.69
M.Tech. Structural Engineering	32	31.25	50.00	18.75	-	100.00
M.Tech. Construction Engg. & Project Management	10	30.00	60.00	10.00	-	100.00
M.Tech. CAD/CAM	8	37.50	62.50	0.00	-	100.00
M.Tech. Manufacturing Engineering	9	22.22	44.44	0.00	-	66.67
M.Tech. Power Systems Engineering	20	30.00	70.00	0.00	-	100.00
M.Tech. Power Electronics & Drives	22	18.18	68.18	13.64	-	100.00
M.Tech. Communication Systems	28	17.86	75.00	0.00	-	92.86
M.Tech. VLSI	29	27.59	72.41	0.00	-	100.00
M.Tech. Electronics & Instrumentation Engg.	10	20.00	80.00	0.00	-	100.00
M.Tech. Computer Science & Engg.	28	21.43	78.57	0.00	-	100.00
M.Tech. Software Engineering	28	25.00	67.86	7.14	-	100.00
M.Tech. Information Technology	30	13.33	63.33	23.33	-	100.00
M.Tech. Opto Electronics	3	66.67	33.33	0.00	-	100.00
M.Sc. Chemistry	21	9.52	61.90	28.57	-	100.00
M.Sc. Actuarial Science	10	20.00	70.00	10.00	-	100.00

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

The IQAC contributes

- Offer suggestions to follow the best pedagogy for teaching and learning process based on feedback from stake holders, class committee meeting, HODs meeting, etc.
- Provides suggestion to change elective courses as per the industry requirements, thrust area, etc.
- Provides direction to do minor modification of syllabus through the feedback system.
- Provides direction to the Faculty Development Academy (FDA) of this institution to conduct faculty development programmes, training, workshop, etc as per the need.
- Monitors the teaching and learning process through lesson plan, course material, analysis of the continuous assessments, conduct of theory and practical courses, internal academic audit, etc.
- Analysis of end semester examination results
- Evaluate root cause analysis and action for remedy
- Suggestion to modify the question paper pattern and evaluation methodology

2.13 Initiatives undertaken towards faculty development

<i>Faculty / Staff Development Programmes</i>	<i>Number of faculty benefitted</i>
Refresher courses	22
UGC – Faculty Improvement Programme	1
HRD programmes	20
Orientation programmes	32
Faculty exchange programme	1
Staff training conducted by the university	55
Staff training conducted by other institutions	79
Summer / Winter schools, Workshops, etc.	146
Others	11

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	98	-	-	-
Technical Staff	81	-	-	-

Criterion – III**3. Research, Consultancy and Extension**

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

- The IQAC coordinating with two tier research committees to monitor and address the issues related to research. They are
 - (i) Research Advisory Committee
 - (ii) Research Board
- Provide policy guidelines and direction for the growth and development of research works
- Suggest measures for improving existing infrastructural facilities both for academic and sponsored research and enhancing research ambiance.
- Through research board IQAC Strive to foster excellence in research and development in the university and provide advice & guidance.
Some of the measures taken to promote research are listed below.
- An unique research incentive scheme is in place, which will enable the faculty members, to receive a cash award, at the rate of Rs. 15,000/- for every credit earned, during every academic year. The approved norms for the Research incentive scheme are available.
- University has instituted 42 research fellowships, for the full time research scholars, to pursue quality research (Rs. 12,000/- per month for JRF and Rs.15,000/- per month for SRF)
- University subscribes to more than 3000 e-journals, along with back volumes for more than 15 years. (e-journals include IEEE, Science Direct, Springer, ASME, ASCE, ACM, Emerald, etc.,)
- Career growth opportunities for faculty members with Ph.D. Degree.
- Separate budget allocation for R&D to all the departments of the University.
- Essential infrastructure including Space, Machineries, Computers, Internet Connections etc.

3.2 Details regarding major projects

	Completed	Ongoing	Sanctioned	Submitted
Number	2	17	10	38
Outlay in Rs. Lakhs	51.5	287.1	135.64	2414.97

3.3 Details regarding minor projects

	Completed	Ongoing	Sanctioned	Submitted
Number	1	2	1	1
Outlay in Rs. Lakhs	2.3	4.84	2.634	3

3.4 Details on research publications

	International	National	Others
Peer Review Journals	288	5	-
Non-Peer Review Journals	121	15	-
e-Journals	26	0	-
Conference proceedings	258	175	-

3.5 Details on Impact factor of publications:

Range Average h-index Nos. in SCOPUS

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

Nature of the Project	Duration Year	Name of the funding Agency	Total grant Sanctioned (Lakhs)	Received (Lakhs)
Major projects	2 to 4	DST, DST -WOS INSA – INSPIRE, SERB – DST, UGC-DAE - CSR Fellowship, NRB, WOS-A	655.99	109.76
Minor Projects	1	UGC DAE	2.53	2.53
Interdisciplinary Projects	-	-	-	-
Industry sponsored	-	-	-	-
Projects sponsored by the University/ College	1	BSAU	2.31	0.085
Students research projects <i>(other than compulsory by the University)</i>	2	BSAU	0.5	0.5
Any other(Specify)	-	-	-	-
Total	1 to 4		661.33	112.875

3.7 No. of books published i) With ISBN No. Chapters in Edited Books

ii) Without ISBN No.

3.8 No. of University Departments receiving funds from

UGC-SAP CAS DST-FIST
 DPE DBT Scheme/funds

3.9 For colleges

Autonomy CPE DBT Star Scheme
 INSPIRE CE Any Other (specify)

3.10 Revenue generated through consultancy

(Including training)

3.11 No. of conferences

organized by the Institution

Level	International	National	State	University	College
Number	2	9	-	-	-
Sponsoring agencies	ICMR, SERB, DST	IEEE, CS, CSI, BSAU, BRNS, ICSSR	-	-	-

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

3.13 No. of collaborations

International

National

Any other

3.14 No. of linkages created during this year

3.15 Total budget for research for current year in lakhs:

From Funding agency

From Management of University

Total

3.16 No. of patents received this year

Type of Patent		Number
National	Applied	3
	Granted	-
International	Applied	-
	Granted	-
Commercialised	Applied	-
	Granted	-

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
74	8	7	2	57	-	-

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

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

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

JRF SRF Project Fellows Any other

3.21 No. of students Participated in NSS events:

University level State level
National level 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 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	24	College forum	-
NCC	-	NSS	11
		Any other	11

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

- i) A 7 day special camp on awareness programme of NSS (25.03.2015 – 31.03.2015) was held in Karanai Puducherry, an adopted village.
- ii) One day workshop on “**WOMEN ACADEMIC MANAGERS: CHALLENGES AND APPROACHES**” was organized on 29 April 2015 as a sensitization program to motivate the women academia to become academic managers by Women Empowerment Cell.
- iii) Summer Science Internship programme for School Students held during May 4th 2015 to 22nd May 2015. This Internship is arranged by B.S. Abdur Rahman University as a social outreach programme for the benefit of semi urban and rural students in and around University. This Internship is offered free of cost and also meets transport and other hospitality facilities.
- iv) An “Open House & Exhibition” was held in Chennai during 9th & 10th January 2015 and at Madurai during 23rd & 24th January 2015. The exhibition arranged to showcase the Technological developments and Advancements in the fields of Science, Engineering and Technology. The exhibition attracted around 4000 visitors from the City schools including, students, parents and teachers.

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	200668 (Sqm)	-	-	200668 (Sqm)
Class rooms	58	47	-	105
Laboratories	76	19	-	95
Seminar Halls	7	1	-	8
No. of important equipments purchased (≥ 1-0 lakh) during the current year.	26	76	MOES, BSAU	102
Value of the equipment purchased during the year (Rs. in Lakhs)	63.74	307.455	MOES, BSAU	371.185
Others	-	-	-	-

4.2 Computerization of administration and library

The Camp@IT system is an integrated campus management software system encompassing all the processes in the University such as Academics, Payroll, Library, Exams, etc.

4.3 Library services:

	Existing (a)		Newly added (b)		Total (a + b)	
	No.	Value	No.	Value	No.	Value
Text Books	39,950	1,90,00,866	600	2,60,000	40,550	1,92,60,866
Reference Books	22,000	1,05,23,000	89	2,44,962	22,089	1,07,67,962
e-Books	358	4,36,429	NIL	NIL	358	4,36,429
Journals	240	3,09,429	NIL	NIL	240	3,09,429
e-Journals	3,163	51,78,470	7000	5,06,490	10163	56,84,960
Digital Database	2 (NPTEL & CMIE Databases)	5,42,697	NIL	NIL	1	5,42,697
CD & Video	3000	3,00,000	NIL	NIL	3000	3,00,000
Others (specify)	Computer systems	8,00,000	10	3,00,000	37	11,00,000
	Printers	5,000	1	8,000	2	13,000
	Photocopy Machine	2,50,000	NIL	NIL	NIL	2,50,000
	Institutional Membership	} 38500	} UGC Infonet Digital Library Consortium	} 5000	} 8	} 2,93,500
	1. DELNET					
	2. MALIBNET					
	3. Anna University					
4. British Council Division						
5. American Consulate Library						
6. Structural Engineering Research Centre						

4.4 Technology up gradation (overall)

	Total Computers	Computer Labs	Internet	Browsing Centres	Computer Centres	Office	Departments	Others
Existing	1915	36	1 Gbps & WiFi	-	-	3	19	-
Added	20	2	-	-	-	-	1	-
Total	1935	38	1 Gbps & WiFi	-	-	3	20	-

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

- Organized Workshop on “Camp@it (campus management software) Training for all Class Advisor” on 24th December 2014.
- Organized “Induction Training Programme” for newly joined faculties from 30th June to 7th July 2014 (6 days).
- Organized Workshop on “IBM DB2 Training” from 3rd July to 5th July 2014 in partnership with ICT Academy of Tamil Nadu.
- The Central Library organized user orientation programme to understand more about e-Journals, e-Books, etc. during various periods for the benefit of staff, students and research scholars. Some of them are given below:
 - i. ProQuest Orientation programme has been conducted on 22 August 2014
 - ii. IEEE orientation programme organized on 18 September 2014.
 - iii. JGate Orientation programme conducted on 11 October 2014
 - iv. Annual Book Exhibition was conducted during 26 – 28 August 2014.

4.6 Amount spent on maintenance in lakhs :

i) ICT	16.67
ii) Campus Infrastructure and facilities	584.57
iii) Equipments	54.86
iv) Others	-
Total:	656.11

Criterion – V

5. Student Support and Progression

5.1 Contribution of IQAC in enhancing awareness about Student Support Services

- Freshers day orientation programme give awareness about the curriculum, syllabus, co-curricular and extension activities.
- The Central Library organized user orientation programme to understand more about e-Journals, e-Books, etc. during various periods for the benefit of students and research scholars.
- During the class committee meetings the student members representing the entire class, shall meaningfully interact and express opinions and suggestions of the class students to improve the effectiveness of the teaching-learning process.
- A separate Students Grievance Cell is created and Professional Counsellor is available to address the grievance of the students.
- To help the students in planning their courses of study and for general counseling on the academic programme, the Head of the Department of the students will attach a certain number of students to a faculty member of the department who shall function as Faculty Advisor for the students throughout their period of study. Such Faculty Advisor shall offer advice to the students on academic and personal matters, and guide the students in taking up courses for registration and enrolment every semester.

5.2 Efforts made by the institution for tracking the progression

- Attendance, performance of continuous assessment and end semester examination are analysed and appropriate action taken.
- Passed out students progression is tracked by the Placement & Training Cell.
- Alumni association also support for tracking progression.
- HOD and Class Advisor of the concerned department also track the progression

5.3 (a) Total Number of students

UG	PG	Ph. D.	Others
3904	825	411	-

(b) No. of students outside the state

363

(c) No. of international students

6

	No	%		No	%
Men	3637	77	Women	1092	23

Last Year						This Year					
General	SC	ST	OBC	Physically Challenged	Total	General	SC	ST	OBC	Physically Challenged	Total
180	40	-	1066	-	1286	178	42	-	1115	-	1335

Demand ratio **3:1**

Dropout % **4.71**

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

- Placement and Training Cell provides support by arranging training programmes.
- Crescent IAS and Career Guidance Academy gives coaching for Civil Services examinations.

No. of student beneficiaries

223

5.5 No. of students qualified in these examinations

NET	<table border="1"><tr><td>-</td></tr></table>	-	SET/SLET	<table border="1"><tr><td>-</td></tr></table>	-	GATE	<table border="1"><tr><td>11</td></tr></table>	11	CAT	<table border="1"><tr><td>1</td></tr></table>	1
-											
-											
11											
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IAS/IPS etc	<table border="1"><tr><td>-</td></tr></table>	-	State PSC	<table border="1"><tr><td>1</td></tr></table>	1	UPSC	<table border="1"><tr><td>2</td></tr></table>	2	Others	<table border="1"><tr><td>10</td></tr></table>	10
-											
1											
2											
10											

5.6 Details of student counselling and career guidance

The University made elaborate arrangement for student support and mentoring. For every 20 students, one faculty member is appointed as faculty advisor. The progress of the students in academics, co-curricular and extracurricular activities is guided, counselled and monitored by the faculty advisors. Faculty advisors help and support students in all aspects throughout their academic programme. The faculty advisors counsel the needy students and based on the interest of the students, they guide them in choosing the elective courses, preparation for competitive examination, planning for higher studies etc.

A separate student counselling centre with full time student counsellor is also available.

No. of students benefitted

323

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
40	It depends upon each and every companies' different kinds of eligibility criteria (Approximately 700)	395	200

5.8 Details of gender sensitization programmes

One day workshop on “**WOMEN ACADEMIC MANAGERS: CHALLENGES AND APPROACHES**” was organized on 29 April 2015 as a sensitization program to motivate the women academia to become academic managers. Further, this work shop was to enlighten the women academia about the challenges and approaches that they have to undergo in the process of becoming academic managers.

Motivational workshop was organized by Women Empowerment Cell in 2014 for the girl students. This workshop was organized to enable them to achieve their dreams of excelling in academics as well as in personal life and to prepare them to encounter tough and stressful events in life with utmost ease.

5.9 Students Activities

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

State/ University level National level International level

No. of students participated in cultural events

State/ University level National level International level

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

Sports : State/ University level National level International level

Cultural: State/ University level National level International level

5.10 Scholarships and Financial Support

	Number of students	Amount (Lakhs)
Financial support from institution	416	37.71
Financial support from government	283	80.31
Financial support from other sources	-	-
Number of students who received International/ National recognitions	-	-

5.11 Student organised / initiatives

Fairs : State/ University level National level International level

Exhibition: State/ University level National level International level

5.12 No. of social initiatives undertaken by the students

5.13 Major grievances of students (if any) redressed:

- Problem faced by the students regarding quality, quantity and cost of the food items in the University Canteen was addressed.
- Admission fee refund and Tuition fee cases are addressed.
- Attendance shortage problem is addressed.
- Adjustment of class work for the placed students was addressed

Criterion – VI

6. Governance, Leadership and Management

6.1 State the Vision and Mission of the institution

Vision

B.S. Abdur Rahman Institute of Science & Technology aspires to be a leader in Education, Training and Research in Engineering, Science, Technology and Management and to play a vital role in the Socio-Economic progress of the Country

Mission

- To blossom into an internationally renowned University
- To empower the youth through quality education and to provide professional leadership
- To achieve excellence in all its endeavors to face global challenges
- To provide excellent teaching and research ambience
- To network with global Institutions of Excellence, Business, Industry and Research Organizations
- To contribute to the knowledge base through Scientific enquiry, Applied Research and Innovation

6.2 Does the Institution has a management Information System

The Camp@IT system is an integrated campus management software system encompassing all the processes in the University such as Academics, Payroll, Library, Exams, etc.

The software aims at giving a single unified view of the overall system where information is available for all routine University activities.

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

6.3.1 Curriculum Development

- Seventh Academic Council Meeting was conducted July 2014. Minor modification in the curriculum and syllabi of UG & PG programmes recommended by the Board of Studies of all departments are approved in the seventh ACM.
- Modification in the curriculum and syllabi for MCA programme was carried out to accommodate lateral entry students.
- Special elective courses were included in the curriculum for the benefit of research scholars as per the recommendation of the members of doctoral committee through the BoS of concerned department.

6.3.2 Teaching and Learning

- Revision of curriculum was carried out based on the principle of Outcome Based Curriculum' to strengthen the teaching learning process.
- Teaching and learning process adopted for professional knowledge, problem analyses, solutions, modern tool usage, communication skills, team work etc.
- Lesson plan format was revised to accommodate outcome based teaching learning process.
- Students feedback on courses and course teachers was modified to enhance the teaching learning process.

6.3.3 Examination and Evaluation

- Two Question papers are prepared for each course to meet the outcome based education and scrutinized by the department level Academic Audit Committee.
- Answer papers of each course are screened by Departmental level Academic Audit Committee and also audited by experts from leading academic institutions like Anna University, IIT Madras, etc.
- After completion of continuous assessment and end semester examinations, marks are sent to the parents through SMS.

6.3.4 Research and Development

- Periodic review of all Research scholars is conducted to enhance the quality of research.
- Review on usage of Anti-Plagiarism Software – “Turnitin” was conducted on 06.02.2014.
- One Day workshop on “Quality Assurance in Academic & Sponsored Research” was arranged during 7th March 2015
- IQAC motivate the faculty members to apply for funded research projects.
- Totally 39 proposals were submitted to various funding agencies worth of Rs. 1446 Lakhs.
- To strengthen the quality of research, a pre-synopsis review committee must be constituted before the conduct of synopsis meeting and the following amendment is approved in the academic council held on 10th July 2014.
 - Ph.D Regulation Clause 18.2A:
“Before convening the DC meeting for synopsis submission, the scholar shall present his entire work, along with specific research contribution, before a Pre Synopsis Review committee, constituted for this purpose. The committee upon reviewing the work done by the

6.3.5 Library, ICT and physical infrastructure / instrumentation

Library:

- The Library is a computerized and the transactions of the library are carried out using a specially developed Camp@IT software
- The cataloguing is done electronically and can be accessed through internet using a custom made software “camp@IT”
- The Central Library organized user orientation programme to understand more about e-Journals, e-Books, etc. during various periods for the benefit of staff, students and research scholars.

ICT:

- All the departments are provided with Data Projector/LCD facilities
- Computers / laptops are provided to the faculty members
- The campus is Wi-Fi enabled
- The **Internet Bandwidth** in the campus is 100 Mbps on 1 Gb National Knowledge Network (NKN) with WiFi over 3500 mts Optic Fibre Cable (OFC).
- Faculty members use the modern ICT facilities
- NPTEL and open course ware are widely used in class rooms
- A **Central Data Centre** with eight numbers of state-of-the-art high end two processors, **Quad Core Blade and Rack Zeon servers** and **SAN storage of 10 TB** with virtualization and management software at a cost of **Rs 100 lakhs**, connecting the entire campus.
- Video Lectures delivered by faculty members are stored in the server which could be accessed anytime anywhere through internet.
- High-end licensed technical software is uploaded in the central server of the data centre which could be accessed within the campus by the students and faculty members at any time.

Physical Infrastructure:

- Created a separate building for the School of Life Sciences and school of mechanical sciences. 47 additional classroom, 19 laboratories and one seminar hall was created.
- Augmenting hostel accommodation for men students with additional capacity of 264 including 44 international accommodations.
- Construction of 64 quarters for the faculty members and supporting staff is under progress and in completion stage.

6.3.6 Human Resource Management

Efforts for Professional Development of Teaching Staff

- The University permits the faculty members to acquire higher degrees and encourages them to register for their Ph.D program
- It also provides 'on duty' facilities to undergo course work and carry out research activities in industry or in other universities/research centers.
- The University provides funds to acquire necessary equipment to carry out their research
- In the annual budget, all the departments are allocated funds separately for Research & Development. From this fund, the departments purchase equipment, specifically for the research and consultancy work
- Faculty members are permitted to go abroad on leave to pursue their Post Doctoral Fellowship (PDF) programs for maximum period of two years
- Faculty members are also encouraged to undergo summer / winter training programs in the Industry / institutions
- Faculty members are also granted sabbatical leave for assignments in Universities abroad for two years in order to get acquainted with international practices
- Faculty members are deputed to higher learning institutions to pursue their Ph.D program in areas where this institution wants to strengthen its expertise
- They are encouraged to publish papers in national and international journals, author text-books and obtain funded projects and are given cash incentives
- They are also encouraged to present their research papers in international conferences. The management sponsors the registration fee and 100% traveling expenditure in India and 50% travel expenditure abroad
- University provides in-house Research Grants to carryout Pilot Projects to demonstrate technical feasibilities of innovative ideas
- All the departments are encouraged to organize national and international seminars / conferences and workshops
- Faculty members are sent to faculty development programs for getting additional training. The trained faculty members are encouraged to impart training to other faculty members
- Faculty members are trained by Mission 10X, Wipro Limited to experiment with innovative teaching techniques beyond the conventional methods of teaching
- The University also has an exclusive faculty training academy which caters to the training needs of faculty
- Carrier advancement system, performance appraisal system are functioning.

Efforts for Professional Development of Supporting Staff

- The supporting staffs are encouraged to acquire higher degrees and were given on duty facilities. Several supporting staff members have registered for his Ph.D with the University.
- They are periodically sponsored to attend skill enhancements programs throughout the country
- The Faculty Training Academy also arranges courses for non-teaching staff to enhance their professional quality.
- Computer training program are organized periodically for the Administrative and Technical Staff

6.3.7 Faculty and Staff recruitment

- Advertisements for faculty requirement are placed in leading and popular dailies all over India and in the website of the University.
- All the applications received are scrutinized and short listed by the HODs/ Deans concerned as per the requirements.
- For selecting faculty members, a selection committee consisting of the following members interview the candidates.
 - Vice Chancellor
 - Registrar
 - Dean Academic Affairs
 - Dean of the School
 - Head of the Department
 - Three experts nominated by the board of management
- Selection of faculty members are based on the UGC norms.
- During last academic year 22 Assistant Professor, 1 Associate Professor, and 4 professors were recruited.

6.3.8 Industry Interaction / Collaboration

MoUs SIGNED

- MoU has been signed between B. S. Abdur Rahman University, India and Florida Atlantic University, USA on 13th May, 2014 to promote international academic cooperation between the two Universities to expand scholarly ties, facilitate academic cooperation, and promote mutual understanding in broad areas.
- MoU has been signed between B.S. Abdur Rahman University, India and Universidade Federal Do Rio Grande Do Norte – UFRN, Brasil, on 20th June, 2014 to establish a mutual and wide cooperation between BSAU and UFRN, Brasil.
- MoU has been signed between B. S. Abdur Rahman University, India and University of North Carolina at Chapel Hill, USA, on 11th August, 2014 to establish a relationship that will be of mutual benefits of their respective institutions.
- MoU has been signed between B. S. Abdur Rahman University, India and University College of Technology Sarawak (UCTS), Malaysia on 09th December, 2014 in the presence of “H.E Tun Pehin Sri Haji Abdul Taib Mahmud” his Excellency Governor of the State of Sarawak, Malaysia.
- MoU has been signed between B. S. Abdur Rahman University, India and Sarawak Foundation (Yayasan Sarawak), Malaysia on 09th December, 2014 with the participation of “H.E Tun Pehin Sri Haji Abdul Taib Mahmud” his Excellency Governor of the State of Sarawak, Malaysia.

JOINT INTERNATIONAL RESEARCH PROJECTS SUBMITTED

- A collaborative project in partnership with Mississippi State University, USA and BSAU was submitted to USAID – PAGE (United States Agency for International Development – Powering Agriculture Energy Grand Challenge for Development) along with Prof. Yucheng Liu, Associate Professor, Mechanical Engineering Department, Mississippi State University, USA, on the application of Clean Energy Technology in a developing country during November 2014.
- UK-India Joint Research Project from BSAU on Wave and Tidal Energy Research
 - Theme1: “Energy storage” – in partnership with Cardiff University - Prof. Tim O’ Doherty and BSAU team– Prof. Dr. R. Raja Prabu, Prof. Dr. M. M. S. Abdul Majeed, Prof. R. Agatha, Miss. S. Sumaiya, Electrical Engineering Department.
 - Theme 2: “River Basin Technologies” – in partnership with Cardiff University, Prof. Tim O’ Doherty and BSAU team - Dr. S. Suriya, Dr. V. Vanthana Devi, Civil Engineering Department.
 - Theme 3: “Impact on Ecosystem” - SAMS - Scottish Association for Marine System, Dr. Lucy Greenhill and BSAU team - Prof. Dr. Hema Latha, Prof. Karthikeyan Ramalingam, School of Life science.
- Prof. R. Vasanthakumari, Director, Polymer Nano Technology Centre, BSAU – India in partnership with Plymouth University, UK and Texas Tech University, USA has submitted a joint research proposal for GII – Grant on 31st October, 2014 to develop “Smart Polymer Nano fibre based sensors for ECG monitoring under ambulatory conditions.” With Dr. David Jenkins as the lead from Plymouth University.

STUDENTS SEMINAR

- Seminar on State Funded Education in Europe was organized on 11th September 2014 to the students of Mechanical Engineering, Civil Engineering and Automobile Engineering.

VISIT TO PARTNER UNIVERSITIES

- Mr. Syed M Buhari, Member, Board of Management, B. S. Abdur Rahman University visited University of Toronto, Canada on 11th November 2014 and interacted with the head of International Affairs, Mrs. Vinitha Gengatheran and Manager Mrs. Skanda Sundersan and explored possible avenues for establishing Summer term courses and faculty exchange programs between BSAU and University of Toronto, Canada.

FACULTY EXCHANGE PROGRAM

- Faculty Exchange Program with Pusat Pembangunan Kemahiran Sarawak – PPKS, Malaysia. Three faculty members from PPKS Malaysia underwent faculty development program at BSAU for three months during 2014.

VISIT OF CVRDE TEAM TO BSAU

The Combat Vehicles Research & Development Establishment (CVRDE), a constituent laboratory of DRDO, Ministry of Defence, Government of India organized a “Cycle Rally” from Avadi to IGCAR, Kalpakkam on 10.2.2015. The Rally halted at B.S.A University Campus to demonstrate the DRDO products. They also made presentation and interacted with 3rd and final year B.Tech. students of our University. They also briefed about the job opportunities in DRDO establishments for various Engineering disciplines

6.3.9 Admission of Students

U.G. Programs

To get admitted into the 4-year B.Tech degree program, candidates should have passed 12th standard or equivalent examination with a minimum aggregate of 50% marks in Mathematics, Physics and Chemistry.

- **Entrance Examination (BSAUEEE)** is conducted on all India basis for admission to these programs.
- Candidates are **ranked on the basis of performance in qualifying examinations and entrance examination.**
- On the basis of merit, the students are asked to **appear for counseling** for admission
- Candidates with Diploma in Engineering are admitted to II year B.Tech. (Lateral Entry) **on the basis of performance in their qualifying examinations and in the interview** conducted by the University.
- **Eligibility criteria for B.Arch Programme:**
 - Candidates should have passed 12th standard or equivalent examination with a minimum aggregate of 50% marks with Mathematics and English as subjects of study as per the norms of Council of Architecture.
 - Candidates should have a minimum score of 40% in National Aptitude Test in Architecture (NATA)
 - Candidates aspiring admission to B.Arch need not attend BSAUEEE.

P.G. Programs

- For **admission to M.C.A degree program**, candidates with any degree with Mathematics as one of the subjects studied at least at the Higher secondary level are eligible to apply. Selection of candidates is made based on merit in qualifying examination, entrance examination and interview conducted by the University.
 - For **admission to M.B.A. program**, candidates holding any degree are eligible to apply. Selection is based on merit in qualifying examination, MAT,GMAT,CAT/any Nationally recognized entrance examination/entrance examination conducted by the University, Group Discussion and Interview conducted by the University
 - For **admission to M.Tech. program**, candidates with a pass in appropriate B.Tech. degree examination of this University or equivalent thereto are eligible to apply. Selection is based on merit in qualifying examination, entrance examination and interview conducted by the University
- Hence admissions to all P.G. Programs (100%) are made by conducting Entrance Examination.

Research Programs

- A **department / school level entrance examination and interview** are conducted for admission to all the Research programs
- For **admission to M.Phil. program**, candidates with masters degree, with a minimum of 55 percent marks / CGPA of 5.5 on a 10 point scale in the qualifying examination in the fields of study are eligible to apply. **Selection is based on performance in their qualifying examination, entrance examination and interview conducted by the University.**
- For **admission to M.S (By Research) program**, candidates with bachelor's degree in Engineering / Technology of this University or any other qualification recognized as equivalent thereto in the fields of study with minimum of 60 percent marks / CGPA of 6.5 on a 10 point scale in the qualifying examination in the fields of study are eligible to apply. **Selection is based on merit in qualifying examination, entrance examination and interview conducted by the University.**
- Qualification for **admission to Ph.D programs**
 - For Ph.D programs in Engineering & Technology in full time mode and part time mode, candidates with a degree in M.E. / M.Tech. or M.S. (By Research) in the relevant branch of Engineering or Technology are eligible to apply
 - For Ph.D. Degree in Science and Humanities, candidates with M.Sc. / M.A. / M.C.A / M.S. (By Research) / M.Phil. in the relevant branch of Science and Humanities are eligible to apply
 - For Ph.D. degree in Management Sciences, MBA / M.Phil. / Postgraduate Diploma in Business Management or Administration awarded by Indian Institute of Managements (IIMs) / M.S. (By Research) in Management Sciences / MMS / 2 year postgraduate diploma in Management recognized by AICTE are eligible to apply
 - Any other qualification recognized as equivalent thereto in the field of study with a minimum of 10 Years of R&D Experience in national research laboratories / public sector undertakings and with minimum of three publications in refereed journals / two patents for Ph.D program in their relevant areas
- A committee, constituted department wise, by the Dean (Academic Research) for the purpose of selection, screens the applications as per the eligibility norms and conducts entrance test for eligible candidates.
- On the basis of their performance in the test, the committee interviews them to short-list the successful candidates and is approved by the Research Board.

6.4 Welfare schemes for

Teaching	<ul style="list-style-type: none"> • All members of staff are granted earned leave and medical leave. • Female members of staff are given maternity leave. • All members of staff are permitted to en-cash earned leave for 15 days every year. • All members of staff are covered through group insurance for Accident Cum Hospitalization for a sum of Rs. 50,000/- • Bank loan is also facilitated to Teaching staff. • All of them are enrolled in the scheme of Employees provident fund. • Gratuity and Encashment of earned leave is allowed to all Teaching and Non-Teaching staff are superannuation • Wards of the staff members are admitted to programme in the University with fee concession
Non teaching	<ul style="list-style-type: none"> • All members of staff are granted earned leave and medical leave. • Female members of staff are given maternity leave. • All members of staff are permitted to en-cash earned leave for 15 days every year. • All members of staff are covered through group insurance for Accident Cum Hospitalization for a sum of Rs. 50,000/- • Festival Advance Rs.10,000/- is given to Non-Teaching staff. • Bank loan is also facilitated to Non-teaching staff. • All of them are enrolled in the scheme of Employees provident fund. • Non-teaching staff are enrolled in the scheme of Employees state Insurance. • Gratuity and Encashment of earned leave is allowed to all Non-Teaching staff are superannuation • Wards of the staff members are admitted to programme in the University with fee concession
Students	<ul style="list-style-type: none"> • All students are covered through group insurance for Accident Cum Hospitalization a sum of Rs. 25,000/- and for permanent total disablement a sum of Rs. 50,000/- through Star Health and Allied Insurance Company Ltd., Chennai. • Wifi, Separate Gym for Boys and Girls are available in the University, Crescent IAS Academy, Hospital with Ambulance, Bank, Books Shop facilities are available.

6.5 Total corpus fund generated

200 Lakhs

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	✓	Departments/ Schools	✓	Departments/ Schools
Administrative	✓	N.C. Raja Gopal & Co.	✓	Jalaludin & Co.

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?

- Appearing for the semester end examination for each course is mandatory and a student should secure a minimum of 40% marks in each course in semester end examination for the successful completion of the course.
- Every practical course will have 60% weightage for continuous assessment and 40% for semester end examination. However, a student should have secured a minimum of 50% marks in the semester end practical examination.
- The continuous assessment marks earned for a course during his/her first appearance will be used for grading along with the marks earned in the semester end / arrear examination for that course until he/she completes.
- A student who has missed, for genuine reasons, a maximum of one of the four assessments of a course may be permitted to write a substitute examination.
- Semester Exam results are published within 15 days after the end of all exams. Students can view their result through CampIT via internet.
- Question paper pattern is modified for B.Tech programme by considering fundamental, analytical and applications point of view for all courses.
- Centralized examination is conducted by COE for all continuous assessments and end semester examination.

The minimum credit requirement to move to the higher semester is

- Not less than a total of 20 credits, to move to the 3rd semester
- Not less than a total of 40 credits, (20 for lateral entry) to move to the 5th semester
- Not less than a total of 60 credits, (40 for lateral entry) to move to the 7th semester.

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

No Affiliated College

6.11 Activities and support from the Alumni Association

- Alumni are included as a member of Board of Studies (BoS) at department level.
- The expertise of alumni is utilized for seminars, guest lectures and curriculum reformation.
- Alumni also nominated as member in Academic Council of BSAU.
- Alumni also supports for placement.
- Alumni association provides scholarship for economically poor students

6.12 Activities and support from the Parent – Teacher Association

Parents are often meeting the course teacher, class advisor, and HOD for discussing attendance and academic performance. They also give feedback about the university which is used for taking certain policy decision.

Parents are member of School level advisory committee and give suggestion for improvement.

Some parents are working as executive and entrepreneur are supporting internship, placement, industrial visits, seminars etc.

6.13 Development programmes for support staff

- The supporting staffs are encouraged to acquire higher degrees and were given on duty facilities. Supporting staffs registered their Ph.D with the University.
- They are periodically sponsored to attend skill enhancements programs throughout the country
- The Faculty Training Academy also arranges courses for non-teaching staff to enhance their professional quality.
- Computer training program are organized periodically for the Administrative and Technical Staff

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

- Solar power plants totalling 250kWp capacity has been installed and have generated 119,675 units till Dec'31,2014
- Bio gas (Methanization) plant No.2 of 50m³ capacity is under construction in addition to existing 50m³ plant
- New buildings are designed and constructed as per IGBC-LEED Green building standards.
- Sewage treatment and recycling of water
- Rainwater harvesting

Criterion – VII

7. Innovations and Best Practices

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

- Pre-synopsis meeting was introduced to enhance the quality of the Ph.D work. Due to that the quality of research publications was improved.
- All the thesis are screened through “Turnitin” software to check plagiarism.

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

- In order to enhance the teaching learning process a committee constituted to monitor the conduct of classes and laboratory work visited all the departments when the students were doing the experiments. Based on the observation about the laboratory courses recommendations were given by the committee and communicated to all the HODs.
- A committee was formed to review the lesson plan format as several parameters of the outcome based teaching are not reflected in the existing format. In order to meet the expectation of various agencies, the format was revised and implemented from 2015 onwards.
- Existing students feedback format of course teacher was not giving information regarding the relevancy of the course. Hence a committee was formed to modify the feedback format. Based on the recommendation by the committee a new feedback format was implemented from 2015 onwards.
- Authors Forum, a unique concept conceived by B. S. Abdur Rahman University believes that the teachers can make the best authors and an author would certainly become a better teacher. In this connection 227 faculties have come forward to write books on 167 titles under wide range of subjects in Engineering, Technology, Computer Science, Architecture, Business Management, Physical and Chemical Science and Life Sciences.. To facilitate this activity BSAU has signed an MoU with M/s. Ane Books Pvt. Ltd. Delhi.
- One Day workshop on “Quality Assurance in Academic & Sponsored Research” was conducted on 7th March 2015.

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

Best Practice - 1

Research incentive scheme for carrying out notable research, publications and mobilizing grants under research projects.

Best Practice - 2

Recruitment of faculty by advertising in international magazines and travelling abroad for selection of faculty, working overseas, and motivating them return to India and join our university.

Details are provided in Annexure-III

7.4 Contribution to environmental awareness / protection

- Two Roof-Top Solar Power Plants of 150kWp and 100kWp capacities were installed and a total of 19,675 units have been generated till Dec'31, 2014.
- Waste water treatment plant of capacity 150 KLD is functioning in the campus.
- Rain water harvesting in service
- Bio-gas plant is installed in the Hostel
- Registered for certification under IGBC
- Trees are planted every year to make the campus green

7.5 Whether environmental audit was conducted? Yes No

7.6 Any other relevant information the institution wishes to add. (for example SWOT Analysis)

- A two day Workshop on Transforming B. S. Abdur Rahman University was held on April 19 & 20, 2015. Alumni, Industrial Experts, Students, Parents, Staff members, HODs and Deans participated and analyzed nine parameters including Enrolment strategies, Admission process, Alumni, Community and Industrial Relationship, Academics, Brand Building, Placements, Research & Development, Facilities & Infrastructure, Student Engagement, International Collaboration. Based on that short term goals and long term goals were identified and the progress is under process. (Alumni – 11, Students – 15, Faculty (VC, Registrar, Deans, HODs, Staff) – 46, Parents -3 and Industrialist – 9 have participated)

8. Plans of institution for next year

- Introduction of more number of interdisciplinary courses as general electives.
- Creation of web portal in the website of BSAU for uploading the course materials prepared by the staff members which is handled by them.
- Enhancement of interdisciplinary research activity.
- To apply for all eligible UG and PG programmes accredited by NBA
- To set a target of attaining almost 40% of faculty holding doctoral degree
- Establishment of incubation centre of BSAU
- To have additional built up space for School of Architecture
- To get green building certification from Indian Green Building Council
- Organizing more outreach programmes
- Strengthening of online admission procedures
- Introduction of industrial internship programme atleast for a month for staff members.
- Strengthening the department alumni interaction
- To strengthen the industry institute interaction
- Submission of atleast two proposals per staff per year for funding agencies

Name DR. T. R. RANGASWAMY
DEAN / ACADEMIC

[Signature]
Signature of the Coordinator, IQAC
4/6/15

Name Dr. V. M. PERIASAMY

[Signature]
Signature of the Chairperson, IQAC
4/6/2015

B.S. ABDUR RAHMAN UNIVERSITY

Cir.No.15/Dean(AA)2014, dated 16.4.14

Tentative Academic Schedule - for the Academic year 2014-15

ANNEXURE I

Activity	ODD SEMESTER		EVEN SEMESTER	
	Under Graduate	Post Graduate	Under Graduate	Post Graduate
Refresher Course (Applicable to First year UG Students)	23.07.2014	NA	NA	NA
Reopening	14.07.2014		29.12.2014	
CAT I	19.08.2014 to 26.08.2014	24.09.2014 to 1.10.2014	02.02.2015 to 09.02.2015	09.03.2015 to 14.03.2015
CAT II	24.09.2014 to 1.10.2014	30.10.2014 to 07.11.2014	09.03.2015 to 14.03.2015	15.04.2015 to 21.04.2015
CAT III	30.10.2014 to 07.11.2014	NA	15.04.2015 to 21.04.2015	NA
Payment of Exam Fees	27.10.2014		08.04.2015	
Payment of Exam Fees with Fine	3.11.2014		15.04.2015	
Last Working Day	14.11.2014		24.04.2015	
Practical Courses - Semester End Exams	15.11.2014 to 21.11.2014		25.04.2015 to 02.05.2015	
Theory Courses - End Semester Exams	24.11.2014 to 24.12.2014		04.05.2015 to 03.06.2015	
Substitute Exams and Ph.D. Directed Study	08.12.2014 to 10.12.2014		18.05.2015 to 20.05.2015	
Result Declaration	19.12.2014		28.05.2015	
Summer Term Courses	NA		11.06.2015 to 10.07.2015	
Summer Term Courses Exams	NA		13.07.2015 to 15.07.2015	
Summer Term Courses Exams Result Declaration	NA		20.07.2015	
Reopening Date	29.12.2014		20.07.2015	

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AQR - ANNEXURE II(A)

B.S.Abdur Rahman University, Vandalur, Chennai-48.

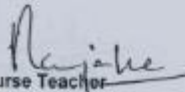
STUDENTS FEEDBACK REPORT

Part A (feedback on the Course Teacher) - Level II

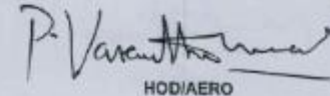
Feedback Date : 04/05/2015
 Class Name & Semester : B. Tech. (AERO - A) - 4
 Total Number Of Students : 22
 Number Of Students Responded : 13
 Staff Name : DR. E. RAJAKUPERAN
 Subject Code & Name : AEB 2211 & High Speed Aerodynamics

S.No.	Question	Grade Point (1 - 5)
Evaluation		
1	Teacher gives variety of assessments like seminars, quiz, and design exercise as assignments and conducts tests	3.62
2	Teacher selects standard questions covering the stipulated syllabus	3.54
3	Teacher provides good feedback during evaluation on the performance of the students	3.62
4	Teacher's evaluation of assignments and tests is fair and impartial	3.85
On presentation skills of the course teacher		
1	Teacher speaks clearly and audibly	3.69
2	Teacher writes and draws legibly	3.69
3	Teacher's pace and level of instruction are suited to the level of students	3.15
4	Teacher uses variety in teaching methods and employs relevant tools	3.46
On the approach adopted by the course teacher		
1	Teacher comes to the class on time and engages regularly	3.77
2	Teacher is able to maintain discipline in the class	3.92
3	Teacher offers assistance and counseling to the needy students	3.77
4	Teacher is courteous and impartial in dealing with students	3.46
On the effectiveness of teaching - Learning		
1	Teacher comes well prepared in the course	4.00
2	Course is organized in logical sequence	3.46
3	Teacher Explains concepts well, provides adequate examples	3.77
4	Teacher encourages students questioning and creativity	3.69
5	Teacher is accessible for clarification of doubts	4.00
6	Teacher had created an interest in the course	3.23
7	Teacher had linked the course to real life engineering and made it interesting	3.38

Overall Average for the subject : 3.63


Course Teacher


Class Advisor


HOD/AERO

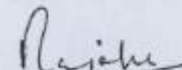
B.S.Abdur Rahman University, Vandalur, Chennai-48.

STUDENTS FEEDBACK REPORT
Part B (Feedback on the Course) - Level II

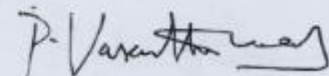
Feedback Date : 04/05/2015
 Class Name & Semester : B. Tech. (AERO - A) - 4
 Total Number Of Students : 22
 Number Of Students Responded : 14
 Staff Name : DR. E. RAJAKUPERAN
 Subject Code & Name : AEB 2211 & High Speed Aerodynamics

S.No.	Question	Grade Point (1 - 5)
On the relevance of the course		
1	The relevance of the course in fulfilling the program objective	3.93
2	The contribution of the course in-terms of knowledge and skill gained	3.71
3	The success of the course in achieving the stated course objectives	3.79
4	The general rating of the course	3.71
5	The difficulty level of the course (5- Very easy, 4- Easy, 3 – Balanced, 2 – Difficult,1- Very difficult)	3.29


Overall Average for the subject : 3.69


Course Teacher


Class Advisor


HOD/AERO

AQAR - ANNEXURE - II (A)

B.S.ABDUR RAHMAN UNIVERSITY
B.S.ABDUR RAHMAN INSTITUTE OF SCIENCE & TECHNOLOGY
(ESTD w/a 3 of the UGC Act, 1956)


B.S.ABDUR RAHMAN UNIVERSITY, VANDALUR, CHENNAI-48.
DEPARTMENT OF ELECTRONICS AND INSTRUMENTATION ENGINEERING

17.04.15

Submitted to Dean (Academic Affairs)

Sub: Exit Survey Report – M Tech (EIE) Batch 2013-15 - reg

Exit Survey Analysis Report

1. Assessment of abilities, skills and attributes acquired at B.S.A University.

1. Apply knowledge of Mathematics, Physics and Engineering.	: Prepared
2. Design and conduct experiments, as well as to analyze and interpret data	: Well Prepared
3. Design a system, component, or process to meet desired needs.	: Well Prepared
4. Function effectively in teams.	: Well Prepared
5. Identify, formulate, and solve engineering problems.	: Well Prepared
6. Understand professional and ethical responsibilities.	: Well Prepared
7. Communicate effectively (written reports).	: Well Prepared
8. Communicate effectively (oral presentations).	: Well Prepared
9. Understand and appreciate the impact of engineering in the societal and global contexts.	: Well Prepared
10. Be aware of the need for improving my ability to engage in life-long learning	: Well Prepared
11. Be aware of contemporary issues	: Prepared
12. Ability to use computer technology in communications.	: Well Prepared
13. Ability to use computer technology in engineering analysis/design	: Well Prepared
14. Ability to use state of the art techniques and tools in engineering practice.	: Well Prepared

2. Assessment of the Learning Environment at B.S.A University

A. Quality of instruction and support for learning provided by the faculty members in:

- Sciences (Mathematics, Physics, Chemistry)	: <i>Very satisfied</i>
- Computers (Programming and usage of software packages)	: <i>Satisfied</i>
- Language (English)	: <i>Very satisfied</i>
- General Engineering.	: <i>Very satisfied</i>
- Management	: <i>Satisfied</i>
- Economics	: <i>Satisfied</i>
- Soft skills	: <i>Very satisfied</i>

B. Quality of instruction and support for learning given by technicians. : *Very satisfied*

C. Quality of advice by the staff with respect to:

Academic planning : *Very satisfied*
 Career planning : *Very satisfied*
 Personal counseling : *Satisfied*

D. Equity of treatment by:

Academic administrators : *Very satisfied*
 Faculty : *Very satisfied*
 Technicians : *Satisfied*
 Fellow students : *Very satisfied*

E. Quality of the facilities:

Classrooms : *Very satisfied*
 Science laboratories : *Very satisfied*
 Engineering Laboratories : *Very satisfied*
 Computing facilities : *Very satisfied*
 Libraries : *Very satisfied*
 Internet facility : *Very satisfied*

3. Assessment of Support Services

Very good - 5, *Good* - 4, *Adequate* - 3,
Poor - 2, *Very poor* - 1, *No opinion* - 0

A. Academic Services:

Admissions office : *Adequate*
 Registrar office : *Adequate*
 Controller of Examinations office : *Adequate*
 Placement & Training office : *Good*
 Class advisor : *Good*

B. Administrative Offices:

Administrative Office in your department : *Good*
 Administrative office in the University : *Good*

C. Other Services:

Medical facility : *Adequate*
 Canteen : *Adequate*
 Hostel : *Adequate*
 Sports and games : *Adequate*
 Transport : *Adequate*
 Extra-curricular activities : *Adequate*
 Information dissemination : *Adequate*

4. Assessment of curriculum offered, schedules and question paper standards

Please indicate your satisfaction with each of the following aspects of your experience at B S A University:

Extremely satisfied - 5, *Very satisfied* - 4, *Satisfied* - 3,
Somewhat satisfied - 2, *Satisfied with modification* - 1, *Not satisfied* - 0

A. Curriculum:

- Flexibility of the curriculum : *Very satisfied*
- Provides enough skills on design and problem solving techniques : *Very satisfied*
- Encourages self study : *Very satisfied*
- Coverage of cutting edge technology topics in order to face the future: *Very satisfied*
- Coverage of advanced topics to take up career in research : *Very satisfied*
- Promotes intellectual growth : *Satisfied*
- Enhances our employability : *Very satisfied*
- Availability of books in library to support curriculum : *Very satisfied*

B. Internal Assessment Schedules & Question paper

- Promotes analytical thinking : *Very satisfied*
- Question papers in terms of thought provoking and bringing out the intellectual capability of students : *Very satisfied*
- Adequacy of time to cope with assessment schedules : *Very satisfied*
- Quality of Evaluation of Assessments : *Very satisfied*
- Flexibility of Enrollment and withdrawal of coursework : *Very satisfied*

C. Teaching Methodology

- Adoption of innovative teaching methodologies : *Very satisfied*
- Coverage of the topics : *Satisfied*
- Basic concepts taught : *Very satisfied*
- Encouragement for group discussions, seminars and interactive discussions : *Satisfied*

D. To what extent do you feel that your learning objectives have been achieved?

Medium

E. Can you suggest any course that can be removed from the curriculum of your branch?

In Plant Training

F. Can you suggest any course/program that should be included in the curriculum of your branch?

Soft skills

Piping & Instrumentation Diagram

5. General Assessment

Please answer the following questions:

A. Please list some very important skills that you think you learnt in the Engineering/Science program.

- Process Control
- Advance Process Control
- Controllers used in Industries
- Presentation skills and problem solving

B. Please list some very important or useful skills that you did not get the chance (or are not available) to learn while taking Engineering / Science courses at B.S.A University.

- SCADA
- Piping and Instrumentation
- Electronics Circuits
- Optimization Techniques implementation in MATLAB

C. Please write down any comments or suggestions that you think will improve the Engineering/Science programs at B.S.A University (use additional sheets if necessary).

Nil

D. Please give the overall strengths and weaknesses of the Institute/Department.

- Good Laboratory

E. Do you recommend B.S.Abdur Rahman University for future aspirants and why?

- Laboratory facilities are good
- Sophisticated Equipments
- Very good infrastructure

Ag. K. K. K. K.
CLASS ADVISOR

M. K. K. K.
12/4/15
HOD/EIE
PROFESSOR AND HEAD
DEPT. OF ELECTRONICS & INSTRUMENTATION ENGINEERING
B.S.ABDUR RAHMAN UNIVERSITY
VANDALUR, CHENNAI - 600 048



FEEDBACK FROM OUTGOING STUDENTS B.TECH (CSE) - APRIL 2013

20/4/2013

BRANCH:

DATE: -- / -- / --

1. Was the practical/workshop component of your courses sequenced integrally with theory classes?

Option	% of students chosen this option
(a) Very well	62
(b) Moderately	35
(c) Poorly	2
(d) Very Poorly	1

2. Were the laboratories / workshops adequately equipped and properly maintained?

Option	% of students chosen this option
(a) Very well equipped	48
(b) Moderately equipped	40
(c) Partly equipped	7
(d) poorly equipped	5

3. What is your opinion of the library facility in the institution?

Option	% of students chosen this option
(a) Excellent	51
(b) Adequate	38
(c) Inadequate	8
(d) Very poor	3

4. What is opinion of the internal assessment system of the institution?

Option	% of students chosen this option
a) Very fair	46
b) Fair	40
c) Biased	10
d) Very bias	4

5. Do you generally feel encouraged to ask questions / contribute comments in class?

Option	% of students chosen this option
(a) Always	56
(b) Some times	35
(c) Rare	6
(d) Never	3

6. Do the courses given by the Lecturer stimulate your intellectual curiosity?

Option	% of students chosen this option
(a) Always	50
(b) Some times	31
(c) Rare	16
(d) Never	3

7. What was the attitude of teachers to extra curricular activities?

Option	% of students chosen this option
a) Encouraging and enthusiastic	51
b) Co-operative	37
c) Indifferent	4
d) Hostile	8

8. Whether the lesson plan is given to the students in advance?

Option	% of students chosen this option
(a) Always	44
(b) Some times	26
(c) Rare	24
(d) Never	6

9. Whether Tests and Assignments are graded properly and returned promptly.

Option	% of students chosen this option
(a) Always	60
(b) Some times	37
(c) Rare	2
(d) Never	1

10. Whether the instructor is enthusiastic and gives good example of the concepts

Option	% of students chosen this option
a) Always	55
(b) Some times	35
(c) Rare	10
(d) Never	0

11. How do you rate the following Institutional effectiveness?

	<i>Unsatisfactory</i> % of students chosen this option	<i>Satisfactory</i> % of students chosen this option	<i>Good</i> % of students chosen this option	<i>Very Good</i> % of student chosen this option
Faculty care about me as an individual.	2	30	23	45
Faculty are fair and unbiased in their treatment of individual students	1	32	24	43
I am able to experience intellectual growth here	4	36	22	38
There is a commitment to academic excellence on this campus	4	38	20	38
Faculty provide timely feedback about student progress in a course	0	27	25	48
The quality of instruction I receive in most of my classes	0	33	27	40
Faculty are usually available after class and during office hours	3	33	25	39
Nearly all of the faculty are knowledgeable in their field	0	37	25	38
There is a good variety of courses provided on this campus	0	33	23	44

12. Do you have any suggestions to for improving the practical courses?

Option	% of students chosen this option
a) Yes	78
(b) No	22

13. Do you have any suggestions to for improving the theory courses?

Option	% of students chosen this option
a) Yes	79
(b) No	21

14. Do you have any suggestions to for improving the elective courses?

Option	% of students chosen this option
a) Yes	78
(b) No	22

15. Do you have any suggestions to for providing any Value added courses?

Option	% of students chosen this option
a) Yes	78
(b) No	22

16. How do you rate the following Campus Life?

	<i>Unsatisfactory</i> % of students chosen this option	<i>Satisfactory</i> % of students chosen this option	<i>Good</i> % of students chosen this option	<i>Very Good</i> % of studen chosen this option
A variety of intramural activities are offered	6	19	48	27
Class rooms are comfortable (adequate space, lighting, heat, air, etc.).	4	19	52	25
Sports facilities	2	22	44	32
Males and females have equal opportunities	13	20	35	32
There is an adequate selection of food available in the cafeteria	14	26	30	30
The student handbook provides helpful information about campus life	4	20	41	35
Student disciplinary procedures are fair	4	20	34	42
New student orientation services help students adjust to University	5	20	41	34
Generally know what's happening on campus.	4	15	40	41
Most students feel a sense of belonging here.	5	18	39	38
The campus is safe and secure for all students	2	11	36	51
It is an enjoyable experience to be a student on this campus	2	13	36	49
I feel a sense of pride about my campus.	8	18	34	40
Hostel Facilities	17	22	30	31
Transport Facilities	14	22	28	36
Health Care Facilities	17	33	19	31

Annexure - III

Best Practice - 1

Research incentive scheme for carrying out notable research, publications and mobilizing grants under research projects.

i) Objectives of the Practice

After becoming a university, the prime focus was on academic and sponsored research contributing to the scientific and technological development of our country. In order to enhance the research culture amongst the faculty, a research incentive plan was introduced.

The main objectives are

- To motivate faculty members to concentrate on research related activities, so as to publish articles in reputed refereed international and national journals with impact factor
- To pursue faculty to write books, monographs for publication by international and national publishers of high repute
- To establish collaborative research projects with their counterparts in reputed national and international Universities
- To encourage faculty to submit proposals and secure funded projects from various funding agencies in India and abroad
- To undertake consultancy projects sponsored by government and nongovernmental organizations
- To kindle the creativity in the minds of faculty to bring out original contributions by way of products, concepts and obtain patents

ii) The Context

- The faculty was encouraged to carry out research in addition to their teaching and administrative responsibilities. Care should be taken so as not to bring down the quality of the teaching learning process
- A system by which uniform credit points will be assigned for various research activities was conceived and credit ratings were decided. The corresponding monetary incentives were finalized by the Research advisory board.
- The University had come forward to bear the additional financial commitment with the sole objective of promoting quality research

iii) The Practice

- This research incentive was for all the faculty of the University
- The period of calculating the credits earned by the faculty is academic year from 1st

July to 30th June of next year

- At the end of every academic year, the total credits earned by a faculty member will be calculated based upon the evidence produced and the incentive closable to the faculty member will be arrived at and disbursed. For each credit earned, a sum of Rs.15,000/- will be paid.

iv) Evidence of Success

- The research publication has improved noticeably with publications numbering to 423 in international journals, 53 national journals, 364 international conferences and 363 national conferences.
- In the past three years, 13 funded project proposals have been sanctioned by various funding agencies worth about Rs.206.55 lakhs.
- There are about 41 project proposals to the tune of Rs.1010.60 lakhs in the process awaiting sanction.
- More than 20 MOUs have been entered with R&D organizations, Universities and industries to carry out collaborative research

v) Problems Encountered and Resources Required

- The funds required to give away the incentives was borne by the management
- Requirement of additional research infrastructure in the laboratories to carry out research and related activities
- Consideration of travel grants and other facilities for faculty for research activities
- Providing exclusive budget grant for research activities in all departments.

Best Practice - 2

Recruitment of faculty by advertising in international magazines and travelling abroad for selection of faculty, working overseas, and motivating them return to India and join our university.

i) Objectives of the Practice

The main objective of this practice is to bring innovative and modern research/consultancy in the School of Life Sciences which is newly formed in B.S. Abdur Rahman University (in 2013) by utilizing potential persons with international exposure.

ii) The Context

- Whenever start ambitious programme with thrust on teaching & research at international level, there is a challenge in indentifying and recruiting able and eminent faculty who are proficient both in teaching and research and exposed to current international trends.
- Establishing the state of the art laboratory facilities with the necessary equipments

and other related infra structure in a very short span of time, is possible only if the faculty have the hands on experience.

- In order to have qualified resource persons as faculty and also to have flavors of geographical diversification, it was decided to recruit Indian faculty from abroad, hailing from across the country.

iii) The Practice

- To initiate teaching and research programmes across inter disciplinary areas of life sciences.
- To act as training center for life scientists, researchers, clinical staffs of hospitals, industry workers.
- To offer post graduate programmes and integrated research oriented post graduate programmes leading to doctoral degree
- To provide short term intensive programmes to cater to the specific needs of researchers and professionals.

iv) Evidence of Success

- Ten young faculty members all from leading U.S. laboratories recruited for School of Life Sciences have joined and designed innovative programmes in Life Sciences.
- The newly joined faculty members already submitted over 10 research projects for Rs 3 crores.
- To achieve the objective of offering quality research oriented programmes in the field of Life sciences, laboratories have been established with latest research facilities such as Proteomics & Genomics Facility, Plant Tissue Culture Facility, Common WET Lab, Cold Room, Dark Room, Animal Cell Culture etc.
- Instruments such as Analytical HPLC with UV, PDA, Fluorescent Detectors, PCR, Real Time PCR, Lyophiliser, Bioreactors, Millipore and such other state of the art equipments have been procured.
- The vision of the university to have faculty highly qualified with doctoral degree was realized, as all the faculty of the department are all doctorates with 6-7 years of post doctoral experience ,in US or other countries.

v) Problems Encountered and Resources Required

- There was a need for establishing the state of the art laboratories for which the required funds were allocated by the management.
- Technical consultants from other reputed Government and non government organizations were called for expert advice and support.
- Evaluation and procurement of instruments and devices and proper commissioning of them was a challenging task.
- The entire establishment of school was completed in 6 months.