

Evaluative Report of the Department

1. Name of the Department
Center for Converging Technologies
2. Year of establishment
2006
3. Is the Department part of a School/Faculty of the university?
Yes, Center for Converging Technologies is a part of faculty of Engineering and Technology
4. Names of programmes offered (UG, PG, M. Phil., Ph.D., Integrated Masters; Integrated Ph.D., D. Sc., D. Litt., etc.):
Center for Converging Technologies of this university offers dual degree integrated course in converging technologies, M. Tech. Course in Converging Technologies.
 - Five years dual degree B. Tech. M. Tech. integrated course in
 - Nanotechnologies
 - Biotechnologies and Informatics
 - Information and Communication Technologies
 - Cognitive and Neuroscience
 - Two years M. Tech. course in
 - Nanotechnologies
 - Biotechnologies and Informatics
 - Information and Communication Technologies
 - Cognitive and Neuroscience
 - Three years M. Tech. course in
 - Nanotechnologies
 - Biotechnologies and Informatics
 - Information and Communication Technologies
 - Cognitive and Neuroscience
 - Ph.D. programmes in all four streams
5. Interdisciplinary programmes and departments involved
The proposed course is an interdisciplinary SFS course and faculty members from Departments of Botany, Chemistry, Mathematics, Physics, Zoology and Commerce are involved in the programmes of this course. Faculty members from various engineering colleges, IIT Rajasthan, Central University Rajasthan, SMS Medical College, MNIT Jaipur and LNMIIT Jaipur are also engaging few classes at this center as guest faculty.
6. Courses in collaboration with other universities, industries, foreign institutions, etc.
Center has not designed any course in collaboration with other universities, industries, foreign institutions. However it modifies its courses by considering courses offered by other reputed universities.

7. Details of programmes discontinued, if any, with reasons :
No programme has been discontinued by this center in past five years.
8. Examination System: Annual/Semester/Trimester/Choice Based Credit System:
Semester Scheme
University has adopted choice based credit system for the courses running at this center.
Center also runs one semester Pre Ph.D. course work in converging technologies.
9. Participation of the department in the courses offered by other departments
During 10th Semester, students are undergoing six months compulsory training in different national / international institutes of reputation and industries. Some of the students are getting training in different departments of this university. During seventh to ninth semester of this course, students may go once for a maximum period of two months for training or to attend a course of this duration in a reputed institute / university.
10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/others):
Center runs only SFS courses hence as per university norms for SFS courses, teaching at this center is carried out by faculty from other Departments and Guest faculty members from different departments of this university and from other institutes.

	Sanctioned	Filled	Actual (including CAS& MPS)
Professor	-	-	-
Associate Professors	-	-	-
Asst. Professors	-	-	-
Others	-	-	-

11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance:
Teaching is carried out by faculty from other departments /guest faculty members.
However following is the list of working committee of this center:

Name	Qualification	Designation	Specialization	No. of Years of Experience	No. of Ph.D./ M. Phil. students guided for the last 4 years
Prof. Deepak Bhatnagar	M.Sc., Ph.D.	Director	Microwave Electronics	27	18
Prof. Kailash Agrawal	M.Sc., Ph.D.	Addl. Director (Academic)	Biotechnology and Bioinformatics	28	5

Prof. S. C. Joshi	M.Sc., Ph.D.	Addl. Director (Research)	Respiratory. Physiology	28	9
Dr. Ramvir Singh	M.Sc., Ph.D.	Joint Director ICT	Thermal Physics and Soft Computing	28	5
Dr. Madan Lowry	M.Sc., Ph.D.	Joint Director Cogno.	Neuroscience	25	4
Dr. Vidya Patni	M.Sc., Ph.D.	Joint Director Bio	Biotechnology	24	5
Dr. K.V. R Rao	M.Sc., Ph.D.	Joint Director Nano	Condensed Matter Physics	25	1
Dr. Sushila Pareek	M. Phil. , Ph.D	Subject Coordinator	Cognitive Science	17	6
Dr. V. K. Gupta	M.Com. Ph.D.	Subject Coordinator	Finance	28	--
Dr. H. S. Palsania	M.Sc., Ph.D.	Subject Coordinator	Physics	21	--
Dr. P. J. John	M.Sc., Ph.D.	Subject Coordinator	Zoology	15	1
Dr. Neelima Gupta	M.Sc., Ph.D.	Subject Coordinator	Chemistry	20	8
Dr. V. K. Saxena	M.Sc., Ph.D.	Subject Coordinator	Engineering	25	4
Prof. Ashok K Nagawat	M.Sc., Ph.D.	Past Director	ICT	33	2
Prof. S.L. Kothari	M.Sc., Ph.D.	Ex. Director (Retired)	Biotechnology	---	---

12. List of senior Visiting Fellows, adjunct faculty, emeritus professors:

No senior Visiting Fellows, Adjunct Faculty, Emeritus Professors visited this center during 2009 – 15. However following eminent persons are / were associated with this center in different capacities:

- Prof. S.C. Maheshwari,
- Dr. R. S. Jain,
- Dr. Arun Chougale,
- Dr. Manish Shrimali, Central University Rajasthan

Following eminent persons visited this center in connection with different programmes:

- Prof R. Chidambaram. Principal Scientific Advisor, Govt of India.
- Prof Ashutosh Sharma. Secretary, DST, New Delhi.
- Dr. Samuel Gottfried, Director and President, Nofire Technologies, New York, USA
- Prof. Prem P. Jauhar, Northern Crop Science Laboratory, US
- Prof. Suresh K Bhargava, RMIT University Australia.
- Prof. S. Chatterjee. Indian Institute of Astrophysics. Bangalore

- Prof. Rasto Kulich, CEO Google, Slovakia.
- Dr. B.V. R. Tata, IGCAR, Kalpakkam
- Dr. Cathal Cassidy, Cathal Cassidy, Okinawa Institute of Science and Technology

13. Percentage of classes taken by temporary faculty programme wise information:

This center is offering only the SFS courses in four streams of converging technologies and all the faculty members including Director of this center are guest faculty members. Therefore 100% classes are being engaged only by guest faculty members.

14. Programme-wise Student Teacher Ratio: Teaching is carried out by faculty from other Department /guest faculty.

The programmes run by this center are of SFS nature and as per university guidelines, no permanent faculty can be appointed at such centers. All the faculty are guest faculty members and as per student teacher ratio, center is trying to make it as low as possible by inviting more faculty members from outside to interact with students. Following are the approximate programme-wise Student Teacher Ratios in the two courses presently run by department:

- 5 yrs. B, Tech M. Tech. Dual degree course: 15:01
- 2 yrs. M. Tech. course: 05:01

15. Number of academic support staff (technical) and administrative staff: sanctioned, filled and actual:

Following is the position of ministerial, technical staff and lab bearers:

	Sanctioned	Filled	Actual
UDC / LDC / Office Assistant	03	01	01+04*
Lab Asstt.	05	---	05*
Lab Bearer	05	---	05*
Lab. Helper	04	---	04*
Office Helper / Peon	---		02*
Librarian	01	---	01*
Others:			
Steno cum computer operator	01	---	01*
Computer Operator	02	---	02
Book Attendant	01	---	01*
Store Keeper,	---	---	01*
Chowkidars	08	---	08*
Gardener	01	---	01*
Sweeper	01	---	01*

* Through Agency on contractual basis

16. Research thrust areas as recognized by major funding agencies:

Following are the thrust areas which have already been recognized by major funding agencies:

- Nanotechnology
- Biotechnology and Bio-informatics
- Information and communication Technology
- Cognitive and Neuroscience

17. Number of faculty with ongoing projects from

a) National funding agencies

NIL

However two DBT-Ramalingaswami Re-entry fellowship holders and one DBT-BioCARE fellowship holder are associated with this center.

Total Grant Rs. 2, 01, 83,000/-

b) International funding agencies

NIL

c) Total grants received.

NIL

Give the names of the funding agencies, project title and grants received project-wise.:

- **Dr. Jobin Varkey:** “A Molecular Understanding of A β Mediated Neurodegeneration in Alzheimer’s Disease.” by Department of Biotechnology, New Delhi under Scheme: DBT-Ramalingaswami Re-entry fellowship, Total cost (Including salary): Rs. 88, 00,000/- for 5 years. Recently he has resigned to join some other institution in Kerala.
- **Dr. Sangeeta Chatterjee** “Molecular mechanisms of translation regulation of the Heme-regulated eukaryotic initiation factor 2 kinase (EIF2AK1).” by Department of Biotechnology, New Delhi under Scheme: DBT-BioCARE fellowship, Total cost (Including salary): Rs. 25,83, 000/- for 3 years. Recently she has resigned due to family reason.
- **Dr. Sowmya Bekshe Lokappa:** “Investigating the role of Cavin proteins in caveolae biogenesis” by Department of Biotechnology, New Delhi under Scheme: DBT-Ramalingaswami Re-entry fellowship, Total cost (Including salary): Rs. 88, 00,000/- for 5 years. Recently she has resigned to join some other institution in Kerala.

18. Inter-institutional collaborative projects and associated grants received

a) National collaboration :

- **Design Innovation Center:** MHRD, New Delhi has recently sanctioned a design innovation center at Center for Converging technologies, University of Rajasthan for a period of three years. Under DIC programme, a financial support of Ten Crore rupees from Government of India have been sanctioned and will have three spokes namely, Birla Institute of Scientific Research, Jaipur, RK Patni Govt. College Kishangarh, and Lachoo Memorial College of Science and Technology, Jodhpur. The project aims towards establishment of a platform for increased

participation, interaction and mutual co-operation between academia and industry for design innovation. The focus of the proposal is Converging Technologies. The project aspires to develop a continuously evolving curriculum for innovation in process, product and system design aligned to meet the needs of the industries in the milieu and society at large. One of the major objectives of DIC is to spread Design Education, thereby creating Design Culture and Design thinking. The second major objective is to promote innovation among the students. The current interaction with industry at the University of Rajasthan is however, limited at individual or departmental level and hence does not integrate various resources to develop a larger platform for the university and industry partnership. DIC will address this gap by constructing a platform by bringing industry and university together to foster development of design innovation network that nurtures pioneering ideas and translates them into commercially viable initiatives.

- **University Innovation Cluster:** This programme is sanctioned to University of Rajasthan in 2013 by BIRAC, New Delhi with total grant of Rs. 2.22 Crores for four years. Out of sanctioned grant, Rs. 78.20 Lacs has been released in its first installment. The proposal aims towards establishment of a platform for increased participation, interaction and mutual co-operation between academia and industry. The focus of the proposal is converging technologies. The project aspires to evolve new strategies, products and services which can be commercialized and can be later taken up for university spin-off and start-ups. Scholars under UIC-B will be selected from the young researchers whose inclinations are towards innovation and entrepreneurship. The output/outcome of the project would be utilized for an industrial application project and also the potential to develop into a technology or prototype with through academic and industrial mentoring. The initiative would aim towards self-sustainability through endowments, royalty, financial support from government funding agencies and industries, consultancy charges and extension services.
- **Inter-disciplinary Program in Life-Sciences:**
This Scheme is for Strengthening Education and Research in Life Sciences Departments of the University and known as Interdisciplinary Programme of Life Sciences (IPLS programme). Department of Biotechnology (DBT) has sanctioned a grant of Rs. 989.538 lacs in Sept 2010 of which Rs. 421.258 Lacs were released on 28-09-2010.
- **Center of Excellence in Nanotechnology:**
A collaborative project of Department of Science and Technology- Govt. of Rajasthan signed a MOU with CCT for attainment of the objectives to establish Center of Excellence in Nanotechnology having major facilities like Molecular Beam Epitaxy, Sintering Furnace, Electro-deposition Workstation etc.

b) **International collaboration:**

NIL

However informal collaboration was established with following two institutes:

- RMIT, Australia (only students exchange programme)
- Inje University, Korea

19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received:

Center received following project funds in recent times:

Title of Project	Funding Agency	Period	Amount Sanctioned
Centre for Excellence in Nano technology	DST Rajasthan	2011-2016	Rs. 13 Crs.
Design Innovation Center	MHRD, New Delhi	2015-18	Rs. 10 Crs
University innovation Cluster (UIC-B)	BIRAC	2014-2019	Rs. 2.22 Crs.
Interdisciplinary Programme in life Science (IPLS now BUILDER)	DBT	2010-2015	Rs. 13 Crs.

20. Research facility / center with

- State recognition:
 - Center of Excellence in Nanotechnology from State DST:
Following facilities are arranged through this programme
 - Static and Dynamic Light scattering (DLS) system (Available)
 - High Temperature X-ray Diffraction Facility (XRD) system (Available)
 - Molecular beam Epitaxy (Under e-tender process)
 - High Temperature Vacuum Sintering Furnace (Under e-tender process)
 - Electrodeposition work station (Under e-tender process)
 - Differential Thermogravimetry (Under e-tender process)
 - Lifetime Spectrofluorometer (Under e-tender process)
 - PECVD synthesis with DC system with load lock (Under e-tender process)
 - X-ray spectrofluorometer (Under e-tender process)
 - UV-Vis NIR spectrometer (Under e-tender process)
- National recognition:
 - Design Innovation Center (DIC)
 - University Innovation Cluster - Cluster Innovation Centre (UIC-CIC),
 - Inter-disciplinary Program in Life-Sciences (IPLS)
Following facilities are arranged through this programme
 - Atomic Absorption Spectrophotometer (Available)
 - Gel Documentation System (Available)
 - UV-Vis NIR spectrophotometer (Available)
 - Visible Spectrophotometer (Available)
 - Ultrasonicator (Available)
- International recognition:
NIL

21. Special research laboratories sponsored by / created by industry or corporate bodies :

The academia industry collaboration is planned under University Innovation Cluster - Cluster Innovation Centre (UIC-CIC) programme. Under this programme one research position will be funded by an industry.

22. Publications:

Details of the members of working group are included in the details of their parent departments.

- * Number of papers published in peer reviewed journals (national/ international):
22
- * Monographs:
NIL
- * Chapters in Books:
03
 - Pal, J.K. and Chatterjee. S. (2014) Translation of mRNA into Protein – Classic and Recent Experiments. In Gene and its Engineering (Eds. H.K. Das), Wiley India Pvt. Ltd., New Delhi, pp 194 – 218.
 - Pal, J.K. and Chatterjee. S. (2014) Translation regulation of Gene expression and human diseases, In Gene and its Engineering (Eds. H.K. Das), Wiley India Pvt. Ltd., New Delhi, pp 219 – 233.
 - Chatterjee S. (2015) Oil spill cleanup: Role of environmental biotechnology, In Applied Environmental Biotechnology: Present Scenario and Future Trends (Ed. G. Kaushik), Springer India, New Delhi, pp 129 - 144
- * Edited Books:
NIL
- * Books with ISBN with details of publishers:
NIL
- * Number listed in International Database (For e.g. Web of Science, Scopus, Humanities International Complete, Dare Database - International Social Sciences Directory, EBSCO host, etc.):
N.A.
- * Citation Index – range / Average
From 1 to 206 including 206 by Dr. Jobin Verky and 77 by Dr. Sowmya B. Lokappa
- * SNIP
NIL
- * SJR
NIL
- * Impact Factor – range / Average
0 to 67 (Dr. Jobin Varkey: *Cumulative impact factor – 60.7* and Dr. Sowmya B. Lokappa: *Cumulative impact factor -33.4*)
- * h-index
Dr. Jobin Varkey: *h-index – 07* and Dr. Sowmya B. Lokappa: *h-index -03*

23. Details of patents and income generated

No patent has been registered by a faculty member of this center.

24. Areas of consultancy and income generated

NIL

25. Faculty selected nationally / internationally to visit other laboratories / institutions/ industries in India and abroad:

All the faculty members of this center are guest faculty members and no faculty member from this department was selected nationally/internationally to visit other laboratories /institutions / industries in India and aboard during 2009-15. The details of members of working group are already included in the details of their parent departments.

26. Faculty serving in

All the faculty members of this center are guest faculty members. The details of these faculty members are included in their respective departments.

a) National committees

NIL

b) International committees

NIL

c) Editorial Boards

NIL

d) Any other:

NIL

27. Faculty recharging strategies (UGC, ASC, Refresher/orientation programs, workshops, training programs and similar programs):

Center has organized following refresher courses/ workshops/ meetings during 2009-2015:

Program Title	Duration	Organized by	Convener
Refresher course on Information Technology	21 Days (Nov 13 – Dec 13)	UGC	Prof. A. K .Nagawat Dr. Ramvir Singh
Refresher course on Information Technology	21 Days (Dec 13 – Jan 14)	UGC	Prof. A. K .Nagawat Dr. S. K. Gupta
Meeting on Bio-Entrepreneurship and in stimulating innovation among young investigators.	8 th and 9 th July 2014	BIRAC	Prof. A. K .Nagawat
One day workshop on Intellectual Property Rights: Develop & Enhance your IP skills	3 rd March 2015	BIRAC	Prof. A. K .Nagawat
Workshop on Planar antennas for satellite and wireless communication systems	31 st March 2015	DEIT	Prof. Deepak Bhatnagar

28. Student projects

- Percentage of students who have done in-house projects including interdepartmental projects:
Each year nearly 10% students of the last semester of M.Tech. course do in house projects.
- Percentage of students doing projects in collaboration with other universities/ industry / institute:
Each year nearly 90 % students of the last semester of M. Tech. course do projects in collaboration with other universities/ industry / institute.

29. Awards / recognitions received at the national and international level by

- Faculty
NIL
- Doctoral / post-doctoral fellows:
NIL
- Students :
 - Ravi Agarwal qualified under ‘Yuva Udhyamita Prothsahan Yojana’ From Rajasthan Financial Corporation.
 - Sachin Dube, Usman Khan, Shiva Choudhary qualified under “Association in Biotechnology led Entrepreneurship” from DBT
 - Aaishwarya Mathur, Shrashti Jain, Poonam Yadav qualified under “Association in Biotechnology led Entrepreneurship” from DBT

30. Seminars/ Conferences/Workshops organized and the source of funding (national/ international) with details of outstanding participants, if any:

Center organized following Seminars/ Conferences/Workshops during 2009-15:

Name of activity	Source of Funding
National Conference on Recent Advances on Modern Communication Systems and Nanotechnology (NCMCN2011) October 6 - 8, 2011	DST, DRDO
National Conference on Science for Shaping Future of India.	Indian Science Congress
Workshops on Intellectual Prosperity, Technology, Management and Entrepreneurship (15 Dec-2012)	CCT funds
One day Workshop by Shimadzu Corporation (26 th Aug 2013)	CCT funds
ISCA National Seminar – Science for shaping the future of India (7 th -8 th Oct- 2012)	CCT funds
Two days’ workshop on Bio entrepreneurship, July 8 & 9, 2014	CCT funds
Two days placement board meeting Tech. Mahindra, May 18 - 19, 2014	CCT funds
Academic Staff College supports Short term course for non-teaching staff, 29 th December 2014 to 3 rd January 2015	UGC

Jointly organized 17 th International Conference of International Academy of Physical Sciences (CONIAPS XVII) on “Emerging Trends in Physical Sciences & Technology” with other science departments, January 16-18, 2015	DRDO, UGC
One day workshop on Intellectual Property Rights: Develop & Enhance your IP skills, 3 rd March 2015	BIRAC
One day Workshop on Planar antennas for satellite and wireless communication systems, 31 st March 2015	DIT funds

31. Code of ethics for research followed by the departments :

Codes of ethics for research are followed as per UGC and University of Rajasthan norms

32. Student profile programme-wise:

Following is the student profile in B.Tech. - M.Tech. programmes of this center:

Name of the Programme	Applications received	Selected		Pass percentage	
		Male	Female	Male	Female
B. Tech. - M. Tech. 2014	184	30	18	Result awaited	Result awaited
Two years M. Tech.	92	12	12		
B. Tech. - M. Tech. 2013	185	39	29	92%	93%
Two years M. Tech.	88	07	18	94%	95%
B. Tech. - M.Tech.2012	206	57	33	96%	96%
B. Tech. - M.Tech.2011	209	50	34	97%	98%
B. Tech. - M.Tech.2010	256	83	41	100%	100%
B. Tech. - M.Tech.2009	248	76	43	100%	100%
Ph. D. 2014 programme	---	01	03	---	---
Ph. D. 2013 programme	---	01	---	---	---
Ph. D. 2012 programme	---	02	---	---	---

33. Diversity of students

Following is the diversity of students profile in B.Tech. - M.Tech programmes of this center:

Name of the Programme	% of students from the same university	% of students from other universities within the State	% of students from universities outside the State	% of students from other countries
B. Tech. - M. Tech.	Intake is class XII passed students	NIL	NIL	NIL
M. Tech. 2 Year	NIL	100%	NIL	NIL

34. How many students have cleared Civil Services and Defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise.

As per information gathered from the students of this center; on an average, 30% students per year qualify NET examination and goes for Ph.D. programmes in various universities / institutes. Nearly 10% students go abroad for higher studies. Nearly 10% students joins lectureship in various colleges / universities / institutes. Nearly 5% becomes entrepreneur and starts their own ventures.

35. Student progression

Following is the student's progression:

Student progression	Percentage against enrolled
UG to PG	100%
PG to Ph.D.	1 %
Ph.D. to Post-Doctoral	NIL
Employed	
• Campus selection	2 %
• Other than campus recruitment	98 %
Entrepreneurs	5%

36. Diversity of staff

All faculty members associated with this center are guest faculty members. Details of those faculty members who are permanent in this university have been added in their parent departments.

Percentage of faculty who are graduates	
of the same university	N.A.
from other universities within the State	N.A.
from universities from other States	N.A.
from universities outside the country	N.A.

37. Number of faculty who were awarded M. Phil., Ph.D., D.Sc. and D.Litt. during the assessment period.

No faculty member of this center was awarded M. Phil., Ph.D., D.Sc. and D.Litt. during the assessment period.

38. Present details of departmental infrastructural facilities with regard to

a) Library:

The center has its own library that consists of about 1662 books, 04 regularly subscribed journals and magazines and 234 back volumes of journals and magazines.

b) Internet facilities for staff and students:

Wi-Fi and LAN facilities are provided to all faculty members, research scholars and PG students through University INFONET center.

c) Total number of class rooms:

Center has 08 well-furnished class rooms while furnishing of 04 more class rooms is under process.

d) Class rooms with ICT facility :

Center has 12 class rooms and laboratories with ICT facility and has one Smart Classroom.

e) Students' laboratories :

Center has 7 laboratories of PG students namely

- 2 Nanotechnology Labs,
- 2 Biotechnology Labs,
- 2 ICT labs,
- 1 neuroscience lab

Center also has well-furnished Physics Lab., Chemistry lab. Biology lab., Design center for UG students. Furnishing of 06 labs is under process.

f) Research laboratories :

Center at present has two research laboratories for the research students in the areas of Nanotechnology and Biotechnology. Center also has 01 Animal Tissue Culture lab. Center has also established DST supported Center for Excellence in Nanotechnology which is already having advance research facilities like Molecular Beam Epitaxy, Static and Dynamic Light scattering (DLS) system, High Temperature X-ray Diffraction Facility (XRD) system while Molecular beam Epitaxy and High Temperature Vacuum Sintering Furnace are under e-tender process.

39. List of doctoral, post-doctoral students and Research Associates

a) from the host institution/university:

NIL

b) from other institutions/universities:

NIL

40. Number of post graduate students getting financial assistance from the university:

08 Students of this center received financial assistance under IPLS programme for one year. Several PG students received student's project from DST Rajasthan.

41. Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology.

Yes, center undertakes need assessment exercise as per requirement of programmes run by this center. Center has CoC which frequently discusses academic curriculum so that students of this center get updated teaching programme. The last CoC meeting was held in 2015 itself. Center also has Steering Committee which discusses all academic and administrative activities of this center in the interest. All the decisions taken by Steering committee needs final approval from university Vice Chancellor.

42. Does the department obtain feedback from

- a. Faculty on curriculum as well as teaching learning evaluation? If yes, how does the department utilize the feedback?

Center takes informal feedback from faculty members associated with this center as well as faculty members from other institutions coming to this center for taking classes on the curriculum as well as on teaching methods. Based upon their feedbacks, CoC and Steering committee takes necessary decision in the interest of this center as well as in the interest of students

- b. Students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?

Center takes informal feedback from present and passed out students from the center to improve quality of learning and teaching and for revision of syllabus. To make students aware with current technologies; center time to time introduces new papers. In the interest of students, periodic changes in examination patterns are applied so that students may go deep inside of learning of current technologies.

- c. Alumni and employers on the programmes offered and how does the department utilize the feedback?

At present center does not have its own alumni association. However old students of this center provides their inputs to the Director of this center as well as to other associated faculty members on the curriculum and other academic activities of this center. Based upon their feedback, the courses are modified significantly in recent past in comparison to those which were introduced in the beginning of this center. To make students aware with current job and market requirements, employers of different organizations are requested to provide relevant information

43. List the distinguished alumni of the department;

This is a new center and only three batches have passed out till date.

44. Give details of student enrichment programmes (special lectures/workshops/seminar) involving external experts. Special lectures & Workshops

Center has organized following student enrichment programmes during 2009 – 15:

Special Lectures:

- Prof. Prem P. Jauhar, Northern Crop Science Laboratory, US
- Prof. Suresh K Bhargava, RMIT University Australia.
- Prof. S. Chatterjee. Indian Institute of Astrophysics. Bangalore
- Rasto Kulich, CEO Google, Slovakia.
- Prof R. Chidambaram. Principal Scientific Advisor, Govt of India.
- Prof Ashutosh Sharma. Institute Chair Professor. IIT Kanpur.
- Dr. B.V.R. Tata, Indira Gandhi Center for Atomic Research, Kapakkam
- Dr. Cathal Cassidy, Cathal Cassidy, Okinawa Institute of Science and Technology
- Dr. D.K. Awasthi, IUAC, New Delhi on the theme "Irradiation of materials" on 10.01.2014
- Dr. Samuel Gottfried, Director and President, Nofire Technologies, New York, USA on the theme "Fire protection Coatings"

45. List the teaching methods adopted by the faculty for different programmes.

Faculty members normally adopt blackboard teaching method and power point presentation during their class room teaching. Center has decided to introduce teaching method through interactive panel from next session. Center also organizes tutorials, Student Seminars and Group Discussions for the benefit of students. Invited talks by experts of various fields are being organized to update the knowledge of students.

46. How does the department ensure that programme objectives are constantly met and learning outcomes are monitored?

Objectives of the Programme are monitored by continuous evaluation and internal assessment in addition to the assessment of the performance of students through sessional tests & continuous assessment as per the semester scheme, discussion in the meetings of steering committee and feedback from the external examiners during end term examinations. Committees of Courses meetings are organized periodically to revise the curriculum and faculty members interact with students regularly.

47. Highlight the participation of students and faculty in extension activities:

- Activities:

- University Innovation Cluster - Cluster Innovation Centre: The proposal aims towards establishment of a platform for increased participation, interaction and mutual co-operation between academia and industry. The focus of the proposal is converging technologies. The project aspires to evolve new strategies, products and services which can be commercialized and can be later taken up for university spin-off and start-ups. Scholars under UIC-B will be selected from the young researchers whose inclinations are towards innovation and entrepreneurship. The output/outcome of the project would be utilized for an industrial application project and also the potential to develop into a technology or prototype with through academic and industrial mentoring. The initiative would aim towards self-sustainability through endowments, royalty, financial support from government funding agencies and industries, consultancy charges and extension services.

- Inter-disciplinary Program in Life-Sciences:

- students participation:(Student Projects)

Students are regularly involved in various small scale projects which are funded by State DST etc.

- Faculty participation: (Faculty Projects)

Center of Excellence in Nanotechnology: A collaborative project of Department of Science and Technology - Govt of Rajasthan and CCT for attainment of the objectives to establish Center of Excellence in Nanotechnology having major facilities like Molecular Beam Epitaxy, Sintering Furnace, Electrode position Workstation etc.

48. Give details of “beyond syllabus scholarly activities” of the department.

Center organizes various extracurricular activities of students annually which includes inter class sports meet. These include both indoor and outdoor sports events. In 2015, center for the first time organized inter-college paper presentation through power point awards were distributed to the winners of this event. Students and faculty members of this center also organized Blood Donation Camp in association with Mahavir Cancer Research Center, Jaipur and contributed nearly 60 units of blood. Students of this center also organize annual Kite festival in January every year. Introduction party, farewell function and annual cultural programme were regularly organized by the students of this center. University has recognized CCT as an independent center for inter college sports activities and teams of CCT are participating in sports activities both in boys and girls sections. Students were taken for presenting their ideas in different cities like a team from CCT. Students are presenting their papers in different national and international conferences and winning various awards through their presentations. Students participated in National Science Day Conference, held from 28th February to 4th March, 2013 at Nawalgarh (Jhunjhunu).

49. State whether the programme/ department is accredited/ graded by other agencies? If yes give details.

- Yes, looking capabilities of this center, BIRAC has selected this center among the five centers of this country for University Innovation Cluster.
- DBT approved Interdisciplinary Programme in life Science (IPLS now BUILDER)
- MHRD has sanctioned Design Innovation Cluster programme looking capabilities of this center.

50. Briefly highlight the contributions of the department in generating new knowledge, basic or applied.

The department is significantly contributing in generating new knowledge in the area of converging technologies. The center offers B. Tech. M. Tech. Dual Degree courses in Converging Technologies and Two years M. Tech. Degree. This is perhaps the first center in this country where the concept of convergence is applied for designing the course and method of teaching. In contrast to other engineering colleges, no branch is offered to the students at the time of their admission at this center. Each student taking admission at this center has to study courses from Physics, Chemistry, Biology, Mathematics, Computer Science, Philosophy and commerce during first six semester of their course. On the basis of their merit, the allotment of branch is offered to the students out of Nanotechnology, Biotechnology, ICT and Cognitive and Neuroscience. Student have to register in six theory paper in each of VII, VIII and IX semester and may select three to four papers from any of these four branches but will have to select two to three papers from the remaining three branches. On the basis of Credit earned obtained by him/ her in first eight semesters, University offers B. Tech. degree in the area in which he/ she has earned maximum credits. On the basis of Credit earned obtained by him/ her

in all X semesters, University offers M. Tech. degree in the area in which he / she has earned maximum credits. The course content is designed in a way that student will have to go deep insight the subject. The programme is inclined towards research and development activities and after completion of course; student may either start his own venture or may go for further higher studies towards research and development. The outcome of this course is that many students from this center have joined reputed institutes from India and abroad for their research and development activities. The main reason for it is that these centers feel that students of this center have in depth knowledge of more than one area of interest.

The funding agencies and industries have appreciated this concept and came forward to join hands with this center. MHRD, BIRAC, DBT and Rajasthan State DST have provided extensive funding nearly of the order of 35 Crores. Six industries have joined hands with CCT in the BIRAC supported University Innovation Cluster programme.

51. Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.

Following are major Strengths, Weaknesses, Opportunities and Challenges of the center:

Strengths:

- This center is a part of oldest university of this state which is located at the center place of city.
- Interdisciplinary faculty and research activities are available in this center.
- Center has high reputation for quality education & research facilities.
- This is only center perhaps in country imparting dual degree B.Tech. M.Tech. courses in converging Technologies.
- Generating, designing and applying new technologies in an innovative way.
- Two year M.Tech. programmes is attracting large number of students as it is running regular classes every day.

Weaknesses

- Center is relatively new and branches offered by center are also new in nature. Many people are neither aware with this center nor aware about courses run by this center. Center requires wide popularity for attracting more students.
- Center is running SFS course and hence university is not providing permanent faculty to this center.
- Center is lacking in terms of permanent technical and administrative staff.
- University is not providing financial support as this center is running only SFS courses.
- Students are facing difficulty as university was not having an active placement cell.

Opportunities

- Center has opportunity to start more research oriented courses in the area of converging technologies.

- Opportunity to have more industry collaborations.
- Since university is located in a prominent place, further collaboration with more reputed institutes and organization is possible in terms of exchange programme.
- Development of infrastructure projects through public private partnership(PPP)
- National and international research initiatives

Challenges

- More universities are now starting similar course having better infrastructure.
- Unfocused students are taking admission without any clear vision for future.

52. Future plans of the Centre:

The center proposes to start the following in the next session:

- Establishment of Centre of Excellence with provision for better university – industry collaboration.
- Establishment of Animal Cell Culture Facility in center.
- Looking the courses and placement of students passed out from this center, efforts will be made to convert SFS courses in to regular courses of University.
- Being a professional course of unique nature, efforts will be made for the appointment of a placement Officer.
- Being a professional course; efforts will be made so that courses may get completed in time and all results must come in time in the interest of students.