Chapter - III

Quality of Higher Education

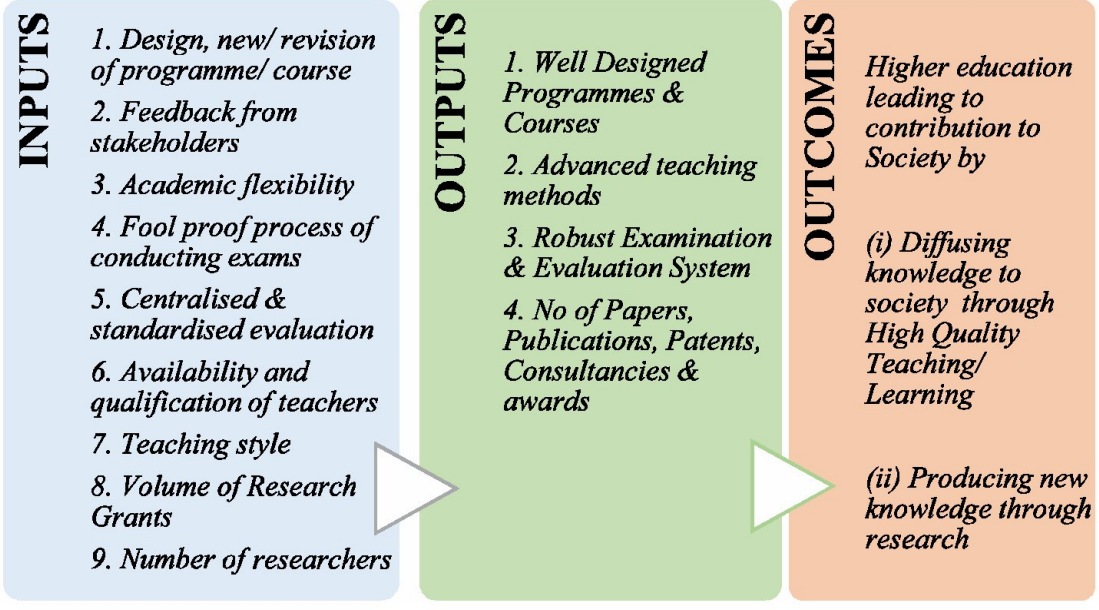
Chapter - III
Quality of Higher Education

This chapter discusses societal perspective of higher education outcomes in terms of teaching-learning processes and research capabilities of Higher Education System. Audit assessed the performance of HEIs and GoR in providing high quality higher education with reference to the following audit objective.

Audit objective 2: Whether the Higher Education system contributed to society through effective teaching learning processes and high quality research

Twelfth FYP emphasizes on the quality in imparting higher education in general stream (Arts, Science and Commerce streams). It states that, if properly imparted, general education could be an excellent foundation for knowledge based careers. Also, as per India Skills Report[26] 2020, at an all India level, BSc, BA and BCom programmes have provided low number of employable graduates during the period 2014-20. Therefore, the focus should be towards improving the quality of general education.

The quality related outcomes and their relationship with the contributing factors can be understood from the following representation.



UoR, Jaipur and JNVU, Jodhpur did not provide consolidated and complete information in respect of issues discussed in paragraphs 3.1.1.2 to 3.1.1.4, 3.1.2.2, 3.1.2.3 (D), 3.1.2.5 (B), 3.2.1.3 (A) & (B) and 3.2.2 (i).

26 BSc, BA and B Com programmes have provided on an average 37.47 *per cent*, 32.34 *per cent* and 31.86 *per cent* employable graduates respectively during the period 2014-20.

In the absence of complete information, Audit collected such information from selected 11 departments[27] of universities concerned.

Contribution to society by imparting knowledge through effective curriculum and teaching-learning processes

3.1 Effective curriculum and teaching-learning processes

3.1.1 Effective curriculum

In this section, audit findings and assessment of performance of outcomes through selected four indicators related to curriculum design and development, and teaching-learning processes are discussed. These indicators are also used by NAAC during assessment and accreditation process of HEIs.

3.1.1.1 Performance of universities based on outcome indicators

Audit assessed performance of three test checked universities in effective curriculum and learning processes through following four outcomes indicators on the basis of NAAC benchmarks. The information is provided in ***Table 3.1*** below (Details of indicators are given at Sl. Nos. 6, 7, 13 and 14 in ***Appendix-1.1***). Audit findings in respect of these indicators are discussed in the succeeding paragraphs.

Table 3.1: Performance of test checked universities with respect to indicators

Sl. No.	Outcomes indicators	NAAC benchmark for maximum four marks	Performance of the test checked universities with reference to NAAC benchmarks (marks[28] obtained)				
			UoR, Jaipur		JNVU, Jodhpur		GGTU, Banswara
			University level	Selected 11 depts.	University level	Selected 11 depts.	
1.	Percentage of revision of syllabus in programmes during 2014-19	50% and above	Could not comment	4	Could not comment	4	0
2.	Number of value-added courses offered during 2014-19	50% and above	Could not comment	0	Could not comment	0	0
3.	Average percentage of students enrolled in value added courses during 2014-19	10% and above	Could not comment	0	Could not comment	0	0
4.	Percentage of programs having CBCS during 2018-19	50% and above	0	-	3	-	0

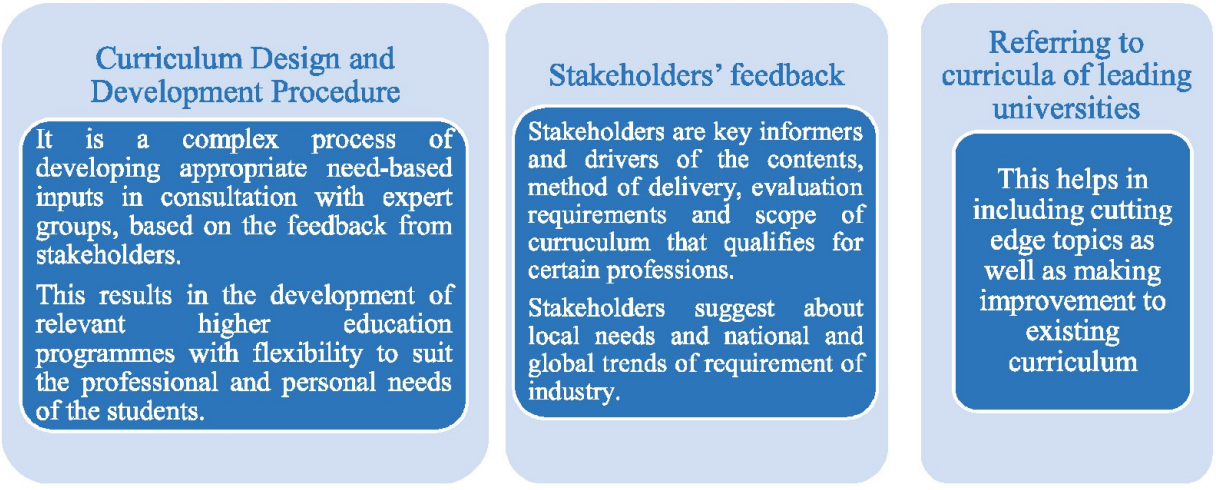
27 Chemistry, Zoology, Physics, Accountancy & Business Statistics, Business Administration, Hindi, English, Sociology, Political Science, Geography and Economics

28 Marks have been allotted by Audit as per university's performance on selected indicators and comparing it with benchmarks derived by analysing scoring pattern of universities accredited by NAAC (Appendix 1.3).

3.1.1.2 Curriculum design and development

One of the significant responsibilities of universities and autonomous colleges is curriculum design and development and they are expected to have processes, systems and structures in place to shoulder this responsibility.

Chart 3.1: Procedures and Functionaries involved in curriculum design and development



Curriculum design and development is a complex process of developing appropriate need-based inputs in consultation with expert groups, based on the feedback from stakeholders. This results in the development of relevant higher education programmes[29] with flexibility to suit the professional and personal needs of the students and realization of core values.

Scrutiny of information provided by test checked universities revealed that:

(i) Curriculum Design and Development Procedure

Each institution has the authority to design and develop curricula and formulate their own procedure for this purpose. The procedures followed by test checked universities and related findings are given below.

- ***UoR, Jaipur and JNVU, Jodhpur:*** It was observed that the selected 11 departments of the universities followed the prescribed procedures[30] while

29 As per NAAC manual, programme is a range of learning experiences offered to students in a formal manner over a period of one-to-four years leading to certificates/ diplomas/ degrees i.e., BA (Economics), BSc (Physics).

30 **UoR, Jaipur:** The Board of Studies (BoS) of each subject, recommends curriculum/syllabus to the Academic Council. The Academic Council makes, amends and cancels regulations laying down courses of study and curricula, subject to the approval of the Syndicate of the university.
JNVU, Jodhpur: Branch Committee proposes content of syllabus of a programme to Departmental Council for open discussion on the basis of feedback of the students and according to current national and international scenario. The Departmental Council in turn compiles the syllabus and submits to Committee of Course and Study (CoC&S), which is subsequently placed before Syndicate through Academic Council. The Syndicate finally approves the syllabus.

designing/ revising the syllabus of courses.

However, in JNVU, Jodhpur supporting documents indicating attempts towards inclusion of topics relevant to local/national/global development needs were not made available and hence veracity of the claim could not be established in audit.

- ***GGTU, Banswara:*** The university did not, on its own, design/revise any programme/course since its establishment in 2012 to 2018-19. It had adopted curriculum of the programmes/courses of Mohan Lal Sukhadia University (MLSU), Udaipur.

(ii) Stakeholders' feedback for revising curricular content:

Feedback from students, teachers, prospective employers, industries should be obtained and considered during designing/revising the curriculum so that curriculum is finalized keeping in mind the needs and expectations of important stakeholders. Related findings with respect to test checked universities are given below:

- ***UoR, Jaipur:*** Scrutiny of minutes of the Board of Studies (BoS) meetings revealed that stakeholders such as industrialists, entrepreneurs, students were not represented in the BoS of any of the 11 departments, indicating that their feedback for designing/ revising the curriculum was not taken. Further, in spite of NAAC recommendation (2016) that the BoS of the university should restructure its curriculum by including job oriented/facilitating contents with the help of industry and stakeholders, UoR did not take feedback from the industry/stakeholders.

However, departments stated (November 2019 to January 2020) that feedback from students and teachers were taken before designing/revising the curriculum. As details/records were not provided in support of their comments, audit could not verify this claim. Further, the process followed by the department goes against the intention of the process of developing appropriate need-based inputs in consultation with the expert groups. The practice of taking feedback from teachers and students alone are not sufficient to develop/design curriculum that are relevant to local needs and in tunes with the emerging national and global trends. Thus, the HEIs should revisit their existing practice and put in place a robust mechanism as envisaged in the university manuals and directions from various authorities and duly documenting the process.

UoR, Jaipur stated (January 2021) that there was no provision in the University Act to include representatives of industrialists, entrepreneurs, students in the BoS meetings. The fact remains that UoR, Jaipur did not consider NAAC's

recommendations given in 2016 regarding taking feedback from students, industries etc. while designing/revising course curriculum.

- ***JNVU, Jodhpur:*** Selected 11 departments intimated that external members of other universities, local faculty members and post bearer of students union also participated in the process of introducing new syllabus/modified syllabus in the curriculum. However, Audit observed that inputs from prospective employers were not obtained.

(iii) Referring to curricula of leading universities:

Successful universities are known for following a rigorous and regular process to update and revise their course curricula. This helps them in constantly improving upon the existing material and adding new topics that have emerged in respective programs. Other universities can take advantage by referring to these curricula while designing and revising their own course curricula. Audit enquiry related to this aspect revealed the following:

- ***UoR, Jaipur:*** Six out of 11 selected departments stated that mapping of curriculum was done with other universities but scrutiny of the minutes of BoS of these departments revealed that no attempts were made in this regard.

- ***JNVU, Jodhpur:*** The university intimated that syllabi were mapped with that of Delhi University and UoR, Jaipur. However, details of such mapping exercise were not available in the minutes of meetings of Academic Council as well as of Committee of Course and Study (CoC&S), due to which veracity of the claim could not be verified in audit. JNVU Jodhpur in its reply (June 2020) accepted the facts.

GGTU, Banswara accepted (June 2020) the facts and stated that, being a newly established (2012) university, it could not initiate activities such as curriculum design and development. Thus even eight years after establishing the university, it had not designed/revised any programme/course.

Hence, though UoR, Jaipur and JNVU, Jodhpur claimed to have followed the laid down procedures in the process of curriculum design and development, audit could not assure itself that crucial feedback from stakeholders, inputs from expert groups and reference to curricula of leading universities were used for curriculum improvement.

3.1.1.3 Revision of syllabus

Paragraph 4.3 of Report on 'Inclusive and Qualitative Expansion in Higher Education' issued under Twelfth FYP mandated that the curricula be revised at least once every three years and the syllabi be made relevant in tune with job market dynamics and advances in research and development.

Scrutiny of information provided by test checked universities revealed that:

(i) UoR, Jaipur

As per Ordinance 61-A, Handbook of Rajasthan University, the BoS and the Committees of Courses while recommending changes in the scheme of examinations and syllabi shall provide full implication of and justification for the proposed changes. It was observed that:

- In selected 11 departments, syllabus of 96 *per cent* (27 out of 28) programmes was revised during 2014-19. However, scrutiny of minutes of meetings of BoS of these 11 departments revealed that details regarding modifications and deliberations behind such changes were not documented. Hence, audit could not get assurance whether any changes were made at all. Further, no justification or any implications of changes made were mentioned while revising the syllabus.
- Audit compared content of syllabi of 20 courses for the period 2014 to 2019 in which, as per BoS minutes, syllabi were stated to be changed. Audit found that no changes in syllabus were carried out in 15 courses and minor changes/some word replacements were done in four (***Appendix 3.1***). Syllabus of the remaining courses[31] was stated to have been changed twice (in 2016 and 2019) in last five years; but audit observed that these changes were in nature of minor language modifications in 2016 and the syllabus of 2014 had again been repeated in the year 2019. Thus, the syllabus had not been substantially changed since 2014.

While UoR, Jaipur did not furnish specific reply to the audit observation, it stated (January 2021) that action would be taken to revise syllabus of programmes as per NAAC guidelines in future.

(ii) JNVU, Jodhpur

JNVU, Jodhpur revised syllabus of 64 *per cent* programmes (18 out of 28 programs) during 2014-19.

Good practice: Audit compared the current syllabi of 139 courses of these 18 programmes with that of the previous year and it was observed that substantial revision was carried out which was an indication of existence and implementation of sound mechanism for syllabi revision.

(iii) GGTU, Banswara

GGTU, Banswara adopted the syllabus for UG and PG programmes of Arts, Commerce and Science streams of MLSU, Udaipur and it did not revise the syllabus of any programme since its establishment in 2012 to 2018-19. Further, many landmark changes had taken place during this period such as the

31 BA Part-II Sociology (pass course)

introduction of 'Goods & Service Tax', but the university did not take steps to include such contemporary topics in the syllabus of UG and PG programmes of commerce stream. GGTU serves the districts of Banswara, Dungarpur and Pratapgarh which are predominately tribal population dominated. However, despite the National Policy of Education 1992 {Para 4.6 (vii)} which emphasized that the curriculum at all stages of education would be designed to create an awareness of the rich cultural identity of the tribals and their enormous creative talent, GGTU failed to take steps for fulfilling this requirement.

GGTU, Banswara accepted (June and August 2020) the facts and stated that syllabus of BA, BCom and compulsory subjects of Hindi and English have been updated by the university since academic year 2019-20. Further, marks obtained in compulsory subjects would be taken into consideration along with optional subjects while deciding the grades of students. A new paper, General Knowledge was also introduced as a compulsory subject in second year of UG. In the PG programmes syllabus of Hindi, English, Sanskrit, History, Geography, Economics, Sociology, Political Science and three subjects of Commerce stream have been updated since academic year 2019-20.

Though the university claimed that syllabus of a number of subjects had been updated since 2019-20, it did not intimate whether these syllabi have been revised after obtaining feedback from stakeholders; keeping in mind the local needs and circumstances as well as changing national scenario and duly approved by the governing bodies. Further, on comparison of updated syllabus with syllabus of previous year we observed that syllabi of all UG programmes were updated while syllabi of 40 out of 48 papers of five PG programmes[32] were not updated.

Good practice: GGTU, Banswara included the marks obtained in compulsory papers of Hindi and English for merit list determination as part of emphasising on the importance of languages and literature. Further, paper on General Knowledge was introduced as a compulsory subject in second year of undergraduate programme since academic year 2019-20.

3.1.1.4 Number of value-added courses and students enrolled

Value added courses imparting '*transferable and life skill*' and activities are those which may not be directly linked with one's discipline of study but contribute to sensitizing students to cross cutting issues such as gender, environment and sustainability, human values and professional ethics. Scrutiny of information provided by the selected HEIs revealed the following:

32 MA- Economics, Sociology and Geography; M Com- Business Administration and ABST

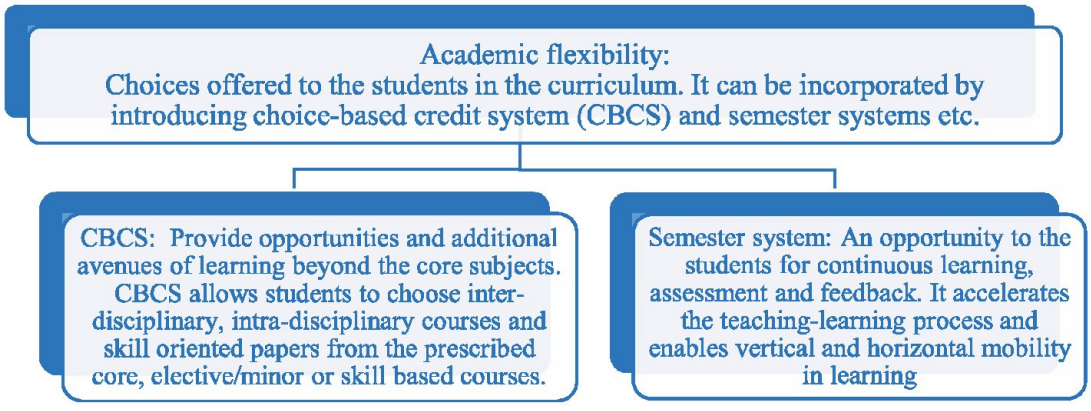
(i) In test checked universities and constituent colleges: Value added course imparting '*transferable and life skill*' were not offered in all test checked three universities during 2014-19. UoR, Jaipur stated (January 2021) that more emphasis would be given in future in this regard.

(ii) Test checked government and private colleges: Only two[33] (5.56 *per cent*) out of 36 test checked government colleges offered '*transferable and life skill*' value added courses (skill development, personality development courses etc.) during 2014-19 in which 231 students were enrolled. Further, none of test checked 30 private colleges offered value added course.

3.1.1.5 Academic flexibility

Academic flexibility and its components are briefly described in ***Chart 3.2*** below:

Chart 3.2: Academic flexibility and their components



(A) Programs having Choice Based Credit System

UGC has prescribed minimum course curriculum for undergraduate courses under CBCS and guidelines for implementing Semester System in higher education institutions. UGC reiterated (April 2018) the need to implement CBCS in universities and also to revise curriculum. In Rajasthan, in a meeting held (5 May 2015) by Hon'ble Chancellor with all Vice Chancellors of state universities it was decided that proper arrangement would be made to introduce CBCS in state universities from academic year 2015-16.

In this regard, scrutiny of information provided by the test checked HEIs revealed that:

(i) Universities and constituent colleges: CBCS was not introduced in any programmes being offered in UoR, Jaipur and GGTU, Banswara. In JNVU,

33 Govind Guru Government College, Banswara affiliated with GGTU, Banswara and SPDM Government Girls College, Kotputali affiliated with UoR, Jaipur

Jodhpur and its one constituent college, CBCS was introduced only in 29 (46.03 *per cent*) out of 63 programmes during 2018-19.

On being pointed out, UoR, Jaipur intimated (December 2019) that CBCS was not introduced in the university due to lack of faculty members. GGTU, Banswara stated (June and August 2020) that CBCS has been introduced in MSc since 2019-20.

(ii) Test checked government and private colleges: CBCS was introduced in 21.62 *per cent* programmes only in 5[34] (13.89 *per cent*) out of 36 test checked government colleges during 2018-19. It was not introduced in any of the 30 test checked private colleges during 2018-19.

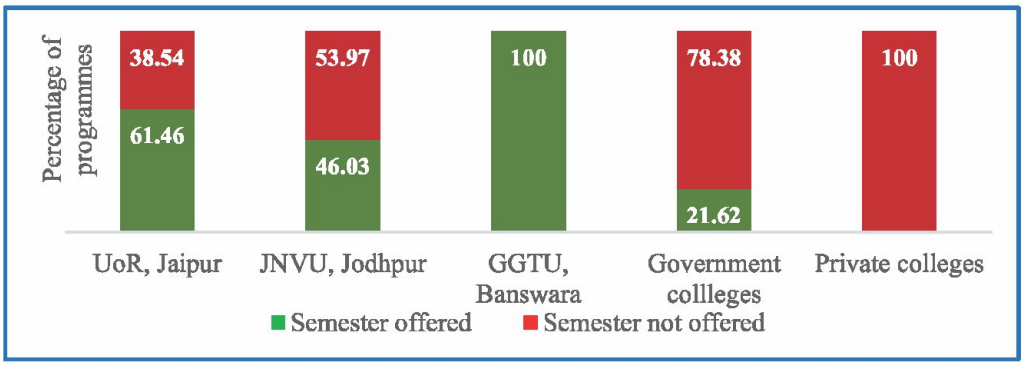
(iii) Student Survey Result: In response to student survey question "*Are you aware of choice-based Credit System (CBCS) in your institution?*" 66 *per cent* students out of 294 students of JNVU, Jodhpur and five test checked government colleges where CBCS was introduced were not aware of CBCS system.

(B) Programmes having Semester System

Paragraph 2.2.3 (c) of Report of 'Inclusive and Qualitative Expansion of Higher Education' issued under Twelfth FYP considered introduction of semester system for academic flexibility as a quality enhancing measure for excellence in higher education.

It was observed that semester system was introduced only for post graduate (PG) programmes and annual examination system continued for UG programmes in all three test checked universities. The position of semester system introduced in test checked HEIs during 2018-19 is given in ***Chart 3.3*** below.

Chart 3.3: Position of semester system introduced in test checked HEIs



34 Affiliated with JNVU, Jodhpur

Further, in the test checked institutions where semester system was not introduced, annual examination system was continuing for all UG and PG programmes during 2018-19. Thus, all the students of UG programmes and students of PG programmes to the extent where semester was not introduced in the test checked HEIs were deprived of the advantages of semester system.

3.1.2 Effective Teaching Processes

In this section, use of Information and Communication Technology (ICT) in teaching, faculty related aspects and robust examination and evaluation systems of the HEIs have been discussed. Further, results of selected eight indicators related to effective teaching process have also been discussed.

3.1.2.1 Performance of universities based on outcome indicators

Audit assessed performance of three test checked universities in effective teaching process through following eight outcomes indicators on the basis of NAAC benchmarks. The information is provided in ***Table 3.2*** (Details of indicators are given at Sl. Nos. 8 and 15 to 21 in ***Appendix-1.1***). Audit findings in respect of these indicators are discussed in the succeeding paragraphs.

Table 3.2: Performance of test checked universities with respect to indicators

Sl. No.	Outcomes indicators	NAAC benchmark for maximum four marks	Performance of the test checked universities with reference to NAAC benchmarks (marks[35] obtained)				
			UoR, Jaipur		JNVU, Jodhpur		GGTU, Banswara
			University level	Selected 11 departments	University level	Selected 11 departments	
1.	Teachers using ICT for teaching during 2018-19	80% and above	Could not comment	0	Could not comment	0	1
2.	Percentage of ICT- enabled classrooms/ seminar halls during 2018-19	80% and above	Could not comment	0	Could not comment	0	1
3.	Student Computer ratio during 2018-19	10:1 and below	Could not comment	2	Could not comment	0	0
4.	Average percentage of full time teachers with Ph.D. during 2014-19	70% and above	1	-	Could not comment	-	0
5.	Percentage of full time teachers who received awards, recognition, etc., during 2014-19	15% and above	Could not comment	3	Could not comment	4	0
6.	Average percentage teachers provided finacial support to attend conferences/ workshops etc., during 2014-19	50% and above	0	-	0	-	0

35 Marks have been allotted by Audit as per university's performance on selected indicators and comparing it with benchmarks derived by *analysing* scoring pattern of universities accredited by NAAC (Appendix 1.3)

Sl. No.	Outcomes indicators	NAAC benchmark for maximum four marks	Performance of the test checked universities with reference to NAAC benchmarks (marks[35] obtained)				
			UoR, Jaipur		JNVU, Jodhpur		GGTU, Banswara
			University level	Selected 11 departments	University level	Selected 11 departments	
7.	Average percentage of teachers attending professional development programs during 2014-19	40% and above	1	-	Could not comment	-	0
8.	Average percentage of applications for revaluation leading to change in marks during 2014-19	5% and below	Could not comment	-	Could not comment	-	Could not comment

3.1.2.2 Use of ICT in teaching and availability of ICT related infrastructure

GoI's National Mission on Education through ICT (NMEICT) prescribes the three-cardinal principles as providing connectivity to all colleges and universities, providing low cost and affordable access-cum-computing devices to students and teachers and providing high quality e-content free of cost to all learners in the country.

Paragraph 21.265 of Twelfth FYP puts focus on use of ICT in higher education by providing smart classrooms and setting up classrooms with interactive video-conferencing facilities linking Meta universities[36] and affiliating universities. State Government also provides grants to government colleges for setting up of smart classrooms. Further, NAAC Manual also states that technological advancement and innovations in educational transactions have to be undertaken by all HEIs, to make a visible impact on academic development as well as administration. Effective use of ICT in HEIs will be able to provide ICT literacy to the campus community, using ICT for resource sharing and networking, as well as adopting ICT-enabled administrative processes.

The position of number of teachers using ICT, number of ICT enabled classrooms and Student Computer Ratio in test checked HEI during 2018-19 is given in ***Table 3.3*** below. :

36 Meta University allows a student to benefit from access to faculty, library and laboratory of multiple institutes while pursuing a degree.

Table 3.3: Teachers using ICT for teaching during 2018-19

Name of HEIs	Teachers using ICT		ICT enabled classrooms		Student Computer Ratio		
	Total no. of teachers	No. of teachers using ICT	Total no. of classrooms	No. of ICT enabled classrooms	Total no. of students enrolled	No. of computers in working conditions	Student Computer Ratio
UoR, Jaipur	544	149 (27.39%)	153	19 (12.41%)	10,654	451	24:1
JNVU, Jodhpur	140	62 (44.29%)	51	3 (5.88%)	999	0	-
GGTU, Banswara	09*	1 (11.11%)	10	1 (10%)	51	0	-
Government colleges[37]	766	166 (21.67%)	684	58 (8.48%)	78,919	564	140:1
Private colleges[38]	457	136 (29.76%)	461	89 (19.31%)	11,482	502	23:1

*Source: Information provided by concerned university. *All were part time teachers*

It can be seen from above table that:

- Only 5.88 *per cent* to 19.31 *per cent* classrooms/seminar halls were ICT enabled in test checked HEIs in which 11.11 *per cent* to 44.29 *per cent* teachers used ICT teaching methods during 2018-19.
- Student Computer Ratio ranged from 23:1 to 140:1 in these test checked HEIs except JNVU, Jodhpur and GGTU, Banswara where no computers were available for students during 2018-19.

UoR, Jaipur stated (January 2021) that corrective action would be taken in this regard.

(i) ***Student Survey Result***: In response to survey question *"Express your satisfaction on teaching methods/techniques used in your institution on ICT based teaching (PPT/videos etc.)?"* approximately 55 *per cent* of the students out of 1,445 students of UoR, Jaipur; JNVU, Jodhpur and 34 test checked college where faculty utilized ICT tools were either dissatisfied or were only partially satisfied.

3.1.2.3 Availability and quality of Faculty

Paragraph 7.1.2 of Report on 'Inclusive and Qualitative Expansion of Higher Education' issued under Twelfth FYP stated that shortage of quality faculty

37 Though ICT enabled classrooms were available in 24 government colleges but teachers of 20 colleges only used ICT teaching methods.

38 Though ICT enabled classrooms were available in 17 private colleges but teachers of 14 colleges only used ICT teaching methods.

coupled with lack of faculty mobility across regions is a major constraint in the development of Indian higher education system.

As per NAAC manual, aspects that determine quality of teacher/faculty includes availability of teachers, qualification of teachers, teachers' characteristics, professional development and recognition of teaching ability.

(A) Availability of teachers

Objective 4 of *Rashtriya Uchchatar Shiksha Abhiyan* (RUSA) scheme aims to ensure adequate availability of quality faculty in all HEIs. Under RUSA, States can claim funds for additional posts of faculty to enable them to achieve the Student Teacher Ratio[39] (STR) 20:1, if all the vacant sanctioned posts are filled by the State. Moreover, as per Rajasthan Higher Education Plan (2015-22), State Government had also fixed the goal of STR at 20:1 by filing up of all sanctioned posts in government general, Sanskrit and technical education colleges and universities.

(a) Availability of teaching staff at state level in government colleges

The position of sanctioned strength, working strength and vacancy of teachers and enrolment of students in government colleges at the state level during 2014-19 is given in ***Table 3.4*** below.

Table 3.4: Availability of teaching staff in government colleges at state level

Year	Enrolment in government colleges	Availability of teachers			Student Teachers Ratio with respect to	
		Sanctioned strength	Working strength	Vacant post	working strength of teachers	sanctioned strength of teachers
2014-15	3,48,438	5,723	4,362	1,361 (23.78)	80:01	61:01
2015-16	3,64,818	5,875	4,201	1,674 (28.49)	87:01	62:01
2016-17	3,72,870	5,957	3,880	2,077 (34.87)	96:01	62:01
2017-18	3,74,949	6,295	3,907	2,388 (37.93)	96:01	60:01
2018-19	3,95,346	6,637	4,640	1,997 (30.09)	85:01	60:01
Average	**3,71,284**	**6,097**	**4,198**	**1,899 (31.15)**	**88:01**	**61:01**

Source: As per information provided by Commissioner, College Education and Administrative Report of Higher Education department

It can be seen that:

39 Student-teacher ratio is the number of students who enrolled in an institution divided by the number of teachers in the institution.

- At state level, the STR in government colleges with respect to sanctioned strength of teachers ranged between 60:1 and 62:1 during 2014-19 as against the prescribed STR of 20:1.
- Further, the State Government did not even recruit teachers in government colleges up to their sanctioned strength resulting in average 31.15 *per cent* posts of teachers lying vacant (ranged between 23.78 *per cent* and 37.93 *per cent*) during 2014-19. This resulted in an adverse STR of 88:01 (ranged between 80:1 and 96:1) on average at the state level.

The State Government stated (August 2020) that procedure for recruitment of Assistant Professor is under process and advertisement for recruitment of 920 Assistant Professor had been published in November 2020 by Rajasthan Public Service Commission.

(b) Student Teacher Ratio in the test checked HEIs in 2018-19

The position of STR in UG and PG programs in Arts, Science and Commerce stream in 2018-19 in test checked universities, government colleges and private colleges are depicted in ***Chart 3.4, 3.5 and 3.6*** respectively.

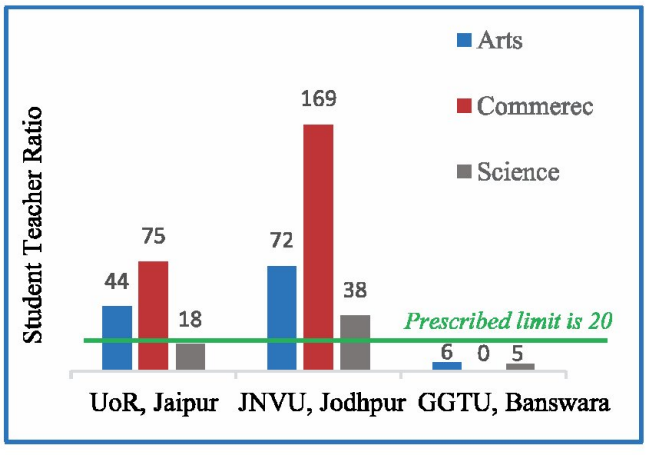
It can be seen that:

(i) In test checked universities:

- STR in all streams in JNVU, Jodhpur and in Arts and Commerce stream in UoR Jaipur in 2018-19 was higher than the prescribed limit of 20:1.

UoR, Jaipur stated (January 2021) that action would be taken for seeking permission from State Government for recruitment of teachers on vacant posts.

Chart 3.4: STR of Universities



- In GGTU, Banswara though STR was within the prescribed limit, but full time teachers were not posted in the university during 2018-19. Shortage of regular qualified teaching staff seems to have adversely impacted the quality of higher education being provided to the students as out of 37 students who appeared in final year examination in 2018-19, none of the students passed with first division and only 12 (32 *per cent*) students passed with second division.

  The State Government sanctioned 30 posts of teaching staff during 2012 but due to non-framing of recruitment rules by the university, it could not

recruit regular teaching staff as of October 2020. GGTU, Banswara accepted the facts.

(ii) In test checked colleges:

Chart 3.5: STR of Government colleges

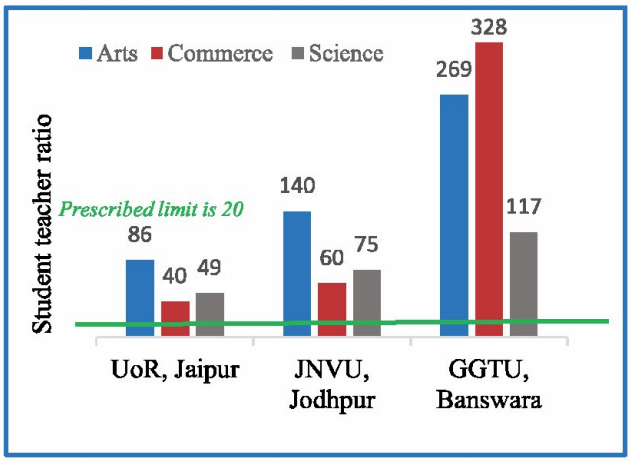
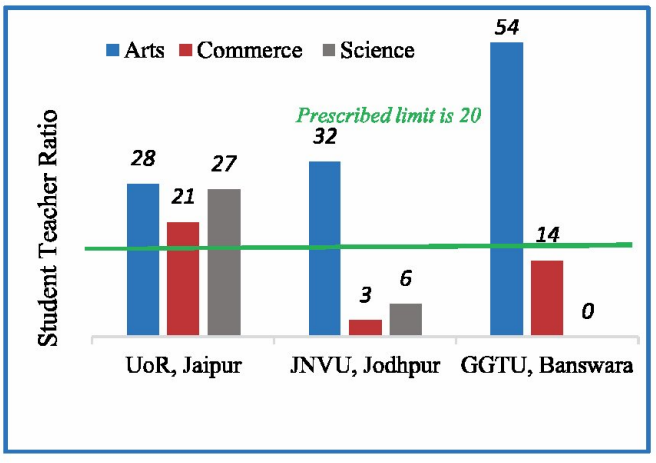


Chart 3.6: *STR of Private colleges*



- ***Chart 3.5*** shows that the STR was higher than the prescribed limit in all three streams of test checked government colleges during 2018-19 particularly in government colleges affiliated with GGTU, Banswara. Further, it was also observed that in three government colleges[40] affiliated with GGTU, Banswara though 528 students were enrolled in different classes during 2015-19, no faculty was available during 2018-19. Similarly, ***Chart 3.6*** shows that STR was higher than prescribed limit in all streams in test checked private colleges affiliated with UoR, Jaipur and in Arts stream in test checked private colleges affiliated with both JNVU, Jodhpur and GGTU, Banswara.

As already discussed in ***Paragraph 2.2*** of chapter II, the fact that less than a quarter of the students passed with first division/above B^+ grade during 2018-19 is indicative of the adverse effect on quality of teaching on account of insufficient faculty. Since faculty are the primary medium of imparting instructions in HEIs, their shortage would have hampered the development of students and arrested their employability potential, putting a question mark on their success in future.

(B) Availability of teachers with minimum prescribed qualifications

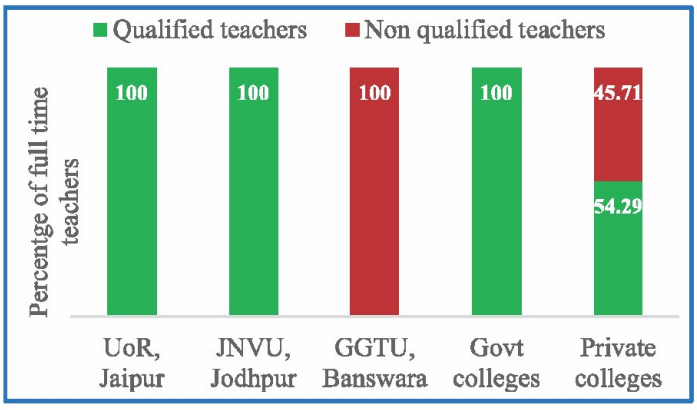
Paragraph 3.4.4 of UGC (Affiliation of Colleges by University) Regulations, 2009 prescribes that the number of teaching posts, qualification of teaching staff and their recruitment/promotion procedure shall be as prescribed by UGC and condition of the services shall be in accordance with the Statutes/Ordinance/ Regulation of the University/state Government/UGC.

40 Haridev Joshi Government Girls College, Banswara: no faculty was available for Commerce students since 2015-16; Bhogi Lal Pandya Govt. College, Dungarpur: no faculty was available for Commerce Students in 2018-19 and MBD Govt. College, Kushalgarh: no faculty was available for Science stream in 2018-19.

In this context, Handbook of UoR, Jaipur and Ordinance issued (September 2011) by JNVU, Jodhpur prescribes the minimum qualification for teachers as Master's degree with minimum 55 *per cent* marks and clearing National Eligibility Test (NET).

The position of full-time teachers having minimum qualification in test checked HEIs during 2018-19 is depicted in ***Chart 3.7*** below:

Chart 3.7: Full time teachers having minimum qualification



It can be seen that no full time teacher was posted in GGTU, Banswara and 45.71 *per cent* teachers[41] in test checked private colleges did not possess prescribed NET qualification. Commissionerate College Education stated (August 2020) that qualification of teachers posted in nine selected private colleges affiliated with JNVU, Jodhpur are being checked. UoR, Jaipur stated (January 2021) that affiliated colleges would be instructed to ensure availability of teachers possessing prescribed qualification.

Thus, private colleges did not comply with UGC norms regarding basic qualification requirement in private colleges. This not only adversely impacted the quality of teaching being imparted in these colleges but also raises questions about the diligence of universities regarding procedure of inspection of affiliated colleges.

(C) Full time teachers with PhD

Scrutiny of information provided by the selected HEIs revealed the following:

(i) ***Universities and constituent colleges:*** On an average 47 *per cent* (ranging from 43 *per cent* to 51 *per cent*) full time teachers had completed PhD in UoR, Jaipur and two selected constituent colleges during 2014-19. Though, JNVU, Jodhpur did not maintain such data during 2014-17, on an average 91 *per cent* of full-time teachers had completed PhD in the university and one constituent college during 2017-19. No full-time teacher was posted in GGTU, Banswara during 2014-19.

41 41 *per cent* teachers in 12 out of 16 test checked private colleges affiliated with UoR, Jaipur, 44 *per cent* teachers in two out of nine private colleges affiliated with JNVU, Jodhpur and 73 *per cent* teachers in all five private colleges affiliated with GGTU, Banswara.

(ii) Test checked government and private colleges:

- Only 12 test checked government colleges affiliated with JNVU, Jodhpur provided details for the entire period of 2014-19, according to which on an average 67.48 *per cent* full time teachers had completed PhD. Remaining 24 test checked government colleges affiliated with UoR, Jaipur and GGTU, Banswara provided such information for the year 2018-19 only which showed that 65.39 *per cent* full time teachers had completed PhD.

- Similarly, only nine test checked private colleges affiliated with JNVU, Jodhpur provided details for the entire period of 2014-19 according to which on an average 40.68 *per cent* full time teachers had completed PhD. Remaining 21 test checked private colleges affiliated with UoR, Jaipur and GGTU, Banswara provided such information for the year 2018-19 only which showed that 30.45 *per cent* full time teachers had completed PhD.

(D) Full time teachers who received awards, recognition, fellowships

Faculty motivation is crucial to improve academic quality. Scrutiny of information provided by the selected HEIs revealed the following.

(i) Universities and constituent colleges: Only 14 *per cent* (32 out of average 234 teachers) full time teachers in selected 11 departments of UoR, Jaipur and two constituent colleges, 16 *per cent* (25 out of average 154 teachers) full time teachers in selected 11 departments of JNVU, Jodhpur and one constituent college have received awards, recognition, fellowships at state, national, international level from government and recognized bodies during 2014-19.

***(ii) Test* checked government and private colleges:** Only one full time teacher in one[42] out of 36 test checked government colleges received one award from State Government during 2014-19. None of the full- time teachers in 30 test checked private colleges received awards, recognition, fellowships at state, national, international level from Government, recognized bodies during 2014-19.

Thus, the fact that the work of very few teachers was acknowledged through awards, recognition etc., in test checked colleges indicates that the environment in which the faculty worked was not motivating enough to deliver high standards of teaching.

(E) Teachers provided with financial support to attend conferences/ workshops

Scrutiny of information provided by the selected HEIs revealed the following:

42 Affiliated with GGTU, Banswara

(i) Universities and constituent colleges: None of the teachers were provided financial support to attend conferences/workshops and membership fee of professional bodies in any of the three test checked universities and three constituent colleges during 2014-19.

(ii) Test checked government and private colleges: Audit found that 29 out of 36 test checked government colleges affiliated with UoR, Jaipur and JNVU, Jodhpur did not maintain such information while none of the teachers was provided financial support to attend conferences/workshops in remaining seven test checked government colleges affiliated with GGTU, Banswara during 2014-19. None of the teachers was provided such financial support in 30 test checked private colleges during 2014-19.

Thus, it can be concluded that none of the test checked HEIs made efforts towards continuous professional development of teachers by encouraging faculty to attend conference/workshops.

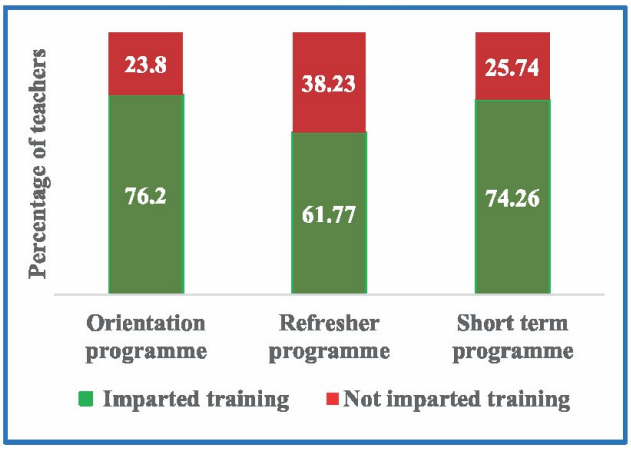
3.1.2.4 Professional Development Training of faculty

Paragraph 7.1.3 of Report on 'Inclusive and Qualitative Expansion of Higher Education' issued under Twelfth FYP states that faculty development initiatives could include areas like entry level orientation, curriculum development, teaching and learning, research and innovation, engagement with social concerns and leadership development. Customized faculty development programmes may also be introduced on a large scale.

Further, as per NAAC Manual, teachers need to take initiative to learn and keep themselves abreast with the latest development, to improve, continuous improvement in their work and strive for individual and institutional excellence.

(A) State level status

Chart 3.8: Percentage of teachers who took part in training programmes



Commissioner, College Education conducts professional development programmes *viz.* orientation program, refresher course and short term course for teachers posted in government colleges in the State. It was observed that 1,789 (67.77 *per cent*) against target of 2,640 teachers of government colleges attended professional development programmes during 2014-19. The

programmes wise position of teachers' imparted training in such programmes during 2014-19 is given in ***Chart 3.8.***

(B) At test checked HEIs level

Scrutiny of information provided by the selected HEIs revealed the following:

(i) Universities and constituent colleges:

- On an average 14 *per cent* teachers (75 out of 524 teachers) attended professional development programmes in UoR, Jaipur and two constituent colleges every year during 2014-19. No regular teacher was appointed in GGTU, Banswara, hence, no teacher attended professional development programmes.

- JNVU, Jodhpur did not maintain consolidated data of teachers who attended professional development programmes. As a result, Audit had to collect such information from selected 11 departments and one constituent college. The information revealed that on average only three *per cent* teachers attended such programmes during 2014-19.

  For UoR, Jaipur, the State Government in its reply (August 2020) stated that less teachers attended trainings due to restrictions set by university on number of participants while absence of teachers in these programmes was due to other reasons.

(ii) Test checked government and private colleges:

- On an average 6.17 *per cent* teachers (41 out of 664) from 29 out of the 36 test checked government colleges attended professional development programmes every year during 2014-19.

- On an average 13.27 *per cent* teachers (41 out of 309) from two out of the 30 test checked private college attended professional development programmes every year during 2014-19.

3.1.2.5 Robust examination and evaluation system

The effectiveness of examination system of a HEI depends on regularity in conducting examinations, quality of questions and how well it actually tests the programme specific outcomes and course outcomes. A high quality evaluation system contributes towards enhancing the competence of students.

(A) Mechanism of setting of question papers:

The details of selection of question papers setter and examiners were not provided by any of the test checked universities though called for. In the absence

of which audit could not verify whether the norms/procedures[43] prescribed by the universities for setting up of question papers were followed.

GGTU, Banswara accepted the facts. JNVU, Jodhpur stated (June 2020) that every year class wise, subject wise and paper wise paper setter and examiners are appointed by an Examination Committee from a panel of examiners duly approved by Department Council and keeping in view the norms approved by the Academic Council in August 1983. However, the university did not provide details of paper setter and examiners appointed during previous years due to which audit could not verify statement of the university. As discussed in **sub para 3.1.2.5 (F) (b)** below, marks of average 96 *per cent* of the students who applied for revaluation were changed during 2017-19 which indicated operational and monitoring inadequacy in appointment of examiners and evaluation of answer books.

(B) Quality of questions in the examinations

Major policy documents dealing with higher education have highlighted that examination reforms are considered as one of the key aspects of overall academic reforms for improving the quality of higher education. Questions and assignments which form a part of the examination and evaluation system currently being followed in higher education systems largely promote rote learning rather than assessing overall competence of the student.

Through extensive consultations with higher education experts, audit identified certain important characteristics of good quality examination papers including less repetition of previous years' questions. Audit findings related to these aspects are discussed below:

- ***Questions of previous years examinations repeated in the current year***

With the aim of assessing the extent to which examination papers were encouraging rote learning, Audit compared question papers of final year examination of UG and PG programmes[44] of 2019 and identified those questions which were also asked in question papers of last 10 years (in case of GGTU, Banswara, only last two years).

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43 In UoR, Jaipur and GGTU, Banswara, question paper setters were to be selected from a panel of teachers constituted under each BoS and from a committee consisting of one Convener of BoS, one member nominated by the Vice Chancellor and Dean/Faculty of relevant programme respectively. In JNVU, Jodhpur, as per decision of Academic Council (August 1983) not more than 50 *per cent* of paper setters and examiners should be located in Jodhpur and 100 *per cent paper* setters and examiners for UG examinations should not be located beyond 1000 km from Jodhpur with in Rajasthan. Teaching experience of paper setters for PG/UG programmes should be not less than 7/5 years.

44 Selected 11 departments in UoR, Jaipur and JNVU, Jodhpur.

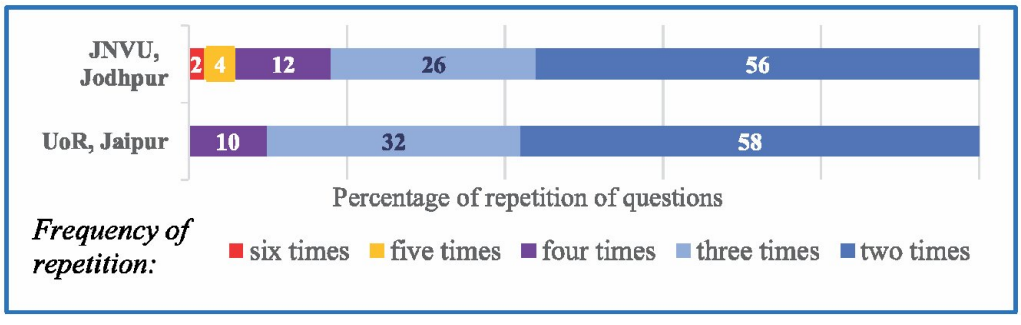
Audit compared previous years' question papers[45] of available 10 question papers of seven subjects of seven selected departments in UoR, Jaipur, 14 question papers of 10 subjects of 10 selected departments in JNVU, Jodhpur with questions papers of 2019. The results of comparison are summarised in ***Table 3.5*** below.

Table 3.5: Questions repeated in question papers of 2019 which have been included in previous years question papers

Name of university	Number of subjects of which question papers have been compared	Number of question papers examined	Total number of questions included in 2019 in these question papers	No. of questions repeated in 2019 which have been included in previous years question papers (in per cent)	No. of questions repeated in 2019 which have been included in previous three years' question papers (in *per cent*)
UoR, Jaipur	7	10	224	98 (43.75%)	53 (23.66%)
JNVU, Jodhpur	10	14	350	111 (31.71%)	64 (18.29%)
GGTU, Banswara	9	67	1,804	231 (12.80%)	-

Further, percentage of questions repeated was upto four times in UoR, Jaipur (out of 98 questions) and upto six times in JNVU, Jodhpur (out of 111 questions) as depicted in ***Chart 3.9*** below:

Chart 3.9: Relative share of repeated questions on basis of frequency of repetition



It can be seen that substantial percentage of questions were repeated three to six times in UoR, Jaipur (42 *per* cent) and JNVU, Jodhpur (44 *per cent*). Further, 46 *per cent* questions were repeated only in Sociology, Chemistry and Zoology in UoR, Jaipur and 43 *per cent* questions were repeated only in Sociology, Political Science and Economics in JNVU, Jodhpur. Interestingly, in GGTU, Banswara, seven questions in six question papers were asked twice in the same papers of 2019. GGTU, Banswara accepted the facts.

UoR, Jaipur stated (January 2021) that syllabus and copies of previous years' question papers are sent to teachers for preparation of current year's question

45 Audit collected commonly available previous years' question paper bank (UoR, Jaipur for six years and JNVU, Jodhpur for 10 years) of selected 11 departments from local markets as they were not provided by the concerned university.

paper. Teachers prepared question papers accordingly and efforts were made to avoid repetition of questions. The university has only explained the procedure of preparation of question papers. It did not elaborate upon the corrective action that it would take to avoid frequent repetition of questions.

Thus, repetition of questions and not using innovative methods indicate that the focus is still predominantly on rote learning.

(C) Status of automation of Examination wing/section

Scrutiny of information provided by three test checked universities regarding status of automation of examination wing revealed that in JNVU, Jodhpur and GGTU, Banswara all work related to examination such as receipt of examination forms, correction in examination forms, issue of admission cards, declaration of examination results, issue of mark-sheets, receipt of application forms for revaluation and declaration of result thereof are fully computerized.

However, UoR, Jaipur intimated that examination wing is partially automated. Activities such as sending of question papers, issue of mark-sheets/degree, payments to examiners and verification of examination documents are being carried out through non-automated mode.

(D) Delays in declaration of examination results

Timely declaration of results is extremely important, especially for graduating students as many of their post-study opportunities such as employment, further studies, enrolment in competitive exams etc., are dependent upon their performance in the examinations. Any delay in declaration has the potential to adversely impact the future of such students.

In the meeting (05 May 2015) of all Vice Chancellors of state Universities chaired by the Hon'ble Chancellor it was decided that results of all regular examinations should be declared by 07 July of each year and results of revaluation should be declared within one month from date of application for revaluation. Further, amended Ordinance 157-A of Hand Book of the UoR Jaipur also reiterated that result of revaluation should be declared within 30 days from date of application for revaluation.

Scrutiny of information provided by three test checked universities revealed that:

(i) **UoR, Jaipur:** Though the university did not prepare any annual schedule of dates of declaration of results of examination it claimed that results of examination were declared without any delay during 2014-19. However, it was observed from website of university that results of PG exam were

declared[46] with delays of two to four months from July of each year during 2016-19.

Further, the results of revaluation were declared by the university with a delay[47] ranging from 27 days to 116 days beyond one month from receipt of application during 2017-19 (details given ***Appendix 3.2***).

UoR, Jaipur stated (January 2021) that due to unavoidable reasons results were declared with delay in some cases and efforts would be taken to avoid such delays.

(ii) JNVU, Jodhpur: The university prepared an academic calendar mentioning dates of examinations and declaration of results every year, it declared results of UG examination during 2014-19 with a delay[48] ranging from six days to 34 days beyond due dates.

(iii) GGTU, Banswara: The university declared results of examination within the dates prescribed[49] in examination schedule during 2017-19.

(E) Student Attendance norms for appearance in examinations

In the meeting (5 May 2015) of all Vice Chancellors of State Universities it was decided that adherence of 75 *per cent* attendance norms should be ensured.

Scrutiny of information provided by the three test checked universities revealed the following:

(i) UoR, Jaipur: Hand Book Part-II (Vol-II) of UoR, Jaipur also reiterated that minimum 75 *per cent* attendance is required in each subject (theory and practical) for appearing in the examination.

Scrutiny of attendance registers of 1,477 students enrolled in Chemistry, Physics and Economics departments of UoR (selected classes) and its two constituent colleges for the period 2017-20 revealed that only 26 students (1.76 *per cent*) out of 1,477 students attended prescribed minimum 75 *per cent* classes as per details given in ***Table 3.6*** below.

46 Results of examination of PG programmes 2016 were declared upto November 2016, results of 2017 upto October 2017, results of 2018 upto September 2018 and results of 2019 upto September 2019.

47 Delay in declaration of results of revaluation have been calculated from date of declaration of examination results by allowing 15 days for filling of application form and 30 days for revaluation of answer sheets.

48 Results were declared with delay of six days beyond prescribed date of 30.06.2015 in 2014-15, delay of 15 days beyond 30.06.2016 in 2015-16, delay of 24 days beyond 10.06.2017 in 2016-17, delay of 34 days beyond 25.05.2018 in 2017-18 and delay of 29 days beyond 25.05.2019 in 2018-19.

49 Results of 2017-18 were declared during 01 May to 20 July 2018 against expected dates of declaration during 10 May to 31 July 2018 and results of 2018-19 were declared during 01 May to 27 June 2019 against expected dates of declaration during 1 May to 30 June 2019.

Table 3.6: Number of students in UoR who did not attend minimum prescribed classes

Year	Classes conducted	Minimum requirement for exams (75 % attendance)	Students whose attendance was checked	No. of students who did not attend minimum classes
2017-18	921	683	609	588 (96.55%)
2018-19	861	642	693	690 (99.57%)
2019-20	227	170	175	173 (98.86%)
Total	**2,009**	**1,495**	**1,477**	**1,451 (98.24%)**

UoR, Jaipur stated (January 2021) that as per ordinance of the University, minimum 75 *per cent* attendance was compulsory to appear in the examination and these norms were being followed. In case any department provided information in this regard, appropriate action will be taken. However, the university did not intimate whether these 1,477 students were allowed to appear in the examination or not.

(ii) JNVU, Jodhpur: As per Ordinance 78-A of Hand Book of JNVU Jodhpur, all regular candidates in the faculties of Arts, Education & Social Sciences and Commerce should have attended at least 70 *per cent* of the lectures delivered and the tutorials held taken together as well as practical and sessional from the date of her/his admission.

To assess the compliance to attendance norms, Audit requested the university to provide attendance registers. Scrutiny of attendance register of MA (Hindi) Semester-III for the year 2017-18 (made available by the university) revealed that attendance of all 48 students was more than 75 *per cent*.

(iii) GGTU, Banswara: The University informed that all students were meeting the minimum 75 *per cent* of the norms of attendance required for appearing in examinations.

(F) Evaluation and Revaluation process:

Revaluation in an examination system refers to the rechecking of the answer sheets on the request of the students who believe that the result they obtained is not commensurate with their own expectations.

(a) Centralised Evaluation Norms:

In the meeting (5 May 2015) of all Vice Chancellors of State universities it was decided that centralised evaluation method should be followed in all state universities excluding technical & agriculture universities. Further, maximum 50 answer books should be given to each teacher (maximum 5 hours duty) for evaluation.

In this regard it was observed that:

Centralised evaluation is being done only for UG final year examination in UoR,

Jaipur due to non-availability of adequate examiners. JNVU, Jodhpur and GGTU, Banswara did not adopt centralised evaluation method and answer books of the examination were being delivered to examiners in a non-centralised manner for evaluation.

(b) Revaluation of Answer Books

In UoR, Jaipur, as per hand book of the university, revaluation of answer books shall be permissible in not more than 25 *per cent* of the theory papers in which a candidate actually appeared at an examination. Further, on the request of affiliated private colleges, number of papers to be revaluated were relaxed from 25 *per cent* to 50 *per cent* for 2017 only.

In JNVU, Jodhpur, as per rules, revaluation of answer books shall be permissible in not more than 50 *per cent* of the theory papers subject to a maximum of three papers where total number of papers is six and a maximum of four papers where total number of papers is more than six.

As per information provided by test checked universities, the details regarding revaluation of answer books in UoR, Jaipur and JNVU, Jodhpur during 2016-19 and in GGTU, Banswara during 2017-19, are given in ***Table 3.7*** below.

Table 3.7: Position of revaluation of answer books

Name of University	Program Type	Number of students appeared for examination			Number of students applied for revaluation			Students whose marks changed after revaluation			Students whose results changed post revaluation (fail to pass)		
		2016-17	2017-18	2018-19	2016-17	2017-18	2018-19	2016-17	2017-18	2018-19	2016-17	2017-18	2018-19
UoR, Jaipur	UG	4,48,789	5,36,319	4,39,133	46,475	94,058	63,855	12,885	22,973	15,294	7,174	12,705	8,927
	PG	NA	1,36,017	1,08,510	NA	13,615	8,525	NA	4,007	2,508	NA	669	458
	Total	**4,48,789**	**6,72,336**	**5,47,643**	**46,475 (10%)**	**1, 07,673 (16%)**	**72,380 (13%)**	**12,885 (28%)**	**26,980 (25%)**	**17,802 (25%)**	**7174 (15%)**	**13,374 (12%)**	**9,385 (13%)**
JNVU, Jodhpur	UG	128129	128943	125957	16926	17088	20145	16091	16406	19258	NA	NA	NA
	PG	17601	12768	12429	2329	1409	1794	2184	1345	1766	NA	NA	NA
	Total	**1,45,730**	**1,41,711**	**1,38,386**	**19,255 (13%)**	**18,497 (13%)**	**21,939 (16%)**	**18,275 (95%)**	**17,751 (96%)**	**21,024 (96%)**	NA	NA	NA
GGTU, Banswara	UG	-	33,205	61935	-	998	3142	-	641	2064	-	161	249
	PG	-	4,110	6654	-	404	487	-	333	370	-	41	18
	Total	-	**37,315**	**68,589**	-	**1,402 (4%)**	**3,629 (5%)**	-	**974 (69%)**	**2,434 (67%)**		**202 (21%)**	**267 (11%)**

Source: As per information provided by concerned university) *NA- Not available*

It can be seen that marks of average 26 *per cent* students (ranging from 25 *per cent* to 28 *per cent*) in UoR, Jaipur, average 96 *per cent* students (ranging from 95 *per cent* to 96 *per cent*) in JNVU, Jodhpur and average 68 *per cent* students (ranging from 67 *per cent* to 69 *per cent*) in GGTU, Banswara who applied for revaluation, were changed after revaluation.

Thus, high percentage of changes in the answer books during revaluation, especially when it leads to change of result from fail to pass, suggests that the

evaluation systems followed by three test checked universities particularly in JNVU, Jodhpur and GGTU, Banswara are not adequate and effective and there is need to revamp the entire evaluation system.

Student Survey Results: In response to student satisfaction survey question "*Are you satisfied with the examinations and evaluation process with reference to reassessment/re-evaluation practices in your institution*?" approximately 27 *per cent* students stated that they were dissatisfied/Partially satisfied and 73 *per cent* students stated that they were highly satisfied/satisfied.

3.2 Contribution to Society by creating new knowledge through effective Research

Research capacities[50] need to be consciously developed in the colleges. Colleges and their teachers should be encouraged and supported in taking up research including generation of innovative teaching-learning material. Multi-disciplinary mission mode research and innovation programmes should be evolved in association with arts, humanities and social sciences which should directly benefit the society at all levels and contribute to economic development.

In this section, audit findings and results of aspects related to research projects and extension activities in the test checked HEIs are discussed. Further, results of selected four indicators (three related research activities and one related to extension activities) are also being discussed. These indicators have been taken from the key indicators used by NAAC during assessment and accreditation process of HEIs.

3.2.1 Issues related to Research Activities

3.2.1.1 Performance of universities based on outcome indicators

Audit assessed performance of three test checked universities in effective research activities through following three outcomes indicators on the basis of NAAC benchmarks. The information is provided in ***Table 3.8*** below (Details of indicators are given at Sl. Nos. 22 to 24 in ***Appendix-1.1***), Audit findings in respect of these indicators are discussed in the succeeding paragraphs.

50 As per paragraph 7.1 of Report on 'Inclusive and Qualitative Expansion of Higher Education' issued under Twelfth FYP.

Table 3.8: Performance of test checked universities with respect to indicators

Sl. No.	Outcomes indicators	NAAC benchmark for maximum four marks	Performance of the test checked universities with reference to NAAC benchmarks (marks[51] obtained)				
			UoR, Jaipur		JNVU, Jodhpur		GGTU, Banswara
			University level	Selected 11 departments	University level	Selected 11 departments	
1.	**Number of patents awarded to the institution during 2014-19**	20 and above	0	Not applicable	0	Not applicable	0
2.	**Number of research papers per teacher in the journals notified on UGC website during 2014-19**	10 and more	Could not comment	1	Could not comment	1	0
3.	**Number of teachers awarded international fellowship for advanced studies/research during 2014-19**	40% and above	Could not comment	0	Could not comment	0	0

3.2.1.2 Volume of research grant, research projects undertaken and patents awarded to test checked HEIs

Paragraphs 7.1 and 7.1.19 (a) of Report on 'Inclusive and Qualitative Expansion of Higher Education' issued under the Twelfth FYP states that adequate funding and initiatives/schemes need to be developed for research activities in HEIs.

As per UGC guidelines the major base of researchers in science and technology remains with the universities and colleges and NAAC manual also envisages that the institutions have responsibility to enable faculty to undertake research projects useful to society.

Information provided by test checked HEIs revealed that they receive research grants only from government sources such as UGC, Department of Science & Technology (DST), Department of Bio-Technology (DBT) and GoR etc., under various projects. The position of receipt of research grants from government sources, research activities under taken and research outcomes during 2014-19 in test checked HEIs is given in ***Table 3.9*** below:

51 Marks have been allotted by Audit as per university's performance on selected indicators and comparing it with benchmarks derived by analysing scoring pattern of universities accredited by NAAC (Appendix 1.3)

Table 3.9: Position of receipt of research grants from government sources and research outcomes

(₹ in crore)

Name of HEIs	Grants received from Govt sources	Utilization of grants	Number of research projects undertaken	Number of research projects completed	Number of patents awarded	Number of consultancies given by the university
UoR, Jaipur	96.98	84.34 (86.97%)	87	34	0	0
JNVU, Jodhpur	1.23	0.77 (62.60%)	14	0	0	0
GGTU, Banswara	0	0	0	0	0	0
Government colleges (10 out of 36)	0.60	0.34 (56.67%)	14	13	0	0
Private colleges (1 out of 30)	0.65	0.37 (56.92%)	25	25	0	0
Total	99.46	85.82 (86.29%)	140	72	0	0

Source: Information provided by concerned universities

It can be seen that:

- The research activities in JNVU, Jodhpur and UoR, Jaipur were not carried out satisfactorily as none of the 14 research projects in JNVU, Jodhpur and 39 *per cent* research projects were completed in UoR, Jaipur. It was further observed that in UoR, Jaipur total grants worth ₹184.05 crore was approved to the university for undertaking these 87 research projects but due to non-utilization of grants/non-submission of utilization certificates of grants by the university it could receive ₹96.98 crore. Thus, the university not only failed to fully utilize the grants received but was also deprived of remaining grants of ₹ 87.07 crore. Details of some instances in which grants were not utilized fully have been discussed in **Paragraph 3.2.1.5 (C)**.
- Further, though 51 *per cent* projects were completed in test checked HEIs during 2014-19, no patent was awarded to these HEIs and no consultancy was given by these HEIs. UoR, Jaipur accepted (January 2021) the facts.

3.2.1.3 Teachers' contributions to research in HEIs

(A) Number of research papers published per teacher

The strategic framework of Twelfth FYP seeks to bring excellence in higher education by building synergies between teaching and research to promote excellence in both. Research acumen in an institution is an evolving feature

reflecting various research output with clear rewards such as doctoral, post-doctoral, project inventions and discoveries, number of patents obtained and number of research publications.

Further, the NAAC during accreditation of an institution allots scores for number of research papers per teacher published in UGC notified Journals and number of books and chapters in edited volumes/books published per teacher.

The details of number of research papers published in UGC notified Journals and number of books and chapters published in edited volumes/books in test checked HEIs during 2014-19 is given in ***Table 3.10*** below:

Table 3.10: Number of research papers published and number of books and chapters in edited volumes/books published

Name of HEIs	Average number of full time teachers during 2014-19	No. of teachers, who were given seed money for research during 2014-19	Papers published in UGC notified journals during 2014-19		Books & chapters in edited volumes/published and papers in national/international conference proceedings	
			Total number of papers published	Number of paper published per teacher	Total number of Books & chapters in edited volumes/ published	Number of Books & chapters in edited volumes/ published per teacher
1	2	3	4	5 (col 4/col 2)	6	7 (col 6/col 2)
UoR, Jaipur	234	0	806	3.44	298	1.27
JNVU, Jodhpur	154	0	417	2.71	30	0.19
GGTU, Banswara	0	0	0	0	0	0
Government colleges	665	30	255	0.38	474	0.71
Private colleges	309	0	0	0	0	0

Source: Information provided by concerned university

It can be seen that:

- On an average 0.38 to 3.44 papers per teacher were published in UGC notified Journals and 0.71 to 1.27 books & chapters in edited volumes/books and papers in national/ international conference proceedings per teacher were published in UoR, Jaipur; JNVU, Jodhpur and 36 test checked government colleges. No research papers were published in UGC notified Journals, no books and chapters were published in edited volumes/books and no papers were published in national/international conference proceedings in all 30 test checked private colleges during 2014-19.

- No seed money was provided to any teachers of all test checked universities while it was provided to 30 teachers only of test checked government colleges.

(B) Number of teachers awarded international fellowship

(i) Universities and constituent colleges: None of the 388 full time teachers posted in UoR, Jaipur and JNVU, Jodhpur were awarded international fellowship for advanced studies/research during 2014-19.

(ii) Test checked government and private colleges: None of the 29 test checked government colleges affiliated with UoR, Jaipur and JNVU, Jodhpur maintained such information, while no teacher posted in seven test checked government colleges affiliated with GGTU, Banswara was awarded international fellowship for advanced studies/research during 2014-19. Further, none of the teachers posted in 30 test checked private colleges was awarded international fellowship for advanced studies/ research during 2014-19.

3.2.1.4 Delay in evaluation/examination of thesis of PhD Students in UoR, Jaipur

As per modified Ordinance 124 (10.15) of Hand book of UoR, the entire process of PhD thesis should be completed within a period of six months from the date of submission of thesis.

Audit observed that 72 thesis submitted by PhD students were pending for evaluation/examination with the examiners since 2007 to 2019, of these 11 thesis were pending for evaluation/examination for more than five years, 18 were pending for three to five years and 43 were pending for one to three years as of March 2019. The reasons for pendency mainly included not deciding the dates for viva-voce (40 cases), not sending the panels (nine cases), not sending the report (four cases) by the supervisors, etc. UoR, Jaipur stated (January 2021) that efforts would be taken in accordance with University Ordinance.

Such delays point toward a serious systemic problem plaguing UoR, Jaipur which not only undermines the research efforts of all those involved but more crucially, stalls the progress of students involved in these academic endeavors.

3.2.1.5 Other findings relating to research projects

(A) Non-adherence of minimum standards for appointing Research Supervisors in GGTU, Banswara

As per UGC norms (May 2016) a Research Supervisor should be a regular Professor of the university/college concerned with at least five research publications in referred journals or a regular Associate/Assistant Professor of the university/college concerned with a PhD degree and at least two research publications in referred journals. External faculty should not be appointed as Research Supervisors. Further, there shall be a Research Advisory Committee or an equivalent body in the university to review the research proposal and finalize research topics, to guide the research scholar in developing study design and methodology of research and to review periodically and assist in the progress of the research work of the research scholar.

Scrutiny of records of GGTU, Banswara revealed that the university registered 230 Research Scholars under 72 Research Supervisors in 2018-19. 30 (41.67 *per cent*) out of 72 Research Supervisors were appointed from retired teachers and private institutions. They were not regular teachers of the university/ its affiliated government colleges. Though remaining 42 Research Supervisors were appointed from teachers of government colleges, details of their research publications in referred journals were not provided to Audit, due to which their eligibility for being appointed as Research Supervisors as per UGC norms could not be ascertained.

Further, the university did not establish a Research Advisory Committee or any other equivalent body for review of the research work and to suggest corrective measures. The university also failed to maintain the records of research scholars under each supervisor. GGTU, Banswara accepted the facts.

(B) Non completion of "Start Up Research Projects"

UGC sanctioned "Start Up" grant of ₹ 36 lakh for research projects[52] to six newly recruited Assistant Professors in Science department of JNVU, Jodhpur in 2014-15. The research projects were to be completed within three years.

Audit observed that all six projects were not completed as of January 2020 even after lapse of 22 months from the stipulated period of their completion. Moreover, due to non-submission of UCs for utilization of grants to UGC for all six projects, Audit could not ensure how much grants were utilized for the intended purposes. Further, due to non-completion of projects, intended objectives of the research could not achieved. Reasons for non-completion of 'start up research projects' though called for (February 2020) were not provided by the university.

(C) Failure to avail research grants by the UoR, Jaipur

Audit scrutinized 22 research projects in UoR, Jaipur in which research grants of ₹ 61.76 crore was sanctioned by different government sources[53] during 2014-19. Of these the sanctioning authorities released initial grant of ₹ 15.58 crore to the university and as per sanction letters subsequent instalment of grants were to be released on submission of UCs of the initial grants.

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52 Studies on Development and Validation of Novel Electrochemical Sensors for Monitoring and Determination of Heavy Metals in Industrial Effluents; Molecular Characterization and in vitro studies of Cordia myxa of Arid and Semi-Arid Region of Rajasthan; Synthesis of lead based Silicate material and study of their structural, electric, thermal and magnetic properties; Detection and elimination of Fluoride and Nitrate from drinking water of Barmer district; Molecular characterization and micro morphological studies on selected edible Cucurbits of Rajasthan and Structure –Reactivity Correlation in some Electron Transfer Reactions.

53 UGC under (UGC- Special Assistance Program), Department of Science & Technology (DST) under (Promotion of University Research and Scientific Excellence and Sophisticated Analytical Instrument Facilities) and Department of Bio-Technology (DBT) under (Interdisciplinary Program of Life Sciences)

Audit observed that out of ₹15.58 crore, the university could utilize only ₹11.23 crore on research projects ***(Appendix 3.3)*** and it also did not submit related UCs to the sanctioning authorities due to which further grants were not released. Thus, the university not only missed the opportunity of availing further grants of ₹ 46.18 crore but the research projects were also not completed. When enquired (October 2020), UoR, Jaipur did not provide information regarding number of research scholars who were deprived of research activities due to non-availing of these grants.

Further, in one case, Department of Science & Technology (DST) released ₹ two crore to the university for purchase of instruments under the Sophisticated Analytical Instrument Facilities programme. The university could not purchase the required equipment within the prescribed period of 2013-18 and had to return the entire grant of ₹ two crore to DST. Director, UGC Infonet Center (UoR) replied that the equipment could not be purchased due to non-creation of web-portal and non-constitution of Facility Management Committee till 2016, however, the centre did not inform the specific reasons for not purchasing the equipment even after the Facility Management Committee was constituted in September 2017.

UoR, Jaipur while accepting the facts stated (January 2021) that effort would be made to utilize sanctioned grants with in time in future.

3.2.2 Extension activities in collaboration with industry, community etc., and student participation

Learning activities have a visible element for developing sensitivities towards community issues, gender disparities and social inequity and in inculcating values and commitment to society. Affiliation and interaction with groups or individuals who have an interest in the activities of the institution and the ability to influence the actions, decisions, policies, practices or goals of the organization leads to mutual benefit to both.

In order to assess the extent to which industry has been consulted or has provided sponsorship and funding, in a collaborative environment, the efforts made by test checked universities in conducting extension and outreach programmes conducted in collaboration with industry, community and NGOs (NCC/NSS/Red Cross etc.) and number of students participating in these activities have been scrutinized.

Scrutiny of information provided in this regard by the test checked three universities and 36 government colleges revealed the following:

(i) Universities and constituent colleges:

- Two extension and outreach programmes (National Service Scheme[54] and National Cadet Corps[55]) were conducted in two departments (Chemistry

54 National Service Scheme (NSS) is an Indian Government-Sponsored Public Service program conducted by the Ministry of Youth Affairs and Sports of the Government of India. Popularly known as NSS.

55 National Cadet Corps is the Military cadet corps of India that provides basic military training to the students of schools and colleges. It comprises Army, Navy and Air Force.

and Geography) and one selected constituent college of UoR, Jaipur in 2018-19 in which only 1.04 *per cent* students (111 out of 10,654 students) participated.

- JNVU, Jodhpur and one constituent college conducted two extension and outreach programmes (NSS and NCC) during 2014-19 in which on average eight *per cent* students participated. JNVU, Jodhpur accepted the facts.
- GGTU, Banswara did not conduct any such programme during 2014-19.

(ii) Test checked government colleges:

12 test checked government colleges affiliated with JNVU, Jodhpur did not provide information regarding number of extension activities conducted by them. Whereas nine out of 17 government colleges affiliated with UoR, Jaipur informed that on an average 29 extension activities were conducted during 2014-19 in which average 2,188 out of 44,488 students participated every year. While no extension activity was conducted in seven test checked colleges affiliated with GGTU, Banswara during 2014-19.

(iii) Evaluation through indicators (Sl. No 9 of Appendix 1.1):

NAAC in its accreditation and assessment process gives weightage to participation of students in extension activities. Hence, as per NAAC benchmarks, JNVU, Jodhpur and GGTU, Banswara were not eligible for award of marks. Due to non-availability of complete information of UoR, Jaipur audit could not comment on their performance with respect to this indicator.

Summing up and recommendations

Feedback from stakeholders such as industrialists, entrepreneurs, students were not obtained in UoR, Jaipur and JNVU, Jodhpur during designing/revision of curriculum of general degree programmes. GGTU, Banswara did not revise curriculum/syllabus of any programmes since its establishment in 2012 upto 2019 despite clear mandate of Twelfth FYP. ICT teaching tools were sparingly used by the teachers. Availability of proper faculty was insufficient as GoR did not recruit the required number of teachers in government colleges which resulted in Student Teacher Ratio being as high as average 88:1, more than four times than its prescribed limit of 20:1. 45.71 per cent of the teachers did not possess the prescribed NET qualification in 19 out of 30 test checked private affiliated colleges. Efforts towards professional development of teachers was also insufficient. Centralised evaluation system was completely lacking in JNVU and GGTU and partially developed in UoR, Jaipur. Alarmingly, marks of 96 per cent of students in JNVU, Jodhpur, 68 per cent of students in GGTU, Banswara and 26 per cent of students in UoR, Jaipur who applied for revaluation were changed during 2017-19. UoR, Jaipur could complete only 39 per cent research projects during 2014-19. In JNVU, Jodhpur, none of the 14 research projects could be completed even after utilising 62.60 per cent of research grants. Further, no patent could be awarded despite completion of 72 research projects in test checked HEIs. Also, 72 thesis submitted by PhD

students during 2007 to 2019 were found pending with Supervisors for evaluation/examination in UoR, Jaipur.

Recommendations:

1. The universities should:

a. Revise/design curriculum timely considering the need of industry, local/national market.

b. Universities should endeavor to improve the learning process by implementing Choice Based Credit system and semester system in all the programmes and encourage continuous evaluation of students through term papers, internship, projects and weekly assignments so that employability of students is enhanced. This would also be in line with the New Education Policy which promotes multi-disciplinary education.

c. Introduce centralized evaluation system of answer books so as to avoid operational and monitoring inadequacies.

d. Ensure that all the research projects are conducted with due quality and are completed in timely manner to extend significant gains to the society.

***2.** To keep pace with technological advancement and innovations in delivery of education, the HEIs should encourage teachers to use ICT teaching tools.*

***3.** Universities should ensure that all the teachers employed in private colleges possess the minimum qualification prescribed by regulatory bodies. The State Government may also consider to develop online monitoring mechanism on availability of qualified teachers in private colleges.*

***4.** The State Government and universities should conduct relevant professional development programmes for the teachers regularly and should ensure that all the eligible teachers are provided training in these programmes.*