

## Annexures

### Annexure 1

#### Committees and Commissions that did not consider HR aspects

Committees/Commissions		Remarks and Recommendations
Gnanam Committee	1987	Focus was on raising and proper allocation of funds and appointment of Vice-chancellors for universities who can take care of administration of universities without much interference by govt.
Punnayya Committee	1992-93	It focussed on funding of universities from UGC/ Ministry of Human Resource Development. To look after the utilisation of grants in teaching, research and non-teaching and suggest for allocating grants for making the institutions cost-effective.
Swaminadhan Committee	1994	Proposed setting up of Educational Development Bank of India for granting loans to students for education. For revenue generation the universities should focus on consultancy services, part time courses, sponsored research projects and software development. It mainly focussed on mobilisation of resources as suggested by National policy on Education, 1968 and Kothari Commission, 1964-66
Gajendra Gadkar Committee	1969	UGC to decide with the Centre and States for fixing the amount of grants. Focussed on autonomy in Universities. Appointment of Vice-chancellors in universities.
L.S Chandrakant Committee	1971	It investigated the PG curriculum and recommended that it needed a revision with emphasis on practical knowledge apart from theory. There should be autonomy in the functioning of Higher Education institutions.
Seventh Five-year Plan	1985-90	It focussed on development of economy of India for which development of Human Resources is essential through designing technical education in a way so that it meets the industry needs.

*Sources:* (Shivappa, 2011); (Punnayya, 1992-93); (MHRD, CAGE Committee on Financing of Higher and Technical Education, 2005); (MHRD, Report of Central Advisory Board of Education (CAGE) Committee on Autonomy of Higher Education Institutions, 2005);(Giri report of Gajendragadkar committee, 1992); (Saha & Ghosh, 2012); (Higher Education through Five-Year Plans-I Unit 7, n.d.)

## **Annexure 2**

The HR aspects covered by Committees/ Commissions formed for higher and technical education

Commission/ committee	Year	Recommendation
All India Council for Technical Education	1945	It was formed as an Apex Advisory Body to regulate the standards and norms in terms of maintaining quality, planning and evaluation and overall development of technical education in the country, assessing manpower requirements in technical education.
S.S Bhatnagar committee	1947	Focussed on manpower planning for scientists, engineers, doctors and technologists.
Sarkar Committee on Technical education	1945- 49	It focussed on improving quality of teaching by allowing teachers for research and study and for that teachers should be allowed for industry visits that will raise their standards of teaching. Contact between student and a teacher is must so the class size should be reduced to 30 students per teacher and laboratory classes to 10 students per teacher. Salaries of teachers should be attractive enough so that they stay in the institution.
Radhakrishnan Education Commission	1948- 49	It recommended vocational and professional training for teachers. Recommended that recruitment and promotions of teachers in colleges and universities should be merit-based. Classification of teachers (Professors, Readers, Lecturers and Instructors) in universities should be done based on their responsibilities, qualification and experience. The working hours, information regarding Provident Fund and leave must be laid down clearly to avoid ambiguity.

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		Refresher courses for teachers should be organised by the universities.
University Grants Commission	1956	It was formed to provide grants to universities (Central, State and Deemed) and colleges and provide basic facilities to students and teachers. It stressed on annual refresher and orientation/Induction training for teacher educators. It also recommended mandatory leadership/management training for the administrators.
Kothari Commission	1964-66	It emphasised the fact that education should change through human development because of which teachers' training and vocational training was emphasised. It also stressed on teacher salaries, Expansion in education and improvement in quality. This commission felt that remuneration that is given to teachers should be based on stages of education starting from schools to adult education. There should be a difference in salaries with each stage of education.
National Policy on Education	1968	It was formed based on Education Commission, 1964. It also stressed on improving salaries of teachers and ways of teaching.
Damodaran Committee	1970	This committee was formed to facelift the polytechnic education system by re-organisation and development. For faculty development the committee also recommended training and retraining of faculty and industrial training
Kelkar Committee	1976	Modular training, training in pedagogy, short-term training, industrial training in modular form of 12 weeks that may cater to teachers of technical education. Special programmes to bring change in attitudes of senior personnel be organised.
CABE Committee	1992	Initial and in-service training for faculty members. Recruitment of all the teachers will be on done based on fairness, merit and objectivity and strict adherence to functional and spatial requirements. Other recommendations are: Transfers and promotions be done fairly, compensation be based on their

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		responsibilities, qualification and talent in their respective profession, Evaluation system be open and allowed for participation, incentives be given to performers only. National Council for In -service teacher Education be provided for teacher education in schools, colleges. Grievances of teachers (secondary and Higher Education) should be redressed throughout the country.
C.S Jha Committee	1978	Training facilities to teachers of technical education. It also proposed looking into manpower requirements (manpower planning) for technical teachers' training institutes (TTTTI's) so that costs can be managed effectively.
National Policy on Education	1986	This policy was a result of Radhakrishnan commission and Kothari commission. Based on Ramamurti committee and Janardan committee report, NPE, 1986 was modified. Teachers of Higher Education be given training in the form of orientation for a period of six to eight weeks. The universities should have their own grievance redressal systems. There should be decentralised justice for early resolving of cases. Training in entrepreneurship, training of serving teachers including refresher courses at least once in 5 years. Organising inter-college orientation courses for teachers. Recruitment of teachers based on National level tests. Evaluation of teachers be by self, students and peers. Encouraging active participation of teachers at all levels. Progression in the careers be based on their performance appraisal. For assessing the manpower needs, National technical manpower system needs to be reinforced. Technical education teachers be provided education programmes and in-service training. National Exert Committee set up by AICTE for technical and Management institutions to investigate salary structures of teachers, service conditions like opportunities for career advancement, sabbaticals, performance-based incentives, housing benefits, cadre structure, revision of pay scales of teachers and other benefits to retain the best faculty to meet the shortage.
Nayudamma committee	1986	Quality improvement and induction programme for faculty. Assessment of faculty should be done fairly. Merited faculty should be paid more as compared to the other ones.

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Ramamurti committee	1990	This committee was formed to evaluate National Policy on Education, 1986. For enhancing quality of teaching, pre-induction training of 1 year should be provided post-recruitment. Annual appraisal of teachers of technical education by staff. Manpower requirements in technical education be dealt by retraining the technical staff.
Amitabha Bhattacharya committee	1991	This committee was formed to investigate Technical Teachers training Institutes (TTTI's). Focussed on Modular teacher training programmes. Manpower requirements should be met with highly trained teachers. For enhancing quality of technical education, TTTI's be involved in R&D activities.
Janardan Committee	1992	The formation of this committee was based on evaluation of NPE, 1986. This committee recommended that Management and Technical education should be a part of self-financing courses. Students should be helped with loans as and when required. This committee focussed on teachers training.
Programme of Action	1992	This was based on important landmarks: Radhakrishnan Commission and Kothari Commission. Based on Janardan committee and Ramamurti committee, NPE, 1986 was revised and declared in 1992. Career advancement of teachers in Higher Education based on performance appraisal and training. Introduction of NET (National Eligibility Test) for recruitment of college and university teachers. Actions to be taken for embarrassments, under-payments and coercions of teachers in private and aided courses. Grievances related to pay scales, service conditions must be quick, and punishment should be given accordingly. For that to happen appointment of ombudsman in universities could be appointed. Non-performers and neglectful teachers would be penalised. Evaluation system be based on openness and objectivity. Evaluation which would include teaching and innovation in research, regularity in attendance, quality of teaching, by self, students, university head and peers. Revision of pay scales of teachers with the help of Central and State govt. NAAC was registered in Bangalore in 1994.
National Board of Accreditation	1994	It was formed by the act of AICTE for bringing in quality in Higher Education. It became an autonomous body in 2010. It focussed on Management Development programmes, training and orientation of evaluators who would monitor NBA committees. Faculty Development

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National Assessment and Accreditation Council	1994	<p>programs have been organised to orient faculty in outcome-based accreditation system.</p> <p>It focusses on improving quality of education in universities through grading systems by accreditation.</p> <p>For improving the quality, it focussed on encouraging team work and workers participation in management, promote quality circles, leadership and top-level commitment. It focussed on self-evaluation, benchmarking, innovations to improve quality in Higher Education.</p>
P. Rama Rao committee	1995-1999	<p>This committee was formed to address the need of shortage of faculty in technical education. Quality improvement and induction training programmes for faculty for two weeks where communication skills effective learning and teaching ways would be the focus, staff development programmes be conducted, workshops for faculty be conducted. For increasing the quality of teachers in IIT's, in-service teachers be trained for improving and upgrading their qualification. Training be provided based on curriculum. For meeting shortage of faculty, retirement age be increased to 65. Lucrative packages be given to teachers to retain them in the institutions. Other facilities like children education, job for spouse, housing allowance be given to teachers to retain them.</p>
Mashelkar committee	1996-98	<p>Faculty and Staff development programmes by providing an environment where the faculty can perform projected roles and staff should be given training so that their technical expertise is made better. Teacher training programs of 60 days spread over a period of two years should be encouraged for a d Training and educating students at UG and PG level so that they can inhabit leadership positions in future.</p>
Ninth five-year plan	1997-2002	<p>The government of India focussed on providing in-house training facilities for the non-teaching staff in universities/ colleges. It also stressed the need for conducting workshops for college principals.</p>
PV Indiresan committee	2000	<p>Training programmes for teachers in technical education other than polytechnic should be organised. Having a</p>

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		PG degree like MTech must be made compulsory for teachers to have promotion and advancement in their career. Autonomy in HE
P. Rama Rao committee	2002-04	A separate Human Resource unit to look after Recruitment and Retention of faculty.
Tenth five-year plan	2002-07	Increasing the number of Administrative Staff Colleges (ASC's) for teacher training and orientation in the country. For increasing the quality of education, it proposed optimum utilisation of resources, strategic planning, benchmarking and modernization of curriculum.
National Knowledge commission	2005-08	Motivation and career planning for students to do Ph.D. Attract and retain quality staff based on fair appointments. For appointments to be fair, internal and external recruitment should be encouraged that would foster healthy competition. Healthy working environment, performance linked pay, research facilities should be provided to faculty.
CABE Committee on autonomy of Higher Education	2005	Focussed on autonomy in institutions of Higher Education with regards to autonomy in working of teachers and students. Timings and workload should be made flexible and should not be tightened if the teachers deliver results. In-service training programmes must be organised. Other training programmes apart from orientation and refresher courses should be given due importance for career progression of teachers. As far as recruitment and selection of teachers is concerned, institutions must strictly observe the norms set by regulatory bodies. Teachers should also be given autonomy in designing the courses. Minimum attendance should not be made compulsory if a student otherwise performs well.
Eleventh five-year plan	2007-12	Focussed on improving the quality of Higher Education.
Yashpal Committee	2009	Quality improvement in institutions and for that the committee recommended that orientation programmes that include communication skills, skills for curriculum development and assessment skills be organised for university/college teachers. Vocational Education should be brought under the purview of Higher Education by providing necessary facilities to students. It also

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		stressed on autonomy in Higher Education by decentralised decision making without any interference from external agencies. It recommended that National Commission for Higher Education and Research (NCHER), 2010 that would include UGC (1956), AICTE (1945), DEC (Distance Education Council) 1985, NCTE (National Council for Teacher Education, 1993) and 13 such professional bodies were merged including Medical council of India, Bar council of India.
Dr. Anil Kakodkar Committee	2010-11	Faculty should be assessed based on measurable attributes such as: teaching, academic research, consultancy and research and administration and outreach. Based on these attributes, faculty should be identified and rewarded. Autonomy should be encouraged in IIT's, NIT's and CFTI's and industry. System of evaluation should be open and transparent which is done keeping a track of number of teachers who have attended training sessions, who have taken industry sabbaticals, use of ICT and learning in groups. For more interaction between NIT's and IIT's programmes like faculty-student exchange, trainee-teacher etc should be promoted. To meet the shortage of faculty in technical education, students from IIT's, NIT's, IIIT's, IISER and other AICTE/UGC approved institutions should be motivated to take up faculty positions by training them so that they can have an advancement in their careers as a teacher or researcher. In order improve quality of faculty, they should make industrial visits to know changing needs of industries. Mobility of faculty between industries, institutions should be allowed. Once the faculty is hired, there should be training involving 5 levels with each level having 60 days with focus on content and pedagogy. Program includes: training, evaluation and certification.
Twelfth five-year plan	2012-18	If focussed on development of faculty by creating a network of universities where universities work together so that faculty is invited from India and abroad and given attractive remuneration after their performance evaluation from students and peers. In this was

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National Policy on Education	2016	retired/tenured faculty will also be given a chance to offer their services. More of skill development programmes will be offered for students like diplomas, certification programmes, modular training courses etc. with the help of full time and part-time faculty. It focussed on assessing manpower needs to determine the need for faculty positions in higher education. It also stressed the need for fair recruitment and selection through public service commission or any other body set up for the same. It was seen that full time and well-qualified faculty delivers better results than an ad-hoc or part-time faculty as it lowers down the quality of teaching. Training programmes in teaching and communication skills with the used of ICT. It also recommended revamp of the higher education system by assisting and guiding the institutions that want to improve and discarding the ones who fall behind a certain standard. Appointment of Vice-Chancellors should be based on merit.
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*Sources:* (Modern Education; Progress of Education after Independence; Introduction, n.d.); (Rao M. R., 1999); (CABE, 2005); (Saha & Ghosh, 2012); (MHRD, National Policy on Education 1986 Programme of Action 1992); (Commission, 2006-2009); (An Interim Report of the Committee Appointed to Consider the Development of Higher Technical Institutions in India); (Kulkarni, 2015); (Singh, 2011); (MHRD, Kakodkar Committee Report NIT's as Drivers for Quality Higher Technical Education- The Way Forward, 2014); (Ramachandran, 2004); (Group, 2018); (Education, 1949); (Winston, 1999); (National Policy on Education, n.d.); (MHRD, The Committee to Advise on Renovation and Rejuvenation of Higher Education, 2008); (Unhale, 2006); (Yeravdekar, 2012); (MHRD, Report of Central Advisory Board of Education (CABE) Committee on Autonomy of Higher Education Institutions, 2005); (Sharma, 2013); (H, 2013); (Bhatnagar Shanti Swarup, n.d.); (Ministry, 2016); (UGC stresses on teachers' training course, 2014); (UGC, 1985); (Ramamurti, 1990)

### **Annexure 3**

*Two-Sample Kolmogorov-Smirnov Test: Curriculum and Assessment methods*

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Problem solving skills are enhanced through	Curriculum	1949
	Assessment methods	1949

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#### Annexure 4

##### *Two-Sample Kolmogorov-Smirnov Test: Problem-solving skills*

Problem solving skills are enhanced through		
Most Extreme Differences	Absolute	.022
	Positive	.022
	Negative	-.017
Kolmogorov-Smirnov Z		.673
Asymp. Sig. (2-tailed)		.756

#### Annexure 5

##### *Two-Sample Kolmogorov-Smirnov Test: Teaching methods and Assessment methods*

Problem solving skills are enhanced through	Teaching methods	1949
	Assessment methods	1949

#### Annexure 6

##### *Two-sample Kolmogorov-Smirnov Test: Problem-solving skills*

Problem solving skills are enhanced through		
Most Extreme Differences	Absolute	.087
	Positive	.000
	Negative	-.087
Kolmogorov-Smirnov Z		2.723
Asymp. Sig. (2-tailed)		.000

#### Annexure 7

##### *Two-Sample Kolmogorov-Smirnov Test: Teaching methods and Assessment Methods*

Critical thinking skills are enhanced through	Teaching methods	1949
	Assessment methods	1949

#### Annexure 8

Critical thinking skills are enhanced through		
Most Extreme Differences	Absolute	.091
	Positive	.000
	Negative	-.091
Kolmogorov-Smirnov Z		2.835
Asymp. Sig. (2-tailed)		.000

#### Annexure 9

##### *Two-Sample Kolmogorov-Smirnov Test: Curriculum and Teaching methods*

Critical thinking skills are enhanced through	Curriculum	1949
	Teaching methods	1949

**Annexure 10***Two-Sample Kolmogorov-Smirnov Test: Critical thinking skills*

Critical thinking skills are enhanced through		
Most Extreme Differences	Absolute	.088
	Positive	.000
	Negative	-.088
Kolmogorov-Smirnov Z		2.755
Asymp. Sig. (2-tailed)		.000

**Annexure 11***Two-Sample Kolmogorov-Smirnov Test: Curriculum and Assessment Methods*

Engagement in deeper learning comes from	Curriculum	1949
	Assessment methods	1949

**Annexure 12***Two-Sample Kolmogorov-Smirnov Test: Engagement in deeper learning*

Engagement in deeper learning comes from		
Most Extreme Differences	Absolute	.010
	Positive	.000
	Negative	-.010
Kolmogorov-Smirnov Z		.320
Asymp. Sig. (2-tailed)		1.000

**Annexure13***Two-Sample Kolmogorov-Smirnov Test: Curriculum and Teaching methods*

Engagement in deeper learning comes from	Curriculum	1949
	Teaching methods	1949

**Annexure 14***Two-Sample Kolmogorov-Smirnov Test: Engagement in deeper learning*

Engagement in deeper learning comes from		
Most Extreme Differences	Absolute	.080
	Positive	.080
	Negative	.000
Kolmogorov-Smirnov Z		2.483
Asymp. Sig. (2-tailed)		.000

**Annexure15***Two-Sample Kolmogorov-Smirnov Test: Teaching methods and Assessment Methods*

Strengths and weaknesses of students can be identified through	Teaching methods	1949
	Assessment methods	1949

**Annexure 16**

*Two-Sample Kolmogorov-Smirnov Test: Strengths and weaknesses of students can be identified through*

Strengths and weaknesses of students can be identified through		
Most Extreme Differences	Absolute	.054
	Positive	.054
	Negative	-.015
Kolmogorov-Smirnov Z		1.698
Asymp. Sig. (2-tailed)		.006
a. Grouping Variable: Abilities' enhancing Tools		

**Annexure 17**

*Two-Sample Kolmogorov-Smirnov Test: Curriculum and Assessment Methods*

Strengths and weaknesses of students can be identified through	Curriculum	1949
	Assessment methods	1949

**Annexure 18**

*Two-Sample Kolmogorov-Smirnov Test: Strengths and weaknesses of students can be identified through*

Strengths and weaknesses of students can be identified through		
Most Extreme Differences	Absolute	.111
	Positive	.111
	Negative	.000
Kolmogorov-Smirnov Z		3.476
Asymp. Sig. (2-tailed)		.000

**Annexure 19**

*Two-Sample Kolmogorov-Smirnov Test: Curriculum and Assessment Methods*

Team building attributes can be enhanced through	Curriculum	1949
	Assessment methods	1949

**Annexure 20**

*Two-Sample Kolmogorov-Smirnov Test: Team building attributes can be enhanced through*

Team building attributes can be enhanced through		
Most Extreme Differences	Absolute	.058
	Positive	.000
	Negative	-.058
Kolmogorov-Smirnov Z		1.810
Asymp. Sig. (2-tailed)		.003

### **Annexure 21**

*Two-Sample Kolmogorov-Smirnov Test: Curriculum and Teaching Methods*

Team building attributes	Curriculum	1949
can be enhanced through	Teaching methods	1949

### **Annexure 22**

*Two-Sample Kolmogorov-Smirnov Test: Team building attributes can be enhanced through*

Team building attributes can be enhanced through		
Most Extreme Differences	Absolute	.082
	Positive	.000
	Negative	-.082
Kolmogorov-Smirnov Z		2.547
Asymp. Sig. (2-tailed)		.000

### **Annexure 23**

*Two-Sample Kolmogorov-Smirnov Test: Curriculum and Assessment Methods*

	Abilities' enhancing	N
	Tools	
Innovation can be	Curriculum	1949
enhanced through	Assessment methods	1949

### **Annexure 24**

*Two-Sample Kolmogorov-Smirnov Test: Innovation can be enhanced through*

Innovation can be enhanced through		
Most Extreme Differences	Absolute	.023
	Positive	.023
	Negative	-.002
Kolmogorov-Smirnov Z		.721
Asymp. Sig. (2-tailed)		.676

### **Annexure 25**

*Two-Sample Kolmogorov-Smirnov Test: Curriculum and Teaching Methods*

Innovation can be	Curriculum	1949
enhanced through	Teaching methods	1949

### **Annexure 26**

*Two-Sample Kolmogorov-Smirnov Test: Innovation can be enhanced through*

Innovation can be enhanced through		
Most Extreme Differences	Absolute	.070
	Positive	.070
	Negative	.000
Kolmogorov-Smirnov Z		2.194
Asymp. Sig. (2-tailed)		.000

### **Annexure 27**

#### *Two-Sample Kolmogorov-Smirnov Test: Curriculum and Teaching Methods*

Creativity can be	Curriculum	1949
enhanced through	Assessment methods	1949

### **Annexure 28**

#### *Two-Sample Kolmogorov-Smirnov Test: Creativity can be enhanced through*

Creativity can be enhanced through		
Most Extreme Differences	Absolute	.018
	Positive	.018
	Negative	-.005
Kolmogorov-Smirnov Z		.561
Asymp. Sig. (2-tailed)		.912

### **Annexure 29**

#### *Two-Sample Kolmogorov-Smirnov Test: Curriculum and Teaching Methods*

Creativity can be	Curriculum	1949
enhanced through	Teaching methods	1949

### **Annexure 30**

#### *Two-Sample Kolmogorov-Smirnov Test: Curriculum and Teaching Methods*

Creativity can be enhanced through		
Most Extreme Differences	Absolute	.082
	Positive	.000
	Negative	-.082
Kolmogorov-Smirnov Z		2.563
Asymp. Sig. (2-tailed)		.000

### **Annexure 31**

#### *Two-Sample Kolmogorov-Smirnov Test: Curriculum and Assessment Methods*

Confidence building gets	Curriculum	1949
better through	Assessment methods	1949

### **Annexure 32**

#### *Two-Sample Kolmogorov-Smirnov Test : Confidence building gets better through*

Confidence building gets better through		
Most Extreme Differences	Absolute	.074
	Positive	.074
	Negative	.000
Kolmogorov-Smirnov Z		2.322
Asymp. Sig. (2-tailed)		.000

**Annexure 33***Two-Sample Kolmogorov-Smirnov Test: Curriculum and Teaching Methods*

Confidence building gets better through	Curriculum	1949
	Teaching methods	1949

**Annexure 34***Two-Sample Kolmogorov-Smirnov Test: Confidence building gets better through*

Confidence building gets better through		
Most Extreme Differences	Absolute	.120
	Positive	.120
	Negative	.000
Kolmogorov-Smirnov Z		3.732
Asymp. Sig. (2-tailed)		.000

**Annexure 35***Two-Sample Kolmogorov-Smirnov Test: Curriculum and Assessment Methods*

Professional (skill) education is enriched through	Curriculum	1949
	Assessment methods	1949

**Annexure 36***Two-Sample Kolmogorov-Smirnov Test: Professional (skill) education is enriched through*

Professional (skill) education is enriched through		
Most Extreme Differences	Absolute	.009
	Positive	.000
	Negative	-.009
Kolmogorov-Smirnov Z		.288
Asymp. Sig. (2-tailed)		1.000

**Annexure 37***Two-Sample Kolmogorov-Smirnov Test: Curriculum and Teaching Methods*

Professional (skill) education is enriched through	Teaching methods	1949
	Assessment methods	1949

**Annexure 38***Two-Sample Kolmogorov-Smirnov Test: Professional (skill) education is enriched through*

Professional (skill) education is enriched through		
Most Extreme Differences	Absolute	.067
	Positive	.000
	Negative	-.067
Kolmogorov-Smirnov Z		2.082
Asymp. Sig. (2-tailed)		.000

**Annexure 39***Two-Sample Kolmogorov-Smirnov Test: Assessment and Teaching Methods*

Chances of students' employability are enhanced through	Teaching methods	1949
	Assessment methods	1949
	Total	3898

**Annexure 40***Two-Sample Kolmogorov-Smirnov Test: Chances of students' employability are enhanced through*

Chances of students' employability are enhanced through		
Most Extreme Differences	Absolute	.031
	Positive	.007
	Negative	-.031
Kolmogorov-Smirnov Z		.977
Asymp. Sig. (2-tailed)		.295

**Annexure 41***Two-Sample Kolmogorov-Smirnov Test: Curriculum and Assessment Methods*

Chances of students' employability are enhanced through	Curriculum	1949
	Assessment methods	1949

**Annexure 42***Two-Sample Kolmogorov-Smirnov Test: Chances of students' employability are enhanced through*

Chances of students' employability are enhanced through		
Most Extreme Differences	Absolute	.023
	Positive	.023
	Negative	.000
Kolmogorov-Smirnov Z		.721
Asymp. Sig. (2-tailed)		.676

**Annexure 43***Two-Sample Kolmogorov-Smirnov Test: Assessment and Teaching Methods*

Business and entrepreneurial skills are enhanced through	Teaching methods	1949
	Assessment methods	1949

**Annexure 44***Two-Sample Kolmogorov-Smirnov Test: Business and entrepreneurial skills are enhanced through*

Business and entrepreneurial skills are enhanced through		
Most Extreme Differences	Absolute	.064
	Positive	.000
	Negative	-.064
Kolmogorov-Smirnov Z		1.986

Asymp. Sig. (2-tailed)	.001
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**Annexure 45**

*Two-Sample Kolmogorov-Smirnov Test: Curriculum and Assessment Methods*

Business and	Curriculum	1949
entrepreneurial skills are	Assessment methods	1949
enhanced through		

**Annexure 46**

*Two-Sample Kolmogorov-Smirnov Test: Business and entrepreneurial skills are enhanced through*

Business and entrepreneurial skills are enhanced through		
Most Extreme Differences	Absolute	.028
	Positive	.002
	Negative	-.028
Kolmogorov-Smirnov Z		.865
Asymp. Sig. (2-tailed)		.443

**Annexure 47**

*Two-Sample Kolmogorov-Smirnov Test: Assessment Methods and Teaching Methods*

Research orientation of	Teaching methods	1949
students gets boosted	Assessment methods	1949
through		

**Annexure 48**

*Two-Sample Kolmogorov-Smirnov Test: Research orientation of students gets boosted through*

Research orientation of students gets boosted through		
Most Extreme Differences	Absolute	.066
	Positive	.066
	Negative	.000
Kolmogorov-Smirnov Z		2.066
Asymp. Sig. (2-tailed)		.000

**Annexure 49**

*Two-Sample Kolmogorov-Smirnov Test: Curriculum and Assessment Methods*

Research orientation of	Curriculum	1949
students gets boosted	Assessment methods	1949
through		

**Annexure 50**

*Two-Sample Kolmogorov-Smirnov Test: Research orientation of students gets boosted through*

Research orientation of students gets boosted through		
Most Extreme Differences	Absolute	.019
	Positive	.005
	Negative	-.019
Kolmogorov-Smirnov Z		.609
Asymp. Sig. (2-tailed)		.853

**Annexure 51**

*Two-Sample Kolmogorov-Smirnov Test: Assessment Methods and Teaching methods*

Ethics and values can be taught through	Teaching methods	1949
	Assessment methods	1949

**Annexure 52**

*Two-Sample Kolmogorov-Smirnov Test: Ethics and values can be taught through*

Ethics and values can be taught through		
Most Extreme Differences	Absolute	.128
	Positive	.000
	Negative	-.128
Kolmogorov-Smirnov Z		3.988
Asymp. Sig. (2-tailed)		.000

**Annexure 53**

*Two-Sample Kolmogorov-Smirnov Test: Curriculum and Assessment methods*

Abilities' enhancing Tools		
Ethics and values can be taught through	Curriculum	1949
	Assessment methods	1949

**Annexure 54**

*Two-Sample Kolmogorov-Smirnov Test: Ethics and values can be taught through*

Ethics and values can be taught through		
Most Extreme Differences	Absolute	.037
	Positive	.000
	Negative	-.037
Kolmogorov-Smirnov Z		1.169
Asymp. Sig. (2-tailed)		.130

**Annexure 55***Two-Sample Kolmogorov-Smirnov Test: Assessment methods and Teaching methods*

Basic concepts of students can be cleared through	Teaching methods	1949
	Assessment methods	1949

**Annexure 56***Two-Sample Kolmogorov-Smirnov Test: Basic concepts of students can be cleared through*

Basic concepts of students can be cleared through		
Most Extreme Differences	Absolute	.099
	Positive	.000
	Negative	-.099
Kolmogorov-Smirnov Z		3.091
Asymp. Sig. (2-tailed)		.000

**Annexure 57***Two-Sample Kolmogorov-Smirnov Test: Curriculum and Teaching methods*

Basic concepts of	Curriculum	1949
students can be cleared through	Assessment methods	1949

**Annexure 58***Two-Sample Kolmogorov-Smirnov Test: Basic concepts of students can be cleared through*

Basic concepts of students can be cleared through		
Most Extreme Differences	Absolute	.027
	Positive	.000
	Negative	-.027
Kolmogorov-Smirnov Z		.833
Asymp. Sig. (2-tailed)		.492

## **Annexure 59**

Survey on Students' perception on current performance of M.S. University's employees (Teaching and Non-Teaching)

### Background of the Respondent (Student)

Age

Below 20

20- less than 25

25 and above

Gender : Male  Female  Others

What was your medium of instruction till the 12<sup>th</sup> Standard?

English

Gujarati

Other Indian Languages (Hindi, Marathi, Bangla, Telugu, and Odia etc.,)

Name of the faculty you belong to

Faculty of Arts Faculty of Commerce

Faculty of Education and Psychology

Faculty of Engineering and Technology

Faculty of Family and Community Science

Faculty of Fine Arts

Faculty of Journalism and Communication

Faculty of Law

Faculty of Management Studies

Faculty of Performing Arts

Faculty of Pharmacy

Faculty of Science Faculty of Social Work

Presently, you are pursuing which course/ program:

Certificate

Diploma UG

PG

Ranking and Grading

What is the ranking of your university in the National Ranking Institutional Framework (NIRF)?

1-50

51-100

101-150

151-200

201 and above

Don't know

The National Accreditation and Assessment Council (NAAC) accredited the M.S University with which grade?

A++

A+

A

B++

B+

B

C

D

Don't know

Perception of students with respect to the following: -

(SA- Strongly Agree, A= Agree, N = Neutral, DA = Disagree, SDA = Strongly Disagree)

---

	SA	A	N	DA	SDA
	(5)	(4)	(3)	(2)	(1)
Our course content is clearly defined					
Our curriculum is interesting					
Our curriculum is relevant for employability					
Our curriculum is regularly updated to align with the latest knowledge requirements					
Teachers are well-prepared for their sessions					
I feel that teachers use fresh and updated notes to teach					
Teachers are comfortable using smart boards in offline sessions					
Teachers are comfortable using digital pads in online sessions					
Self-learning or learning through online courses are highly encouraged by my teachers					
Teachers use technology-aided instruction method in the classrooms					
Teachers provide me with bridge courses for the subject which are difficult to understand					
In your opinion, should teachers					

---

- 
- Keep on improving their digital skills
  - Adjust to new methods of teaching
  - Encourage innovation among students

Q9. The following statements reflect the possible traits of your teachers. Please select to what extent do you agree or disagree with them.

SA A N DA SDA  
(5) (4) (3) (2) (1)

- Teachers are energetic
- Teachers are well qualified
- Teachers are motivated
- Teachers are capable of conducting classes
- Teachers respect our opinions
- Teachers are professional
- Teachers have an understanding nature
- Teachers ensure discipline in the class
- Teachers are masters of their own subject
- Teachers provide reading material
- Teachers inspire students
- Teachers dress up nicely for their sessions
- Teachers use understandable language
- Teachers are punctual to class
- Teachers are committed to complete the course in the stipulated time frame
- Teachers are open to suggestion
- Teachers make learning a joyful activity
- Teachers encourage queries by students
- Teachers are open to change
- Teachers encourage participation among students
- Teachers engage us well in online sessions
- Teachers engage us well in offline sessions
- Teachers encourage open discussion in online classes
- Teachers encourage open discussion in offline classes
- Teachers engage us in virtual exercises that help in retaining the knowledge
- Teachers help us in finding ways of overcoming stress
- Teachers help us with time management
- In your opinion, teachers involve student participation through
  - Field work
  - Case studies
  - Internships
  - Seminars
  - Arranging for faculty events

Q10. Perception about Pedagogy and Teacher Engagement with students:

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Teaching techniques enable us to recall the concepts

Teaching techniques help us to understand the concepts

Teachers discuss students' performance in mid-semester/  
internal exam with students

Teachers maintain good eye contact with us during our  
sessions

It is easy to approach teachers as our mentors for any  
guidance

Teachers help us in clarifying our occupational choices  
through placement/ counselling assistance

Teachers have the knowledge of industry's demands of  
talent

Teachers have a rich research experience in their respective  
subjects

Teachers support us and provide guidance in overcoming  
our weaknesses

Teachers help us improve our:-

- Communication skills
- Interview skills
- Personality development
- Group discussion
- Risk-taking ability
- Decision-making ability
- In identifying our strengths
- Ability to manage stress

Q11. Feedback on teachers' Leadership qualities:

Teachers help us to look at problems through different  
angles and arrive at solutions

Teachers help us in building networks with people

Teachers maintain healthy relationships with students

Teachers enable us to work in teams and finish our tasks  
smoothly

Teachers help us in thinking outside the box

Teachers motivate us to accomplish our goals

Teachers help us to plan our projects on our own

Teachers train us on presentation skills

---

Q12. According to you, what among the following should have been better in your faculty from the current position? (BT)

	SA	A	N	DA	SDA
	(5)	(4)	(3)	(2)	(1)

Teachers guide us with finding opportunities for building  
successful careers

Time management of teachers

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No. of teachers  
 Enhancing creativity skills of students  
 The quality of faculty members' knowledge  
 Performance of teachers w.r.t to their communication skills  
 Engaging students in sessions  
 Assessment criteria  
 Making curriculum more of industry-oriented  
 Placement activities  
 Industry-academic collaboration  
 Student exchange program with foreign institutions  
 Teachers' capability to use technology  
 Treating students fairly  
 Foreign teachers to teach few classes/ units  
 More experiential learning than theoretical learning  
 Respect for students from all backgrounds and cultures  
 Teachers' readiness to help students  
 Understanding nature of teachers towards students  
 Building relationships with students  
 Flexible Curriculum (offer choice-based credit system  
 CBCS)

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Q13. How much do each of the following tools help in enhancing students' various abilities as shown in column 1?  
 5 – Maximum weightage and 1 – minimum weightage

Students' Abilities	<i>Curriculum</i>					<i>Teaching methods</i>					<i>Assessment methods</i>				
	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
Problem-solving skills are enhanced through															
Critical thinking skills are enhanced through															
Engagement in deeper learning comes from															
Strengths and weaknesses of students can be identified through															
Team-building attributes can be enhanced through															
Innovation can be enhanced through															

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Creativity can be enhanced  
 through  
 Confidence building gets  
 better through  
 Professional (skill)  
 education is enriched  
 through  
 Chances of students'  
 employability are enhanced  
 through  
 Business and  
 entrepreneurial skills are  
 enhanced through  
 Research orientation of  
 students gets boosted  
 through  
 Ethics and values can be  
 taught through  
 Basic concepts of students  
 can be cleared through

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Q14. What do you feel should have been better in your staff? SA A N DA SDA  
 (5) (4) (3) (2) (1)

The staff is always available for consultation  
 The staff is competent and capable enough to resolve  
 students' queries  
 The staff is polite  
 There is a grievance redressal mechanism available if I have  
 any grievance against my teacher/s  
 The staff is more responsive to the feedback given by  
 students  
 The staff responds to the students' grievances in a timely  
 manner  
 The staff is always available for help  
 The staff is student friendly  
 The staff is flexible in approach  
 The staff is well-mannered  
 The staff is always ready to cope with new changes  
 The staff is well-versed with the technology  
 The language used by the staff is clear

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## Annexure 60

Questionnaire for VC's/ Registrars of Universities:

Q1. Name of the university \_\_\_\_\_

Q2. State where the university is located \_\_\_\_\_

Q3. Position of the respondent

Registrar  Vice-Chancellor

Q4. Type of university

State  Private  Open  Central  others, please specify

Q5. University's rank/ grade in the past three cycles:

Agencies	Current	Previous cycle	Historic
NIRF			
NAAC			
Global ranking			
Not Applicable			
Any other, please specify			

Q6. Number of teachers in the university: -

Number of permanent teachers \_\_\_\_\_

Temporary teachers \_\_\_\_\_

Contractual teachers \_\_\_\_\_

Any other type, please specify \_\_\_\_\_

Q7. No. of non-teaching staff in the University \_\_\_\_\_

Q8. University follows which of the following guidelines while doing recruitment of teachers. Tick (✓) as many as applicable.

Strict UGC guidelines

Strict AICTE guidelines

Both UGC and AICTE w.r.t. type of faculty

Any others, please specify \_\_\_\_\_.

Training

Q9. In which area the university provides training to the newly appointed teachers (Assistant Professors)? Tick (✓) as many as applicable.

Clarity about university's vision/ mission

Evaluation process and marking system

Knowledge of the rules and regulations of the university

Information and Communication Technology (ICT)	<input type="checkbox"/>
Updating pedagogical tools and techniques for class	<input type="checkbox"/>
Enhancement of soft skills in teachers	<input type="checkbox"/>
Diversity, Inclusion and Equity	<input type="checkbox"/>
Research orientation	<input type="checkbox"/>
Refresher courses	<input type="checkbox"/>
Orientation programs	<input type="checkbox"/>
Commitment towards students	<input type="checkbox"/>
Inter-disciplinary thinking	<input type="checkbox"/>
Entrepreneurship development in students	<input type="checkbox"/>
Training on updating curriculum in alignment with best industry practices	<input type="checkbox"/>
Cross-disciplinary thinking	<input type="checkbox"/>
Stress management techniques	<input type="checkbox"/>
Training to be flexible and adaptive to change	<input type="checkbox"/>
Modular training	<input type="checkbox"/>
Training in placement/ counselling	<input type="checkbox"/>
Any other, please specify _____	<input type="checkbox"/>

Q10. Does the university provide training to its teaching and non-teaching staff in any of the following areas? Tick (✓) as many as applicable.

	Teaching	Non-teaching	Not Applicable
Quality Assurance			
Total Quality Management			
5S (Sort, set in order, shine, standardise, and sustain)			
ISO certification			
Collaboration and teamwork			
Soft skills training			
Training in technology			
Conflict management			
Time Management			

Q11. What are the sources for funds spent for faculty development programs? Tick (✓) as many as applicable.

- a). Funds from students' fee
- b). Funds from State government grants

- c). Funds from Central government grants
- d). Funds from UGC
- e). Funds from ICSSR
- f). Funds from AICTE
- g). Any others, please specify \_\_\_\_\_

Q12. To what extent do all factors are responsible for enhancing motivation amongst teachers?

	Always (5)	Often (4)	Occasionally (3)	Rarely (2)	Never (1)
To ensure that faculty members are rewarded on students' feedback					
To ensure teachers are well-engaged					
To ensure teachers are encouraged in advancing towards their profession					
Teachers get adequate time to interact with students					
Incentivising excellence through appropriate rewards					
Incentivising excellence through appropriate promotions					
Incentivising excellence through appropriate recognitions					
Comfortable working environment (for e.g. ambience, positive work culture etc.)					
Any others, please specify					
Are these practices linked to institutional vision/ mission?	Yes	No	<input style="width: 20px; height: 20px; border: 1px solid green;" type="checkbox"/>	<input style="width: 20px; height: 20px; border: 1px solid green;" type="checkbox"/>	
Empowerment and Participation	Always (5)	Often (4)	Occasionally (3)	Rarely (2)	Never (1)

---

Teachers are allowed to participate in the departmental decision-making.					
Teachers are given autonomy in designing curriculum					
Teachers are given autonomy in deciding the pedagogies they want to adopt					
Teachers are empowered to evaluate students in their own way					
Any other, please specify					
Are these practices linked to vision/ mission/ strategy of your institution?	Yes	No	<input type="text"/>	<input type="text"/>	
Career Development	Always (5)	Often (4)	Occasionally (3)	Rarely (2)	Never (1)
Teachers are given scholarships					
Teachers are motivated to attend faculty development programs					
Teachers have a clear vision for career development					
Teachers are given financial aids for their development by the university					
Any other, please specify					
Are these practices linked to vision/ mission/ strategy of your institution?	Yes	No	<input type="text"/>	<input type="text"/>	
Recognition and Rewards	Always (5)	Often (4)	Occasionally (3)	Rarely (2)	Never (1)
There is a preference for the senior faculty members to be promoted as departmental heads					

---

Teachers are given a raise in salary packages/ increments based on their performance  
 There is a fast-track promotion system for recognising high impact research and contribution

Any other, please specify

Are these practices linked to vision/ mission/ strategy of your institution? Yes No

Feedback system Always Often Occasionally Rarely Never  
 (5) (4) (3) (2) (1)

Teachers are given feedbacks by:

Departmental heads

Students

Colleagues/ peers

Self

Any other, please specify

Are these practices linked to vision/ mission/ strategy of your institution? Yes No

Q13. How often do teachers go to the Human Resource Development centres for the following programs?

Orientation programs: 15 days or more  Less than 15 days  Don't go

Refresher courses: 15 days or more  Less than 15 days  Don't go

Q14. Does your university maintain teacher-student ratio as per the UGC/ AICTE guidelines?

a). Yes

b). No

c). In most of faculties

d). In a few faculties only

Q15. Competencies of teachers are developed by which of the following methods?  
 5-very important, 4-moderately important, 3-neutral, 2-slightly important, 1-not important

(5=very important and 1=not important) 5 4 3 2 1

- Teachers go for professional training
- Training is given to teachers on new methods of teaching
- Training of faculty are done in areas like technology
- Training of faculty are done in areas like enriching curriculum
- Training of faculty are done in areas like assessment methods
- Teachers are sent for industrial training
- Special programmes to bring changes in attitude
- Research collaborations with foreign institutions
- Teaching collaborations with foreign institutions
- Conduct faculty exchange programmes
- Continuous professional development of teachers is ensured

Q16. Which of the following factors contribute majorly to the return on investment (ROI) of your university? Tick as many as applicable (✓).

- Students' satisfaction
- Teachers' contribution to research
- Competencies of teachers
- Conferences at the university
- Training and development activities for teachers
- Performance based rewards
- Commitment to university's vision/ mission
- Consultancy projects taken by teachers
- Any other, please specify \_\_\_\_\_

Q17. How do you measure teachers' performance? Tick (✓) as many as applicable.

- Communication with students
- Teachers' involvement in self-appraisal
- Teachers' aligning their efforts with institutional vision/ mission/
- Number of learning opportunities availed
- Number of PhD's awarded in last 5 years
- Number of projects completed
- Number of patents
- Number of citations
- Number of papers published in journals of high repute in last 5 years
- Maximum development programs completed
- Maximum training programs completed

Meeting students' expectations in time	<input type="checkbox"/>
Assessment work completed on time	<input type="checkbox"/>
Innovation and creativity in curriculum	<input type="checkbox"/>
Innovation and creativity in pedagogy	<input type="checkbox"/>
Adaptation to technology	<input type="checkbox"/>
Achievements and receiving awards outside university	<input type="checkbox"/>
Clarity of institutional goals	<input type="checkbox"/>
Number of seminars attended	<input type="checkbox"/>
Introduction of new courses by teachers	<input type="checkbox"/>
Any other, please specify _____	<input type="checkbox"/>

Q18. According to you, which of the attributes of teachers can be instrumental in making the university/ institute student friendly?

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## Annexure 61

Krejcie and Morgan: Table on Sample size determination

Required Sample Size <sup>†</sup>								
Population Size	Confidence = 95%				Confidence = 99%			
	Margin of Error				Margin of Error			
	5.0%	3.5%	2.5%	1.0%	5.0%	3.5%	2.5%	1.0%
10	10	10	10	10	10	10	10	10
20	19	20	20	20	19	20	20	20
30	28	29	29	30	29	29	30	30
50	44	47	48	50	47	48	49	50
75	63	69	72	74	67	71	73	75
100	80	89	94	99	87	93	96	99
150	108	126	137	148	122	135	142	149
200	132	160	177	196	154	174	186	198
250	152	190	215	244	182	211	229	246
300	169	217	251	291	207	246	270	295
400	196	265	318	384	250	309	348	391
500	217	306	377	475	285	365	421	485
600	234	340	432	565	315	416	490	579
700	248	370	481	653	341	462	554	672
800	260	396	526	739	363	503	615	763
1,000	278	440	606	906	399	575	727	943
1,200	291	474	674	1067	427	636	827	1119
1,500	306	515	759	1297	460	712	959	1376
2,000	322	563	869	1655	498	808	1141	1785
2,500	333	597	952	1984	524	879	1288	2173
3,500	346	641	1068	2565	558	977	1510	2890
5,000	357	678	1176	3288	586	1066	1734	3842
7,500	365	710	1275	4211	610	1147	1960	5165
10,000	370	727	1332	4899	622	1193	2098	6239
25,000	378	760	1448	6939	646	1285	2399	9972
50,000	381	772	1491	8056	655	1318	2520	12455
75,000	382	776	1506	8514	658	1330	2563	13583
100,000	383	778	1513	8762	659	1336	2585	14227
250,000	384	782	1527	9248	662	1347	2626	15555
500,000	384	783	1532	9423	663	1350	2640	16055
1,000,000	384	783	1534	9512	663	1352	2647	16317
2,500,000	384	784	1536	9567	663	1353	2651	16478
10,000,000	384	784	1536	9594	663	1354	2653	16560
100,000,000	384	784	1537	9603	663	1354	2654	16584
300,000,000	384	784	1537	9603	663	1354	2654	16586

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