Study On

Self-Financing Technical Education Institutions under Government of Kerala

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Preface

Self financing educational institutions are no longer a novel concept in a world where governments are either gradually withdrawing from the field of education or cannot afford to invest more in education sector. As self financing helps governments to transfer the economic burden of education to private parties, countries like India have witnessed mushroom growth of self financing institutions in the educational sector in the last two decades. In general self financing institutions are primarily handled by private parties. In Kerala self financing institutions were established by government venture from the late 1980s. This was because Government did not have enough resources to establish more educational institutions under government sector. Also self financing educational institutions were conceived as a cushion in between the government and private sectors to provide more opportunities for those who cannot afford the high fees charged by the private players in education. This is because the Government led self financing institutions charged less fees compared to the private managements but more than that in Government institutions but affordable to large sections of the people.

Beginning from IHRD in 1987 under which the first self financing college was started, by the year 2014 the state had 22 government run self-financing institutions for imparting engineering education alone. As opposed to private self financing institutes of higher education these are more inclusive and affordable. However the huge influx of private capital to this area culminating in large number of private self financing institutions has resulted in these institutions gradually losing ground in the state and facing financial and other managerial problems. This also coincides with the decreasing demand for engineering courses.

This study makes an effort to suggest ways to pragmatically sustain these institutions taking into consideration the social promises of government run self-financing institutions as also the critical difference they make in the educational sector of Kerala. The study has addressed the issues and concerns raised by teachers and students of these institutions and has paid meticulous attention to every detail concerning the everyday problems faced by these institutions. As a member of the State Planning Board I myself have participated in some of the meetings where the study was discussed and its progress was evaluated. I also hope that the findings of this research are properly taken up for further discussion by higher authorities and for implementing strategies to help those government run self financing engineering institutions to be managed in a sustainable way.

Dr.B .Ekbal

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Dr. Bindu P Verghese

Chapter I
Introduction

"Technical and professional education shall be made generally available and higher education shall be equally accessible to all on the basis of merit"-Article 26 of Human Rights Declaration

1.1 Introduction

There was an unprecedented demand for professionals in all fields in the 1980s with Indian economy gathering momentum towards privatisation and globalisation. The increasing demand for professionals could not be met fully by the government sector and this automatically resulted in the emergence of private sector in higher education. A large number of private institutions offering engineering and medical courses started during this period in different parts of India. It is noticeable that, beginning from this, privatisation became an overwhelming reality for higher education in India in general. Private institutions now have an undeniable role in the country's higher education to such an extent that, in terms of the sheer number of institutions and student enrolments, the size of private sector is about twice that of public sector. Though there are a lot of consequences, some of which are debated as 'dangers', presently higher education in India has a high degree of dependence on private sector (Thilak, 2014).

However in Kerala education, including higher education still continues to be primarily funded by the State. Nonetheless private parties have an important role in the state's higher education field especially in the sphere of professional courses. In fact in the context of technical education private sector has outnumbered the government run institutions and student enrolment. Two factors responsible for creating a conducive environment for the growth of private sector in Kerala's higher education are, one, that the sudden surge in the demand for professionals had led students from Kerala to take admissions in large numbers in the neighbouring states like Tamil Nadu and Karnataka where professional courses were already available in self-financing sector. The flight of students to the neighbouring states caused huge money drain from Kerala in the forms of capitation fees and other expenses in those professional colleges. This has led to the formation of public opinion in the state that strongly favoured establishing self-financing professional colleges within the state.

Secondly, the public debates in Kerala over complete subsidisation of higher education took a supportive stance for self-financing sector. The argument given was that as the professional

education mainly benefitted the privileged section of the society, there is a rationale for shifting one portion of financial burden from the State to the individuals. Hence, the quality and access to professional education can be enhanced. This was the larger background against which participation of private sector in the area of higher education got endorsement from the beginning.

It was following this foothold that government initiated to start the Institute of Human Resource Development (IHRD) in 1987 under which the first autonomous engineering college started functioning in 1989. Other autonomous institutions that were started through various government initiatives at different points of time are, Cooperative Academy for Professional Education (CAPE), Centre for Continuing Education, Kerala (CCEK), Lal Bahadur Shastri Institute for Science and Technology (LBSS&T) and Sree Chithira Thirunal College of Engineering (SCTCE). The present study attempts to explore the problems and prospects of these self-financing technical institutions functioning under the government of Kerala.

1.2 Conceptual Discussion

Self-financing colleges are institutions established under the auspices of registered societies or trusts with their own funds and without any financial assistance from the government. Self-financing courses are housed and managed by the institutions but the financial burden is imposed upon the students. The working capital of the institution is raised mostly in the form of fees collected from students who opt to get admission there. The function of the government is mainly to give the No Objection Certificate (NOC) necessary to start the institution. Once the NOC is given, the all India Councils (e.g. MCI, AICTE and INC, all formed by the government of India to maintain quality of education imparted by professional institutions) conduct an on-the- spot inspection to verify whether all the requirements are satisfied by the proposed institution. If the council concerned is satisfied with the facilities provided, permission is granted to start the institution. The institution is required to get affiliation from a University as well.

Though, private self-financing educational institutions were started recently, as specified in the introduction, self-financing institutions under state government came into existence during the late 1980's. The self-financing courses are generally not subsidised by the government. However government funding is made available to self-financing institutions under government sector. For

such institutions money is spent from government exchequer either in the form of State Plan fund or MLA/MP fund or local government's fund for the land and infrastructure needs.

For the present study, only the self-financing technical institutions directly functioning under the various departments of Government of Kerala are taken into consideration. More focussed study is done on the self-financing engineering colleges under Government of Kerala. Self-financing centres affiliated to different universities do not come under the purview of this study.

1.3 A brief review of the existing literature

Many of the previous studies on self-financing of higher education have already discussed the quality, equity, accessibility and affordability aspects. Many of them have questioned the mushroom growth of self-financing colleges in India in the context of, and as leading to, deteriorating the quality of education. Some studies warn that since privatization of higher education may lead to commercialization, self-financing colleges should not be encouraged. Though quality of higher education has been an explicit concern in 12th Five Year Plan (FYP), privatization as a tool to increase the scope of higher education can in all likelihood spoil its quality (Pathak, 2014).

Globalization and the growth of self-financing/un-aided colleges (especially Arts and Science colleges) in Kerala have resulted in the emergence of critical questions related to access, equity and quality of higher education (Kodoth, 2017). The discussions on self-financing educational institutions have mainly highlighted the financial and equity issues. The social and educational mobility achieved due to education in the past cannot be accomplished through the today's highly commercialized education system (Kumar and George, 2009). The approach of shifting from inclusion to exclusion has started mainly since 1990 and this is attributed to four main factors, viz "increase in private costs incurred by students, growth of student-financed institutions, strengthening of non-financial entry barriers and inadequate attention to the problems of disadvantaged groups. One related and relevant observation in this context is that the religious and the caste groups which used to finance education partly out of their own resources are taking the easier option of student-financing (2009).

The quality of engineering education has been degraded as a result of the drastic increase in the number of private educational institutions and this has automatically resulted in the

unemployment, access, equity and quality concerns. Higher education seems to become less and less affordable by a vast majority of less income group (Prakash, 2007, Tilak, 2015 and Gupta , 2015).

The liberalization of technical education and opening up of a large number of private engineering colleges has not brought the expected outcome in Kerala. Since many students enrolled in self-financing engineering colleges have no minimum capability to complete the course successfully and the quality of teachers is also very poor, the actual output in the form of engineering graduates (Out-Turn Ratio (OTR)) has been steadily declining especially since 2004. The declining OTR is an indicative of the declining quality of engineering education (Mani and Arun, 2012)

Even when multiple regulatory bodies exist, the regulation of the sector is weak. Therefore, there is a need to devise ways and means to effectively regulate the system. The role of the state will be changing from financing and managing institutions to supporting or developing a framework for moving towards a more regulated system to ensure equity in access and quality in outcomes (Thilak, 2004, Varghese, 2015).

1.4 Scope and Importance of the Study

The present study is on government owned self-financing technical education institutions in Kerala. The institutions selected for the study are Institute of Human Resource Development (IHRD), LBS Centre for Science and Technology (LBSCS & T), Centre of Continuing Education, Kerala (CCEK), the Co-operative Academy of Professional Education Kerala (CAPE, Kerala) and Sree Chitra Thirunal College of Engineering (SCTCE). These institutions are working under 3 departments of Government of Kerala- 1) Higher Education, 2) Co- operative and 3) Transport departments.

- Higher Education Department : The three autonomous technical education institutions viz, IHRD, LBSCS & T and CCEK function under higher education department.
- Co-operative Department : The Co-operative Academy of Professional Education Kerala (CAPE, Kerala) is the technical educational institution working under Co-operative department.

- Kerala State Road Transport Corporation (KSRTC)- Transport Department :Sree Chitra Thirunal College of Engineering (SCTCE) is working as an autonomous technical education institute under KSRTC of Transport Department.

Considering the demand and availability of limited seats in professional education in Government Colleges, the establishment of self-financing institutions under the control of Government was a need of the time. But now, Kerala has more engineering colleges than the national averages. A large number of sanctioned seats in engineering colleges are lying vacant and managements are competing with each other to attract students. Some of the private self-financing engineering colleges have been closed due to the difficulty of getting the required number of students to fill at least 50 percent of sanctioned seats. In this context, self-financing educational institutions under Government face many challenges. Though these institutions are meant to be self-reliant, they are unable to function with their own fund. The present situation requires the government support for the existence of these institutions. Hence it is important to analyse the fee structure and pattern of funding of the courses of these institutions. This study has also attempted to understand these institutions and their courses in terms of access, equity and quality parameters. Wherever possible, the study has done a comparative analysis of government self-financing engineering colleges (from hereon GSFECs) with the private self-financing engineering colleges (PSFECs) and government & aided engineering colleges in the State. The study further expects to be followed up with policy initiatives to address the issues and concerns.

1.5 Objectives of the Study

The major objectives of the study are:

- To analyze the functioning of self-financing technical education institutions under Government of Kerala
- To examine the financial viability of these institutions as well as social feasibility in terms of accessibility, inclusivity and affordability of technical education
- To study the challenges faced by these institutions and to propose policy measurements as way-out.

1.6 Data Source and Methodology

The study has relied on both secondary and primary sources of data and information.

Secondary data was collected from the Kerala Technological University, the Directorate of Technical Education, Directorates of IHRD, LBS, CCEK and CAPE.

For primary data collection and filed survey, 3 engineering colleges and 2 polytechnics have been selected from IHRD institutions. For understanding the overall functioning of IHRD, we have visited two Applied Science Colleges. In the case of LBS, we visited both the engineering colleges- one in Thiruvananthapuram and one in Kasaragode. In addition, we have also made a field visit to Munnar Engineering College of CCEK. Information has also been collected from three engineering colleges of CAPE and one college of KSRTC. As is clear, the study has covered different technical courses imparted through these institutions. While this is the general focus of the study its specific focus is on the engineering colleges.

Primary information was collected mainly through questionnaires. Three types of questionnaires were used for collecting the data- one for institution, one for teachers and one for students. Apart from questionnaires, we gathered information through detailed discussion with teachers, students and other staff of the institutions. Interviews and discussions were conducted with the heads of the institutions, teachers, students and representatives of respective PTAs. We have also conducted focus group discussions and special meetings at the institutions we visited. Besides, two stakeholders meetings were also been conducted.

Appropriate and simple statistical tools like graphs and tabular analysis have been used for the empirical data analysis.

Chapter II

Self-Financing Technical Institutions under Government of Kerala- An Overview

2.1 Growth of Self-Financing Engineering Colleges in Kerala

The important milestone in the growth of self-financing institutions in the State was laid down with the establishment of IHRD, an autonomous educational institute under Government of Kerala. Apart from IHRD, Co-operative academy as well as universities in the State also started professional courses from early1990s onward. However, these efforts were not adequate to meet the rising demands for professional degrees by students. More institutes were approved in the self-financing sector to start professional courses by the state. In spite of all the attempts, there were only four medical colleges and around twenty three engineering colleges by 2000. The situation created a condition for giving NOCs to twenty one new generation self- financing colleges during 1996-2001. Though the government was not in favour of giving final sanction to the new colleges, because of intervention by Hon. High Court of Kerala, all 21 colleges were allowed to start functioning in 2001.

The scenario of professional education went through another phase of radical changes with the commencement of these new set of private self- financing institutes since 2001. In the new phase the capacity of students' intake into professional courses increased by more than ten times. To put it more clearly, the annual intake of students in 1997 was 4844 through the 15 engineering colleges that functioned in the state. Over the last twenty years the number has risen such that currently there are 179 engineering colleges in the State with a sanctioned intake of 51764 of which 167 (93.3%) are self-financing colleges (unaided), 9 (5.0%) are government colleges and 3 (1.7 %) are private aided colleges (State Planning Board, 2020).

Despite such exponential growth in numbers there have been serious issues recorded about the quality of the institutions, their infrastructure and the quality of the courses being offered through these private self-financing institutions. In 2012 a Division Bench of Kerala High Court had directed the state government and the AICTE –the apex body for supervising technical education in India –to initiate steps to decertify and close down colleges that have consistently performed poorly in the preceding years. After the inspection, AICTE had to announce the closing of

around 800 colleges situated across the country for their poor admission (less than 30 percent) and for poor infrastructure.

The setbacks suffered by institutions in this area will not be complete without discussing the large number of vacant seats in engineering colleges which signify a large shift in students' preferences as well as changes in the employment sectors. Several colleges have opted for progressive closure as a result of this phenomenon since funding for quality education becomes impossible if there is no sufficient number of students. In 2017 alone around 122 private engineering colleges have opted for progressive closure due to non-takers for their courses whereas, according to a report in "The Hindu Businessline" (2019), around 75 colleges had already submitted application for progressive closure by July in 2019. This scenario coincides with the findings that as many as 80 percent of the pass outs from engineering colleges do not possess the necessary skills or knowledge to be employed properly. Studies also found that a majority of the engineering degree holders were searching for jobs in unrelated sectors with lower prospects. The mushrooming growth of engineering colleges in the country failed to take into account the receding quality of engineering education as well as the employability of the pass outs (AICTE, 2018).

2.2. **Institute of Human Resources Development (IHRD)**

One of the most prominent organisation offering technical courses at various levels in the state is Institute of Human Resources Development (IHRD), an autonomous educational institution, registered under Travancore-Cochin Literary, Scientific and Charitable Society's Act and established by the Kerala state government in 1987. The institute is functioned under the management of a Governing Body of which Minister of Education is the Chairperson and Secretary, Higher Education Department is the Vice-chairperson.

Expansion of IHRD Institutions

As per vision and mission, Institute of Human Resources Development is "dedicated to the scientific advancement, technological progress and economic growth of the country through human resources development. It endeavours to provide education and training of consistently high stands through innovative and versatile programmes suitable for the current and emerging needs of the community". Under IHRD there are 9 engineering colleges and 8 polytechnic

colleges. Unlike the normal courses provided by the IHRD there exist some special courses like Post graduate diploma in engineering, post graduate diploma in Computer Application, diploma in data entry techniques & office automation, diploma in Computer Application and certificate course in Library Science & Information Science (IHRD, 2019).

Table 2.1

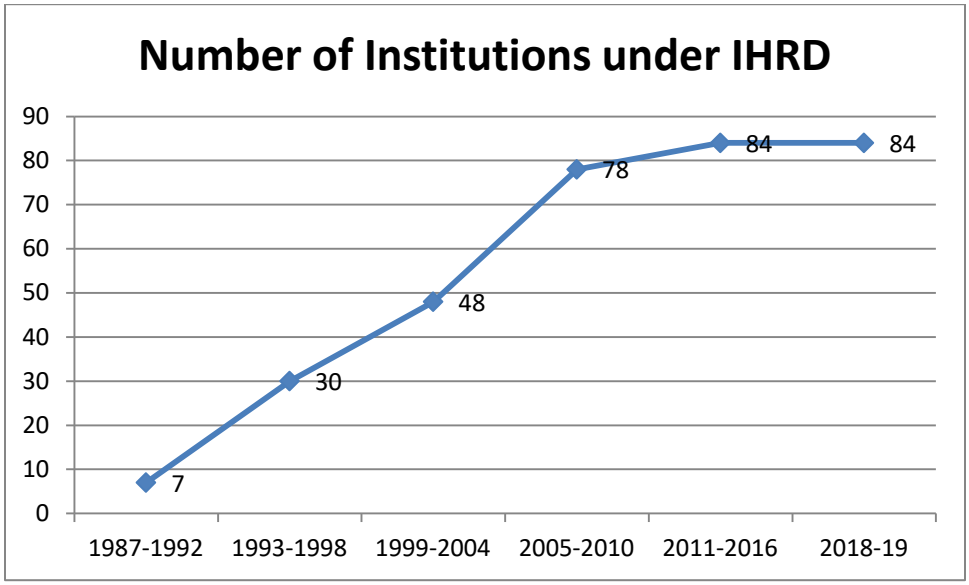
Growth of IHRD institutions since 1987

YEAR	Engineering Colleges	Polytechnic Colleges	Colleges of Applied Science	Technical Higher Secondary Schools	Regional Centre	Extension Centre	Total
1987-1992	1	2	0	4	0	0	7
1993-1998	3	6	9	9	2	1	30
1999-2004	9	6	15	15	2	1	48
2005-2010	9	8	39	15	2	5	78
2011-2016	9	8	44	15	2	6	84
Status in 2018-19	9	8	44	15	2	6	84

Source: IHRD

The first engineering college under IHRD was started at Thrikkakara in 1989. By 2014 IHRD has another 9 engineering colleges and 8 polytechnics under its management. All the engineering colleges, technical high schools and 6 polytechnic colleges of IHRD were incepted before 2005. After 2005, the institutions started by IHRD were mainly Applied Science Colleges. In total there are 84 institutions existed under IHRD in 2018. The growth of IHRD institutions over the years is shown in Figure 2.1.

Figure 2.1



IHRD, 2018

Course wise details of IHRD engineering colleges and Polytechnics are given in Annexure 2.1 and 2.2

Most of the IHRD polytechnics are located in central and northern regions of the state. The two major diploma courses offered through these polytechnics are Electronic engineering and computer engineering.

Table 2.2

Total Students Strength under IHRD

Sl. No	Course	No of Students
1	PhD.	20
2	M.Tech.	720
3	B.Tech.	9360
4	M.Sc. & M.Com.	1366
5	B.Sc., B.Com., B.A, B.B.A, B.C.A	12109
6	PG Diploma & Diploma	1200
7	Engg. Diploma	4260
8	Higher Secondary	4330
9	Secondary (Technical High Schools)	1200
Total		34565

Source: Compiled from the data given by IHRD, 2018

Caste wise and gender wise enrolment of students' in technical education at IHRD institutes is given Table 2.3. Nearly 9000 students are imparted technical education in engineering colleges and polytechnic colleges under IHRD. Among them, a good number is from socially and economically backward communities.

Table 2.3

Enrolment of Students in Engineering and Polytechnic Courses under IHRD, 2019

Colleges		Boys				Girls				Total
		General	SC/ST	OBC	Total	General	SC/ST	OBC	Total	
IHRD (Engineering Colleges)	Chengannur	571	27	186	784	539	26	136	701	1485
	Kalloopara	207	10	28	245	201	7	28	236	481
	Karunagappally	47	9	89	145	72	10	98	180	325
	Kottarakkara	53	4	64	121	40	8	46	94	215
	Poonjar	63	13	31	107	47	22	44	113	220
	Thrikkakara	628	61	170	859	507	72	124	703	1562
	Adoor	379	27	213	619	143	12	78	233	852
	Attingal	91	23	127	241	70	20	155	245	486
	Total	***2039***	***174***	***908***	***3121***	***1619***	***177***	***709***	***2505***	***5626***
IHRD (Polytechnic Collleges)	Mala	215	65	347	627	22	43	60	125	752
	Mattakara	61	45	155	261	82	8	183	273	534
	Painavu	102	56	106	264	14	9	20	43	307
	Poonjar	70	45	125	240	9	21	21	51	291
	Vadakara	12	9	94	115	5	5	42	52	167
	Karunagappally	204	60	189	453	46	24	44	114	567
	Kuzhalmannam	24	147	128	299	2	113	39	154	453
	Total	***2727***	***601***	***2052***	***5380***	***1799***	***400***	***1118***	***3317***	***8697***

Source: Compiled from the data given by IHRD

2.3 The LBS Centre for Science and Technology (LBSCS &T)

The LBS Centre for Science and Technology (LBSCS &T), Thiruvananthapuram, the institute of computer training and consultancy, registered under the Travancore-Cochin Literary, Scientific and Charitable Societies Registration Act XII of 1955 was established by Government of Kerala in 1976. The Centre was started by the Government of Kerala as an Autonomous body with the main objectives that "the Centre would act as a link between the industries and technical institutions so as to benefit society through their mutual interactions". Other than the engineering

courses LBS centres provide some special courses like, long term courses and short term courses in Computer Applications, Hardware, Software and DTP. Details are given in Appendix 2.3.

There are 2 engineering colleges under LBS management-one mixed and one women's engineering college each. Mixed engineering college is situated in Kasaragod district and Women's Engineering College is located at Thiruvananthapuram. LBS has started one applied science college also *viz*, LBS Model Degree College (Applied Science) Parappanangadi, Malappuram.

2.4 Centre for Continuing Education, Kerala (CCEK)

The Canada—India Institutional Cooperation Project (CIICP) initiated in 1993 was the genesis of Centre for Continuing Education Kerala (CCEK). CIICP was a project involving 13 polytechnics in the southern states of Kerala, Karnataka and Tamil Nadu and 10 colleges in Canada. When the project period ended the Government of Kerala decided to continue the project on its own. Accordingly, an autonomous body with the name 'Centre for Continuing Education Kerala' was established in 1998 under the Department of Higher Education, Government of Kerala. Under CCEK there are1) College of Engineering (CE), Munnar 2)Institute of Fashion Technology 3)Institute of Career Studies and Research and 4)Music School of Audio Technology. Under the Institute of Career Studies and Research, CCEK has civil service training academies which conduct training courses for civil service preparation. In Kerala, CCEK is known for its Civil Service Academies and trainings. Unlike the normal course CCEK provides computer, soft skill and some other diploma courses via sub-centers and tie-up with public sector under takings.

In the study, we focus only on the functioning of College of Engineering (CE), Munnar. The enrolment of students in CE Munnar is given Table 2.4.

Table 2.4

Enrolment of Students in CE, Munnar, 2019

Students	General	SC/ST	OBC	Total
Girls	44	29	45	118
Boys	128	25	200	353
Total	172	54	245	471

Source: Compiled from the data given by CE, Munnar

2.5 The Co-operative Academy of Professional Education, Kerala (CAPE)

The Co-operative Academy of Professional Education (Kerala) was established to run educational institutions in various professional fields to provide facilities for education and training. The Co-operative Academy of Professional Education is functioning under the Co-operation Department of the Government of Kerala and is an autonomous society under Government of Kerala. The Society is being registered under the Travancore-Cochin Literary, Scientific and Charitable Societies Act, 1955 on the basis of the Memorandum of Association and the Rules as approved by the Government of Kerala.

CAPE has 9 engineering colleges, 1 management institute and 1 finishing school. The caste wise and gender wise students' enrolment in the engineering colleges under CAPE is given table 2.5.

A good number of girls and students from back ward communities have enrolled in the colleges.

Table 2.5

Enrolment of Students in Engineering under CAPE, 2019

		Boys				Girls				Total
		General	SC/ST	OBC	Total	General	SC/ST	OBC	Total	
CAPE (Engineering Colleges)	Kidangoor	246	26	169	441	197	26	150	373	***814***
	Mattathara	121	22	198	341	54	13	99	166	***507***
	Pathanapuram	179	34	122	335	123	24	90	237	***572***
	Perumon	254	33	354	641	143	11	267	421	***1062***
	Punnapra	153	48	319	520	132	28	190	350	***870***
	Vadakara	91	11	362	464	105	19	378	502	***966***
	Aranmula	128	18	71	217	100	28	74	202	***419***
	Total	1172	192	1595	2959	854	149	1248	2251	***5210***

Source: Compiled from the data given by CAPE

2.6 Kerala State Road Transport Corporation (KSRTC)

Sree Chitra Thirunal College of Engineering (SCTCE), Thiruvananthapuram was established by the Govt. of Kerala in the year 1995 in memoriam of the Great Maharaja of Travancore and is affiliated to the University of Kerala with AICTE approval. The governing body of the college is constituted by the Government of Kerala chaired by the Minister for Transport, Higher Education Secretary, Finance Secretary, Transport Secretary and Managing Director, Kerala State Road Transport Corporation as ex-officio members. Two other members (education experts) are nominated by the chairman.

Table 2.6
Course and students details of the college

Course	Branch	I Year	II Year	III Year	IV Year	Total
B. Tech	Mechanical Engg (**ME**)	63	69	69	69	270
	Mech(Production) Engg (**MP**)	63	69	69	69	270
	Mech(Automobile) Engg (**MA**)	63	69	69	69	270
	Electronics& Communication Engg (**EC**)	126	138	138	138	540
	Computer Science &Engg (**CS**)	63	69	69	69	270
	Biotechnology & Biochemical Engg(**BT**)	63	63	63	63	252
M. Tech	Mechanical Engg -Machine Design	18	18	NA	NA	36
	Electronics -Signal Processing	18	18	NA	NA	36
	Computer Science - Computer Science	18	18	NA	NA	36
PhD	Mechanical Engg	1				
	Electronics& Communication Engg	1	4			
	Computer Science	2				

Source: SCTCE, Thiruvananthapuram

SCTCE had the privilege of being one of the top seven colleges in the state aided under the World Bank funded Technical Education Quality Improvement Program (TEQIP)-phase I of the Government of India. The college was ranked as one among the top engineering colleges in India

in many national surveys conducted by media such as OUTLOOK, THE WEEK etc. SCTCE is the only engineering college selected for bus body testing and certification Centre by Govt. of Kerala in association with KSRTC as per AIS 52 standards. Many innovative projects by students have been adjudged as best at various levels –one in Limca Books of world records. For its merits, it has been accredited by the National Board of Accreditation, New Delhi, and has also attained ISO 9001-2000 Certification. Extensive links with research institutes and industries like VSSC, DRDO, IISc have enabled SCT to maintain the vocational and practical relevance of its courses (SCTEC, 2018).

2.7 Intake of students in various Engineering colleges in the state: Management wise comparison

Though there has been an increase in engineering seats in the State since 2001, the increase is marked in self-financing colleges. There has not been much increase in the sanctioned and actual intake of students in government and government aided colleges.

Table 2.7

Students' intake in Government and Government Aided Engineering Colleges

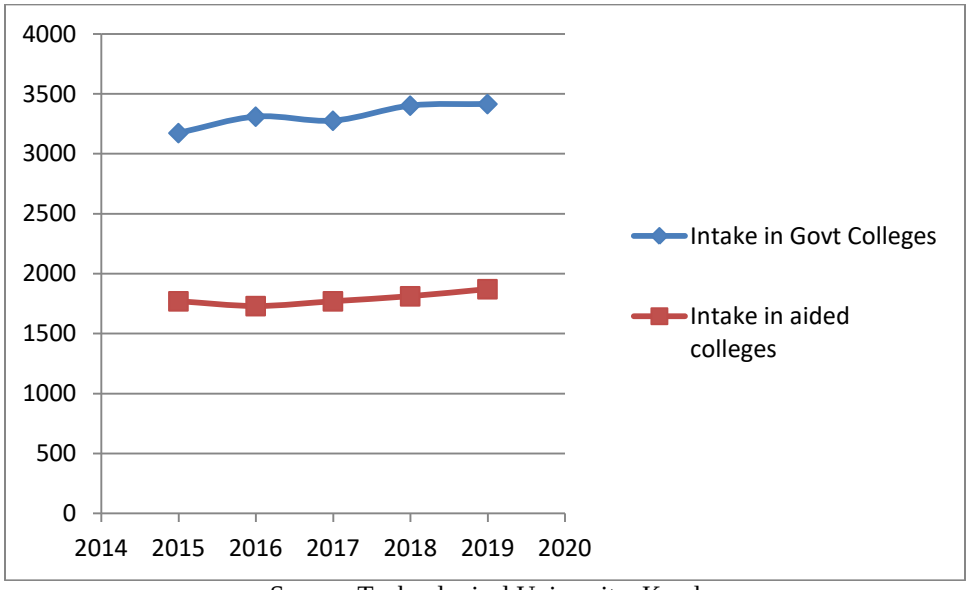
Management	Academic Year	Approved Intake	Actual Intake	Vacant Seats	Vacancy %
Government	2015	3211	3173	38	1.1
	2016	3465	3310	155	4.4
	2017	3525	3276	249	7
	2018	3465	3402	142	4
	2019	3565	3415	150	5
Government Aided	2015	1770	1770	0	0
	2016	1770	1730	40	2.2
	2017	1770	1770	0	0
	2018	1770	1812	0	0
	2019	1770	1871	0	0

Source: Technological University, Kerala

The vacant seats in government and aided colleges are also very less and it constitutes less than 5 percent in government engineering colleges while it is zero in aided colleges during the last three years. The number of seats in aided colleges is about half of that of government colleges. The following figure shows the actual intake of students in government and government aided colleges during the last five years.

Figure 2.2

Students intake in Government and aided engineering colleges in Kerala



. Source: Technological University, Kerala

When we come to the self-financing colleges, the situation is completely different. The approved intake of seats is very high compared to government and government aided colleges. Though the number of seats is comparatively high in self-financing colleges, they are not demanded. The approved intake has considerably increased, but the actual intake is decreasing over these five years.

Table 2.8

Students intake in Self Financing Engineering Colleges

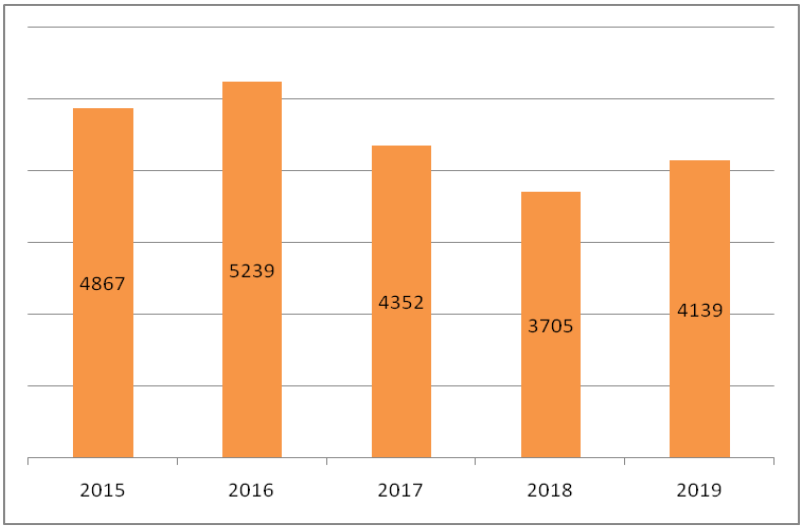
Management	Academic Year	Approved Intake	Actual Intake	Vacant Seats	Vacancy %
Government Self Financing	2015	6519	4867	1652	25.34
	2016	6669	5239	1430	21.44
	2017	6855	4352	2503	36.51
	2018	6780	3705	3102	45.75
	2019	6360	4139	2221	35
Private Self Financing	2015	46665	27197	19468	41.71
	2016	44235	24147	20088	45.41
	2017	43515	20696	22819	52.43
	2018	38031	17417	20717	54.47
	2019	35868	17919	17949	51

Source: Technological University, Kerala

More than 50 percent of approved seats are vacant in private self-financing colleges while it is below 40 percent in government self-financing colleges. The highest number of vacant seats was reported in 2017 and 2018. Hence, the number of approved seats has been reduced since 2019.

Figure 2.3

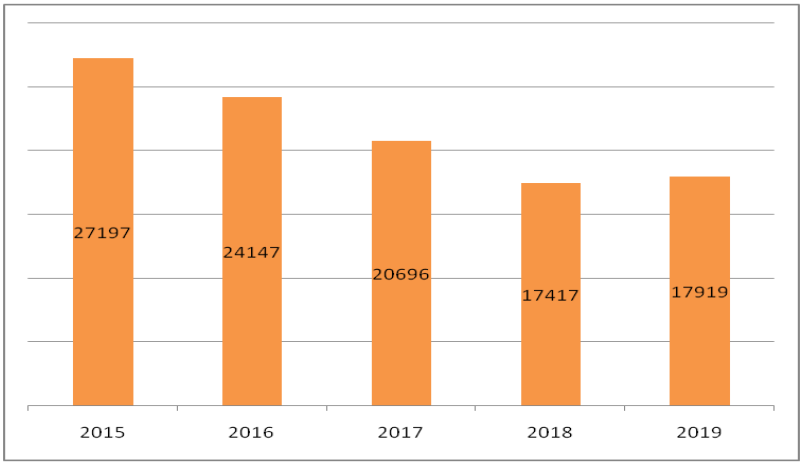
Students intake in Government self-financing Engineering Colleges over the years



Source: Technological University, Kerala

Figure 2.4

Students intake in Private self-financing Engineering Colleges over the years



Source: Technological University, Kerala

There has been an increase in the actual intake of students in government owned self-financing institutions in 2019 compared to private self-financing institutions.

The stakeholders meeting of teachers, heads of the institutions and representatives from education department addressed the issue of decreasing intake of students in government self-financing colleges and the discussion was explorative for finding out the ways forward regarding this.

- *Admission problem*

  Since 2013 there has been the problem regarding the admission to the GSFECs in Kerala. After 2 allotments the intake window is closed for institutions and outflow window is kept open. This results in the shortage of enrolment of students in these institutions. Hence, it is important that the admission window has to be kept open for all allotments to government self-financing institutions.

- *Declining demand*

  Most of the conventional courses have lost its demand in the market. Recently management oriented courses are getting demanded. This circumstance results in the reduction in enrolment. B.Tech graduates are now opting MBA courses and banking

sector. Hence, it is essential to start more innovative and demanded courses in these institutions.

- *Quality and qualification of faculty*

  In order to increase the number of PhD holders among faculty in the institutions, teachers should be given more facilities for research. Two or three research centres can be started in these colleges where there are facilities for that. Teachers should be given opportunity to do full time Ph. D under Faculty Improvement Programme (FIP) as in government colleges. Quality of the faculty is a mandatory condition for the good performance of an institution, and it will help them to build a legacy.

- *Tag problem of 'self-financing college'*

  The term 'self-financing' affects the institutions negatively during admission as the parents/students consider these institutions just equal to private self-financing colleges. So it is necessary to specifically re-categorize these colleges under a new tag. It is appropriate to sanction an autonomous status to these institutions under one common departmental authority.

- *Introduction of innovative and highly demanded courses*

  Institutions have to implement innovative courses according to the changing trend of the market and industry. By interacting with the industries, the institutions can introduce new courses in accordance with the prevailing demand. The institute-industry linkages should be made possible.

- *Rationalize the number of seats*

  There is no necessity to fix the number of seats for intake. Rationalization of the number of seats is very important. By analyzing the demand and supply side of the courses it should be decided. The number of seats and its operations should be flexible in order to absorb the cyclical trend prevailing in the scenario.

Chapter III

Financial Viability and Social Feasibility of Self-Financing Engineering Colleges under Government of Kerala

The term viability is generally used in business administration and it is defined as the capacity of an organisation to survive successfully. Financial viability of any organisation means its capacity to generate inflow of fund (revenue) for the successful functioning. However in the context of an educational institution, alongside financial viability its social feasibility is equally or, sometimes, even more important. In our context social feasibility mainly includes such factors as accessibility, inclusivity and affordability of education. In this chapter we have attempted to make an elaborate analysis of both the financial viability and social feasibility of GSFECs in Kerala. By giving equal weightage to both this parameters, the question of social feasibility is specifically analysed against its components as mentioned above.

3.1 Financial Viability

3.1.1 Students' intake in GSFECs

The details of students' intake of these institutions are given in Table 3.1. The year wise details of the sanctioned and actual intake (as shown in annexure 3.1) shows that there is gradual decline of admission over the years in these institutions. The students' intake has drastically fallen in the recent years. The college wise admission details in 2019 is given in Annexure 3.2.The only three institutions where there is no decline in intake are MEC Thrikkakkara, SCTCE Thiruvananthapuram and LBS Thiruvananthapuram. Only 5 colleges have students' intake of 80 percent or above of their approved seats. MEC and SCTCE have crossed 100 percent of sanctioned intake due to lateral entry admission of the students. However CE Poonjar and CE Kottarakkara could only fill in 30 percent of their approved seats.

Table 3.1
Sanctioned and Approved Intake of Students

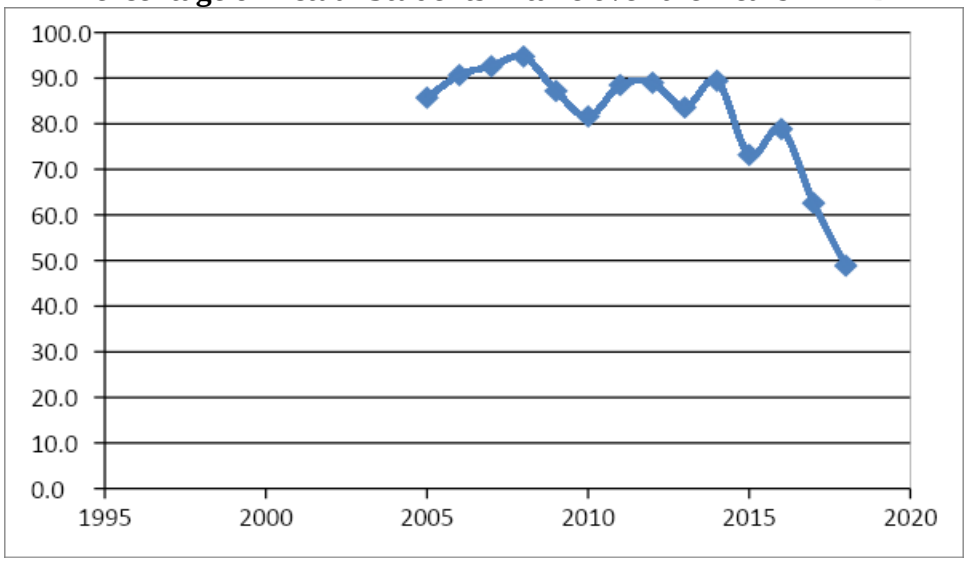
YEAR	2016			2017			2018			2019		
	SI	AI	% of AI to SI	SI	AI	% of AI to SI	SI	AI	%	SI	AI	% of AI to SI
IHRD	2323	1831	79	2413	1511	63	1873	915	49	1620	993	61
CAPE	3002	2085	70	2895	1760	61	2640	1456	55	2580	1608	62
CCEK	240	142	59	240	99	41	240	65	27	180	85	47
LBS- KSGD	180	145	81	180	111	62	180	65	36	540	278	51
LBS TVM	414	374	90	414	286	69	378	273	72	360	295	82
SCT	441	419	95	441	406	92	441	407	92	420	428	102

Source:IHRD, CAPE, CCEK, LBS and SCTCE
Note: SI= Sanctioned Intake, AI= Actual Intake

3.1.2 Financial Position of IHRD over the Years

Though IHRD has received government assistance in various forms for infrastructure facilities, the day to day functioning of the institution mainly depends on the fees paid by the students. Figure 3.1 below shows that the overall admission to IHRD has been falling consistently since the year 2013. The drastic decline started from 2015.

Figure 3.1
Percentage of Actual Students Intake over the Years- IHRD



Source: IHRD

The fund position of IHRD has worsened since 2015 when the students' intake also started to decline. The correlation between admission and own fund status of the institution is clearly seen in Table 3.2. In the table, total revenue comprises of the income from fees as well as government assistance (including MLA and MP fund). Until 2015, financial assistance from the government was not a major requirement for IHRD. But since 2015, IHRD's dependence on government has increased considerably. The gap between revenue and expenditure has widened over these years. The revenue in terms fees and other contributions declined and expenses for salaries increased over the years. This was acutely felt during 2015-16 as there was a sudden increase of expenditure. This was mainly because the increment arrears of salary to the teachers and 9th pay revision to non-teachers were implemented in this period. The gap thus created is now met through additional authorization of non-plan fund from the government.

Table 3.2

Financial Position of IHRD- Over the Years (Rs. in crore)

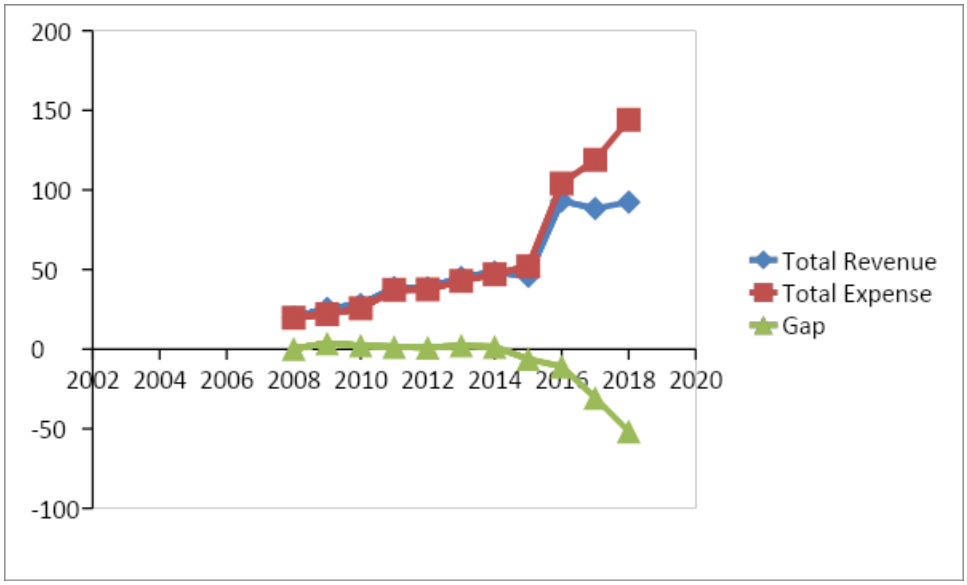
Year	Percentage of Students Intake	Total income	Expenses			Net Revenue
			revenue (fees)	Salary Expense	Total Expense	
2008	94.7	19.89	18.84	14.7	19.73	0.16
2009	87.2	25.65	23.65	16	21.96	3.69
2010	81.6	27.96	25.43	18.78	25.64	2.32
2011	88.5	38.6	35.51	27.43	37.23	1.37
2012	89.0	38.45	36.89	30.8	37.52	0.93
2013	83.6	45.07	42.22	35.49	42.85	2.22
2014	89.4	48.45	46.54	39.94	47.01	1.44
2015	73.1	45.75	44.49	46.51	52.01	*-6.26*
2016	78.8	93.04	42.44	94.87	104.02	-10.98
2017	62.6	88.27	40.39	109.22	118.88	-30.61
2018	48.9	92.33	40.02	138.76	144.04	-51.71

Source: IHRD

Figure 3.2 clearly shows that and the gap between revenue expenditure is widening during the last four years and net revenue has become negative since 2015.

Figure 3.2

Financial Position of IHRD- Over the Years

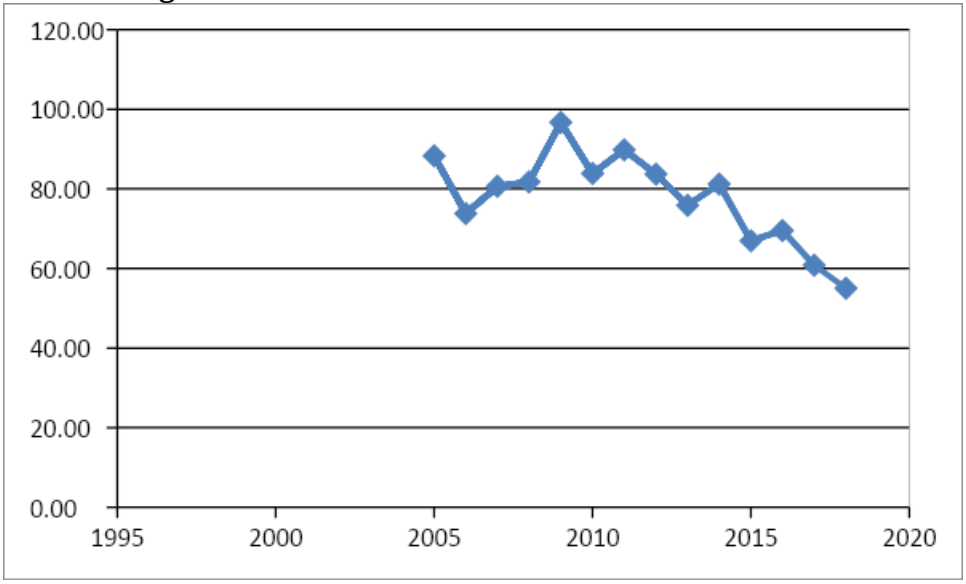


Source: IHRD, Note: Here 'gap' implies net revenue after deducting total expenditure from total revenue

3.1.3 Financial Position of CAPE over the Years

The engineering colleges under CAPE also face the serious problem of low students' intake. Here also sharp decline in admission started in 2015. Unlike IHRD colleges, most of the colleges under CAPE have the students' intake of above 55 percent (see Annexure 3.2). Since 2010 there has been gradual decline in the students' intake, but the decline from 2014 is more prominent. See figure 3.3.

Figure 3.3
Percentage of Actual Students Intake in CAPE- Over the Years



Source: CAPE

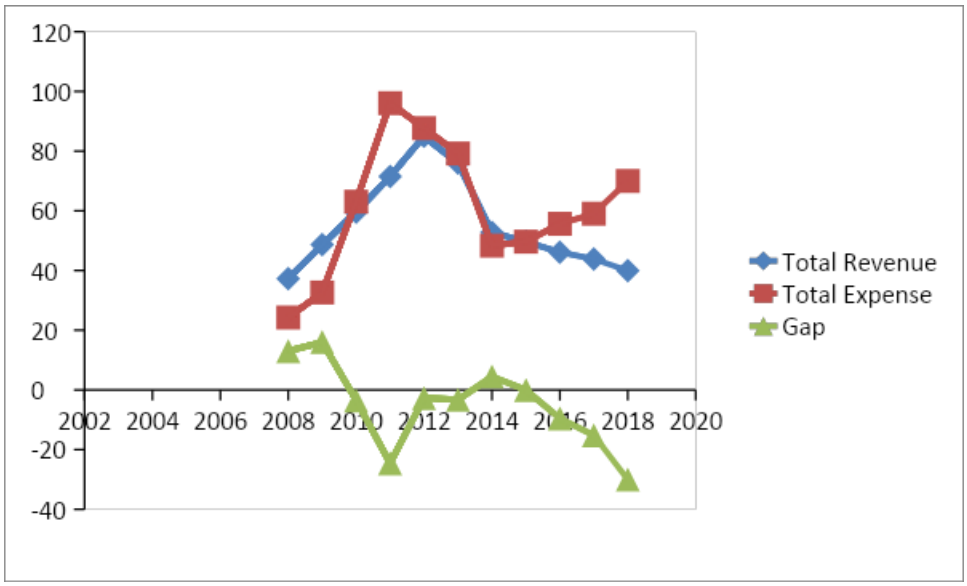
In the case of CAPE colleges also, the financial crisis mainly started after 2015. Until 2015, the gap between revenue and expenditure was narrow (see Table 3.3). The deficit was below Rs.5 crore before 2015 while it has reached to Rs.30 crore within this span of last 4 years.

Table 3.3
Financial Position of CAPE- Over the Years (Rs. in crore)

Year	% of Students Intake	Total Revenue	Expenses			Net Revenue
			Revenue from Fees	Salary Expense	Total Expense	
2008	81.75	37.28	26.73	11.15	24.26	13.02
2009	96.68	48.65	34.32	15.68	32.63	16.02
2010	83.86	59.58	43.62	24.4	63.06	-3.48
2011	89.83	71.49	51.8	39.1	96.05	-24.56
2012	83.73	84.97	62.48	48.4	87.69	-2.72
2013	75.89	75.94	56.33	55.86	79.2	-3.26
2014	81.22	52.81	43.97	36.32	48.35	4.46
2015	66.97	49.64	40.38	39.75	49.67	-0.03
2016	69.53	46.11	38.46	45.93	55.64	-9.53
2017	60.79	43.83	35.38	50.47	59.03	-15.2
2018	55.00	40	35	60	70	-30

Source: CAPE

Figure 3.4
Financial Position of CAPE- Over the Years



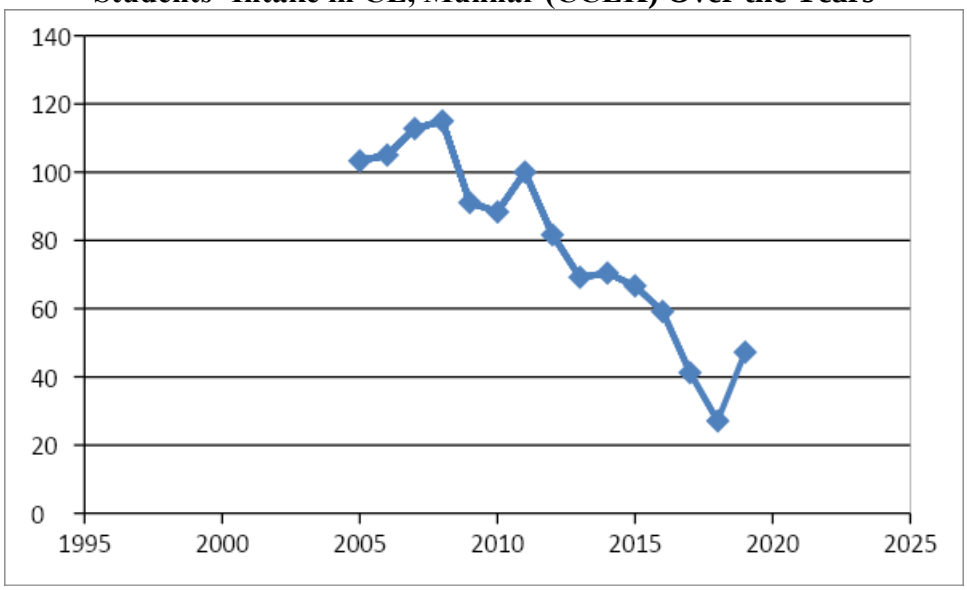
Source: CAPE;
Note: Here 'gap' implies net revenue after deducting total expenditure from total revenue.

During the period of 9 years from 2010 to 2018, only one year witnessed positive net revenue and after that the deficit started to increase more steeply. Currently the deficit is met by Co-operative department from its own fund.

3.1.4. Financial Position of CE, Munnar of CCEK over the Years

The students' intake in CCEK started to decline from 2012 onwards and there has been more prominent decline since 2014. The students' intake over the last 14 years of CCEK is depicted in Figure 3.5. From 2013 to 2018, gradual and sometimes sharp decline is seen. But in 2019 there was a small increase in students' intake and since 2019 the sanctioned seats have been reduced because of the continuous decrease in intake.

Figure 3.5
Students' Intake in CE, Munnar (CCEK) Over the Years



Source: CCEK

The salary and other day-to-day expenses could be met from fee remittance by the students till the year of 2015, though there has been a small deficit since 2012 when the total expenditure is considered. From the field visit, it is gathered that the last capital investment made from the college's own fund was the construction of a beautiful library block and the college has spent more than Rs.1.5 crore for the same.

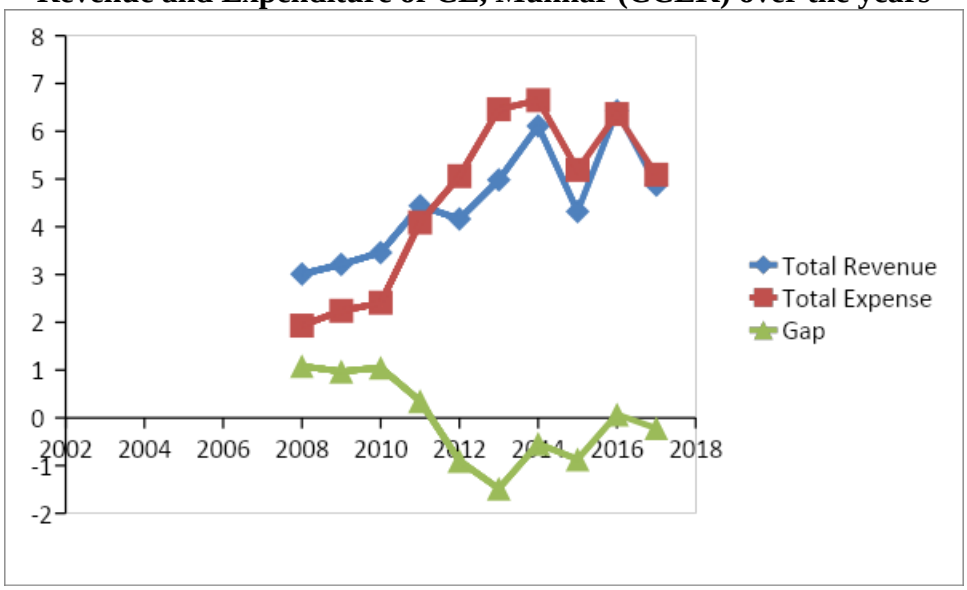
Table 3.4
Financial Position of CE, Munnar (CCEK)- Over the Years (Rs. in crore)

Year	% of Students intake	Total Revenue	Income From Fees	Salary Expense	Total Expense	Net Revenue
2008	115.00	3.01	2.37	1.43	1.93	1.08
2009	91.11	3.21	2.68	1.43	2.24	0.97
2010	88.33	3.46	2.79	1.67	2.41	1.05
2011	100.00	4.44	3.51	2.59	4.09	0.35
2012	81.67	4.16	3.31	2.78	5.06	*-0.9*
2013	69.17	4.98	3.85	3.09	6.46	*-1.48*
2014	70.42	6.11	4.12	3.41	6.65	*-0.54*
2015	66.67	4.32	3.55	3.86	5.19	*-0.87*
2016	59.17	6.43	3.12	4.28	6.36	0.07
2017	41.25	4.87	2.87	4.13	5.09	*-0.22*

Source: CCEK

The trends of revenue, expenditure and net revenue over the years are depicted in figure 3.6. The plan fund received from the Government during the last two years has reduced the burden of deficit. The extra expenses mainly the salary to the staff are given out of CCEK's surplus revenue from other institutions and short term courses.

Figure 3.6
Revenue and Expenditure of CE, Munnar (CCEK) over the years



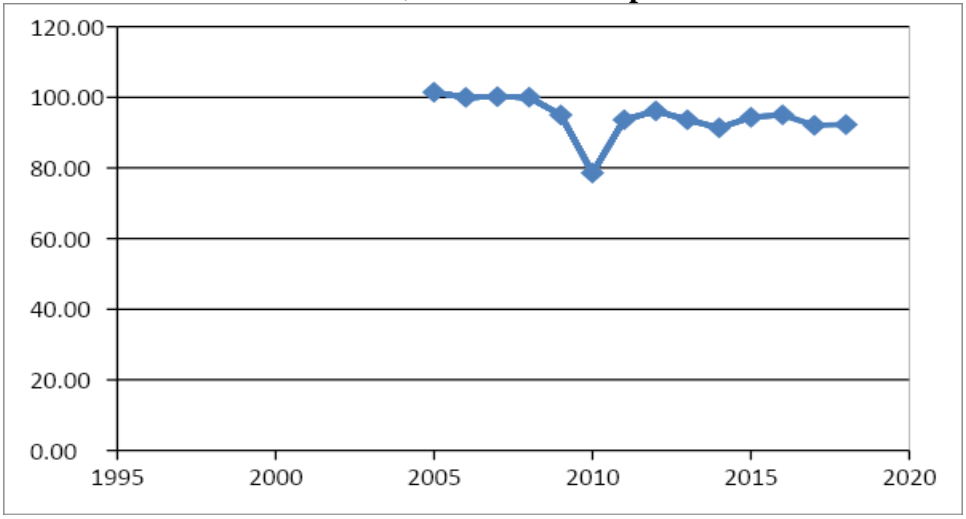
Source: CCEK

Note: Here 'gap' implies net revenue after deducting total expenditure from total revenue.

3.1.5. Financial Position of SCTCE, Thiruvananthapuram

The only engineering college under KSRTC which has a better reputation than many of the government engineering colleges does not have the problem of students' intake. In 2019, SCTCE has more than 100 percent of actual student intake to its sanctioned intake. The students' intake for the last 14 years is depicted in figure 3.7.

Figure 3.7
Students' Intake in SCTCE, Thiruvananthapuram Over the Years



Source: SCTCE

Since there is a very good correlation between revenue of the institution and students' intake, the problem of deficit is not so acute in SCTCE as in the case of IHRD, CAPE, CE Munnar and LBS. Here the deficit started from 2012 onwards and salary expense has not been fully met by the income from fees since 2012. In SCTCE pay commission recommendation for faculty was implemented during 2012 and that is the main reason for the expenditure hike. The pay commission benefits for non-teaching staff were given on 2015 which again worsens the situation. The college could manage the extra expenses from the surplus fund of previous years deposited in the bank.

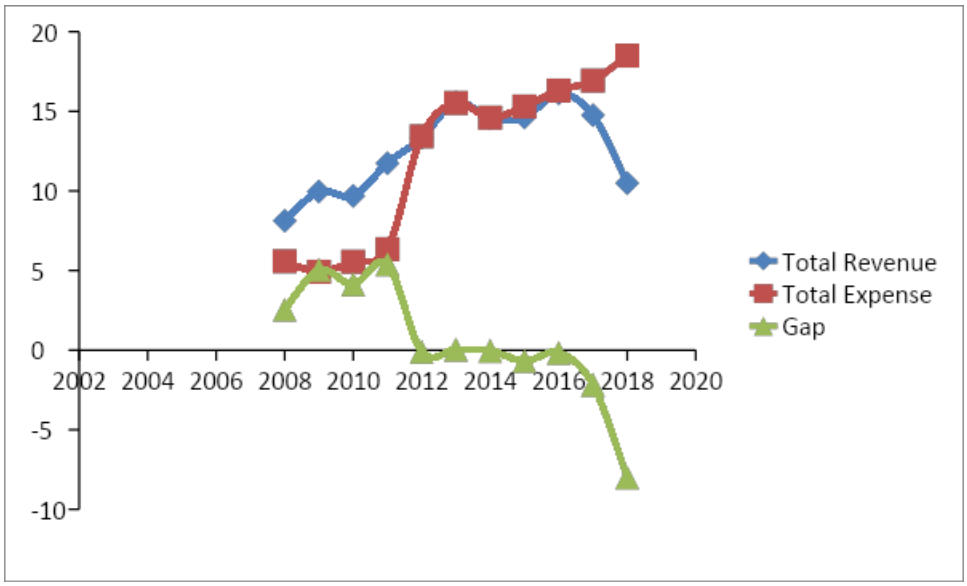
Table 3.5
Revenue and Expenditure of SCTCE, Thiruvananthapuram over the years

Year	% of students intake	Total Revenue	Income From Fees	Salary Expense	Total Expense	Net Revenue
2008	100.00	8.12	5.83	2.9	5.58	2.54
2009	95.02	9.96	6.99	3.31	4.92	5.04
2010	78.57	9.69	7.22	3.99	5.55	4.14
2011	93.65	11.74	8.74	4.63	6.34	5.4
2012	96.15	13.33	9.13	9.93	13.43	-0.1
2013	93.65	15.56	10.14	8.97	15.52	0.04
2014	91.38	14.56	10.66	9.64	14.6	-0.04
2015	94.33	14.62	10.27	11.94	15.3	-0.68
2016	95.01	16.13	11.2	12.22	16.3	-0.17
2017	92.06	14.76	10.63	15.14	16.93	-2.17
2018	92.29	10.5	10.5	16	18.5	-8

Source: SCTCE

The trends of revenue and expenditure of SCTCE over the last 10 years are depicted in figure 3.8 and it is seen that the negative net revenue occurred after 2012. It is clear from the table and figure that even with 100 percent of students' intake, the college cannot run in a financially viable manner. In order to attain financial viability, either the fees has to be increased or the salary has to be reduced. But both the measures cannot be accepted if the system remains to be inclusive in nature.

Figure 3.8
Revenue and Expenditure of SCTCE over the years



Source: SCTCE
Note: Here 'gap' implies net revenue after deducting total expenditure from total revenue.

3.1.6. Financial Position of LBS Engineering Colleges

Like other government self-financing colleges, LBS also faces serious problem of fund. Though LBSITW, Poojappura has better students' intake (3rd among all government owned self-financing colleges), LBSCE, Kasaragod has below 60 percent of intake in 2018 and 2019. During the study, we visited both the colleges. Compared to other colleges, LBSCE, Kasaragod has got plenty of land, but the infrastructural facilities in terms of hostel, lab facilities, auditorium etc. are not satisfactory. Hence, the college does not attract the students. Apart from that another college of same nature (CE Thrikkarippur of CAPE) functions in the same district without much distance. The college also faces the competition from the nearby private self-financing colleges in Mangalapuram.

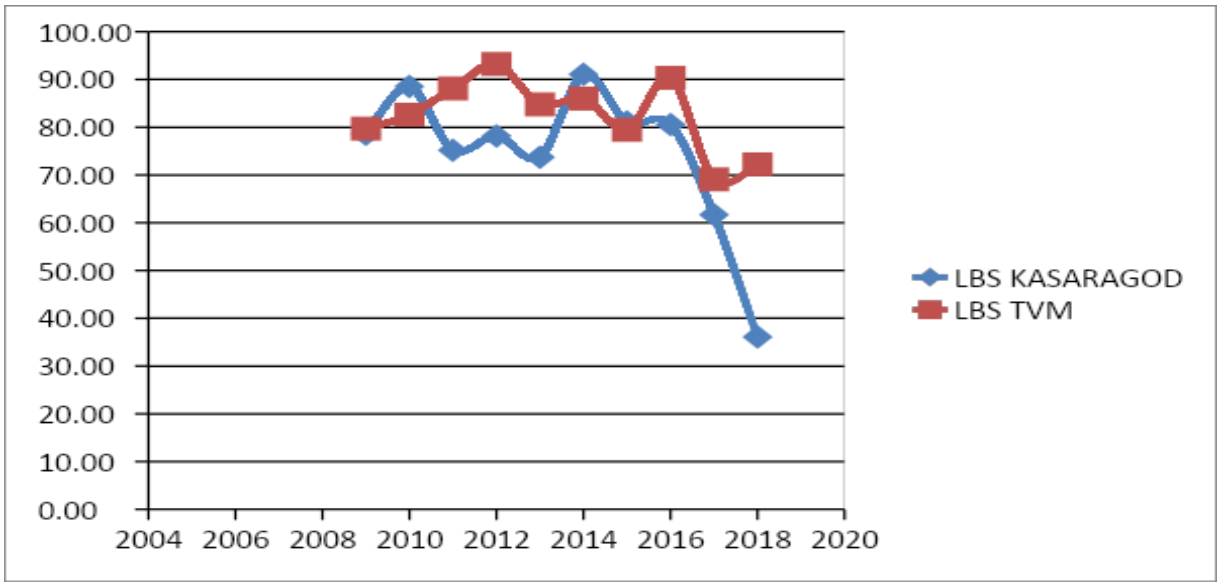
Table 3.6
Students' Intake in LBS Colleges Over the Years

Year	LBSCE, Kasaragod			LBSITW – Poojappura		
	SI	AI	% of AI to SI	SI	AI	% of AI to SI
2009	540	424	78.52	345	275	79.71
2010	540	478	88.52	345	285	82.61
2011	540	406	75.19	345	304	88.12
2012	540	422	78.15	414	386	93.24
2013	540	398	73.70	414	351	84.78
2014	480	437	91.04	414	356	85.99
2015	180	146	81.11	414	329	79.47
2016	180	145	80.56	414	374	90.34
2017	180	111	61.67	414	286	69.08
2018	180	65	36.11	378	273	72.22

Source: LBS

The decline of students' intake over the years is seen in Figure 3.9 also. Due to continuous fall in actual intake, the sanctioned intake has been reduced since 2015 in LBSCE, Kasaragod. Even then, the college tries hard to admit students above 60 percent of its sanctioned intake during recent years.

Figure 3.9
Percentage of Students' Intake in LBS Colleges over the Years



Source: LBS

Table 3.7
Revenue and Expenditure of LBS Institutions over the years

Year	Total Revenue	Income From Fees	Salary Expense	Total Expense	Net Revenue
2014	22.41	16.55	16.06	24.02	-1.61
2015	22.82	17.75	17.94	26.91	-4.09
2016	24.67	18.42	17.55	26.41	-1.74
2017	22.21	17.8	19.12	26.5	-4.29
2018	18.43	13.73	17.43	23.67	-5.24

Source: LBS

3.2. Social feasibility of the Government Self Financing Institutions

As we discussed earlier, the social feasibility is defined as inclusivity, affordability and accessibility of education. Accessibility of education is attained when the education becomes inclusive and affordable. Social feasibility is examined through a number of factors like girls' proportion in enrolment, inclusion of SC/ST students and students from remote areas and affordability in terms of fees and other expenses.

3.2.1 Inclusivity

The case of girls' enrolment

Though there is a general notion that girls are poorly enrolled in technical education, here there is no much difference between girls and boys. But in the case of polytechnics, the enrolment of girls is less compared to boys. (Institution wise details of the girls in these colleges are given in Annexure 3.5)

Table 3.8
Girls' Enrolment in the Self-financing Technical Institutions under Government of Kerala

Institution	Boys	Girls	Total	% of Girls
IHRD Engineering colleges	3121	2505	5626	44.53
IHRD Polytechnic Colleges	5380	3317	8697	38.14
CAPE Engineering Colleges	2959	2251	5210	43.21
CCEK	353	118	471	25.05
LBS KSGD	197	261	458	56.99
LBS TVM	0	1262	1262	100
SCTCE	1058	572	1630	35.09
Total	13068	10286	23354	44.04

Source: IHRD, CAPE, LBS, SCTCE and CCEK

The girls' enrolment in CE, Munnar is least (only 25 percent) mainly because of its locational disadvantage and lack of hostel facilities. The girls' hostel, a rented facility taken by the institute, is distantly located from the college. *"When the parents and students come for admission and make a one and half journey to hostel, they don't admit their children here...if there is rain on the day, they will surely be scared and will run away" (Teachers, during interaction session).*

Inclusion of students from backward communities

The shift from inclusive nature of higher education to exclusion is attributed to four main factors, viz increase in private costs which be incurred by students, growth of student-financed institutions, strengthening of non-financial entry barriers and inadequate attention to the problems of the disadvantaged groups. (Kumar and George, 2009).

It is seen from the table that a large number of students from backward caste have enrolled in these institutions. About 11.02 percent of the total enrolled students are from SC/ST communities while the percentage is indeed high while considering the OBC category.

Table 3.9
Enrolment of Students from Back ward Communities*

	General	SC/ST	OBC**	Total	%
Boys	7128	1619	6660	15407	57.69
Girls	4810	1325	5166	11301	42.31
Total	11938	2944	11826	26708	100
%	44.70	11.02	44.28	100	

Source: IHRD, CAPE, LBS, SCTCE and CCEK
*This includes enrolment of students in Applied Science Colleges also
** SCTCE has not given the details of OBC students separately

The category wise and gender wise as given in Table 3.9 shows that among girls, the proportion of SC/ST girls is high. In all institutions this comes true. Though the number of total girls in CE, Munnar is less, the percentage of SC/ST girls is 25 percent.

Table 3.10
Enrolment of Students- Category and Gender wise

	BOYS				GIRLS			
Institution	General	SC/ST	OBC	Total	General	SC/ST	OBC	Total
IHRD (Engineering Colleges)	2039	174	908	3121	1619	177	709	2505
%	65.33	5.58	29.09	100.00	64.63	7.07	28.30	100.00
IHRD (Polytechnic Colleges)	2727	601	2052	5380	1799	400	1118	3317
%	50.69	11.17	38.14	100.00	54.24	12.06	33.71	100.00
CAPE (Engineering Colleges)	1172	192	1595	2959	854	149	1248	2251
%	39.61	6.49	53.90	100.00	37.94	6.62	55.44	100.00
CCEK	128	25	200	353	44	29	45	118
%	36.26	7.08	56.66	100.00	37.29	24.58	38.14	100.00
LBS- KSD	75	9	113	197	109	12	140	261
%	38.07	4.57	57.36	100.00	41.76	4.60	53.64	100.00
SCTCE*	1008	50	0	1058	549	23	0	572
	95.27	4.73	0	100	95.98	4.02	0	100

Source: IHRD, CAPE, CCEK, SCTCE and LBS, KSD

- SCTCE has not given the details of OBC students separately

The students' intake of engineering colleges over the years shows that 5-7 percentage of students are from SC/ST communities (See table 3.10). This proportion is more or less equal to the proportion of government engineering colleges. The location of engineering colleges helps the students from remote areas (like, Munnar and Kasaragod) to avail engineering education.

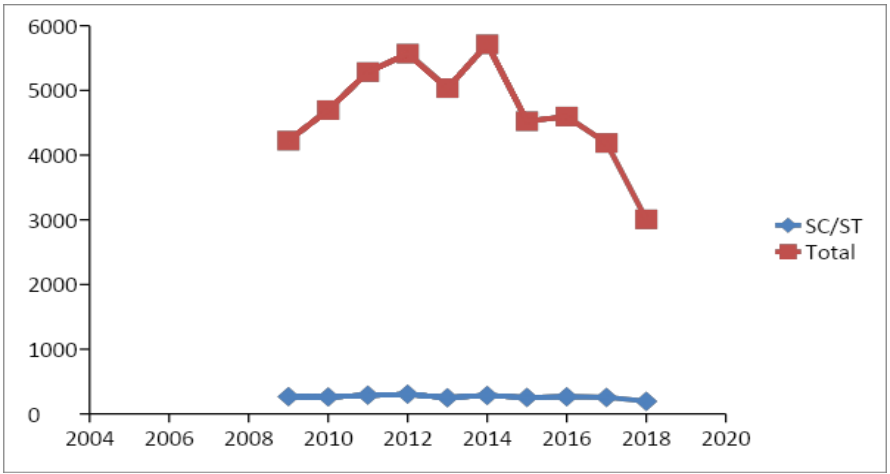
Table 3.11
Proportion of SC/ST students in Engineering Colleges

Year	2009		
	SC/ST	Total	%
2009	266	4224	6.30
2010	264	4696	5.62
2011	290	5283	5.49
2012	304	5569	5.46
2013	251	5035	4.99
2014	285	5713	4.99
2015	254	4524	5.61
2016	265	4596	5.77
2017	255	4188	6.09
2018	196	3007	6.52
Total	2630	46835	5.62

Source: compiled from the data given by IHRD, CCEK, LBS, CAPE and SCTCE

Though students intake in GSFECs declines over the years especially after 2014, there is no proportionate decline of students' intake from SC/ST communities (See Figure 3.10**).** This may be because of the locational advantage of these institutions to the students from those areas.

Figure 3.10
SC/ST Students' Intake in Engineering Colleges over the Years



Many studies have observed that many students from marginalized communities of SC and ST are not able to complete the engineering course even from government engineering colleges and polytechnics. This drop-out tendency of scheduled caste and scheduled tribe students from technical education was even observed during 1980s (DES, 1987). When we examine the pass percentage of students from backward communities, it can be under stood that even now the same situation continues.

Table 3.12
Pass percentage of SC/ST B.Tech students, 2019

Management	SC			ST			Total		
	Registered Students	Passed Students	Pass %	Registered Students	Passed Students	Pass %	Registered Students	Passed Students	Pass %
Government	236	89	*37.7*	27	15	*55.6*	3277	2407	*73.5*
Private Aided	120	68	*56.7*	13	7	*53.9*	1903	1443	*75.8*
GSFECs	160	47	*29.4*	2	1	*50*	4810	3129	*65.1*
S	485	156	*32.16*	23	6	*26.1*	23761	15064	*63.4*
Total	1001	360	*36*	65	29	*44.6*	33751	22043	*65.3*

Source: Kerala Technological University, 2019

It is a disturbing fact that the pass percentage of SC/ST students is far below the total pass percentage. Compared self-financing colleges, the pass percentage in government and government aided colleges is little bit high.

3.2.2 Affordability

Privatization of professional education has led to marginalize the poor students from technological knowledge, it seldom enhanced the quality of education since the criteria of admission is the capability of the students to pay higher fees and huge donation. Even though the courts have banned capitation fees clever managements and affluent students can violate it in many ways (Justice Denesan Commission Report, 2017).

Though the fees and admission expense in GSFECs are higher than that of government and aided colleges, it is affordable to students when compared to that of s (as given in Table 3.12). The fee in GSFEs is fixed and transparent while it is not the same in all PSFECs (See Annexure 3.6). Parents can bargain with PSFECs for reduction of fees and sometimes they give some offers and incentives to attract the students.

Table 3.13
Fee structure (2012-13 onwards)

Institution		Govt Quota	Management Quota	NRI Quota
Govt self financing		Rs.50000-65000**	Rs 65,000/-	Rs 1,00,000/-
Private Self financing	Reduced		50000-75000	Rs 1,50,000/-
	Normal*		85000-13500	Rs 1,50,000/-
Govt and Aided		Rs 8,225/-	Rs 8,225/-	Rs 8,225/-

Source: Office of Commissioner for Entrance Examinations

*Note: Some colleges compel the students to make deposit of refundable amount of Rs.1 lakh

** Though government has fixed fees, PSFECs collect flexible fees according to the demand

When higher education becomes less affordable, it naturally leads the students to banks for getting educational loans. But when they enter in to the courses, a good number of them realize that they are not able to complete the course and drop out from the course (Tilak, 2015). But in GSFECs, the financial burden of parents due to bank loan is not as high as in the case of

PSFECs. Most of the students in GSFECs are not from high income families and occupational status of the parents as given in Table 3.13 also shows the same. Still they have less dependence on bank loan mainly because the study in GSFECs is not as expensive as in PSFECs.

Table 3.14
Occupational background of parents of the students

Occupation of Father									
	Govt employee	Business	Farmer	Private job	Teacher	College teacher	Wage earner	Self empt	Others
Number	107	67	49	78	5	7	22	35	130
%	21.4	13.4	9.8	15.6	1	1.4	4.4	7	26
Occupation of Mother									
	Govt employee	Business	Farmer	Private job	Teacher	College teacher	Wage earner	Self empt	Others
Number	61	4	3	18	63	2	5	16	328
%	12.2	0.8	0.6	3.6	12.6	0.4	1	3.2	65.6

Source: Compiled from primary data

The proportion of students who have availed bank loan is very low. Only 67 students out of the total 500 (13.4 percent) students had to depend on bank loan for their education. Loan amount of 47 out of 67 students was in between Rs. 2 lakh to Rs. 5 lakh.

Summary

Though the functioning of the GSFECs is not financially viable, they are socially feasible in terms of accessibility, inclusivity and affordability of technical education. Hence, the financial support from the government is very much essential for the sustenance of the GSFECs. Instead of supporting all colleges uniformly, government financial support can be limited to the colleges considering their performance and other factors. For this purpose, an integration of managements is needed so that all colleges will come under the single management. There needs a special committee to study the integration or merging of these institutions.

Chapter IV

Quality of Teaching and Learning

Quality of Teaching and Learning in Government Self-Financing Engineering Colleges is examined here in terms of a number of factors- input, output and outcome. 1) The input factors consists of availability of qualified teachers, their academic performance, infrastructural facilities and space for co-curricular activities, 2) the output factor consists of pass percentage and 3) outcome factor includes details of placement. These factors and their elements as mentioned above have been considered for making the assessment of quality of education in these institutions.

4.1 Availability and qualification of Teachers

Teaching quality is an important factor for the enhancement of the quality of students in the field of engineering education. The qualification of the faculty, their participation in programmes such as FDPs, workshops, national and international conferences, certification programmes, colloquiums, publication of their research outcomes and consultancy services can help to improve the quality of teaching. In order to enhance the quality of the engineering degrees in the state, importance is to be given to the methods that will increase the quality of teaching. (Prasanth *et al* 2015).

The number of permanent teachers in the institution is an important factor which determines the quality of teaching as well as teacher-student relationship. Compared to private self-financing colleges, the autonomous colleges under government sector in the state have good number of permanent teachers (Justice Denesan Commission Report, 2017). According to the commission's report the teaching staff at private self financing engineering colleges in general receives very less payment comparing to their counterparts in the GSFECs. While the permanent teachers in GSFECs draw salary as per AICTE norms the temporary teaching staff at the same colleges draws a lesser salary but still conforming to the government norms. The salary and security of the job, to a large extent, determines the quality of work. In a stressed atmosphere of job insecurity, the quality of teaching will naturally be poor. Hence, it is important to provide higher salaries as suggested by AICTE.

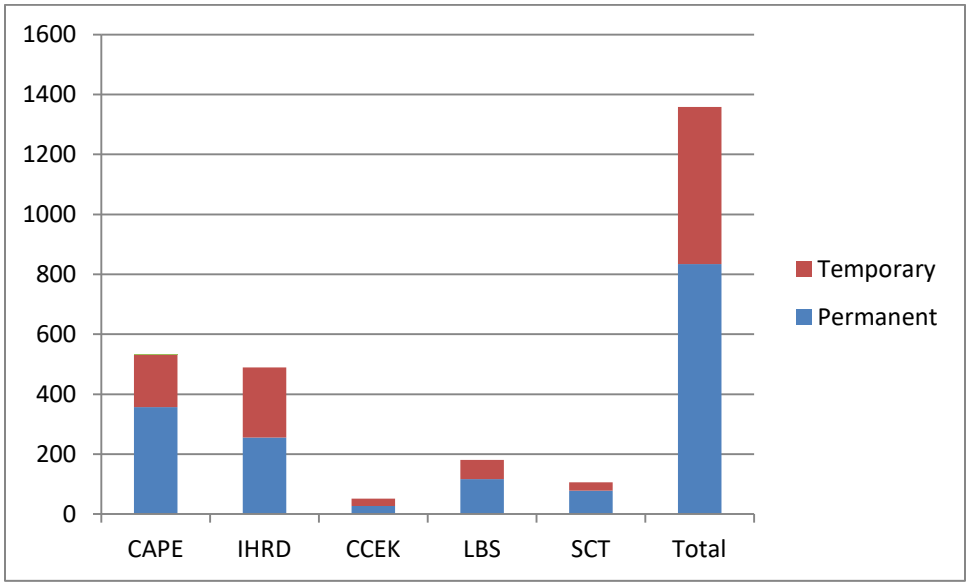
Table 4.1
Number of Teachers

Teachers	Institution	CAPE	IHRD	CCEK	LBS	SCT	Total
	Permanent	172	127	15	60	41	**415**
	Temporary	62	55	10	21	15	**163**
Male	Total	234	189	25	81	58	**587**
	Permanent	185	128	12	57	37	**419**
	Temporary	112	179	14	43	13	**361**
Female	Total	341	323	26	100	55	**845**
	Permanent	357	255	27	117	78	**834**
	Temporary	174	234	24	64	28	**524**
Total	Total	575	512	51	181	113	**1432**

Source CAPE, IHRD, LBS & CCEK and SCTCE

The proportion of permanent teachers in CAPE, LBS and SCT colleges is above 60 percent while IHRD and CCEK colleges keep the proportion around 50. The average proportion of permanent teachers in these colleges is 58.24 (See Table 4.2 and Figure 4.1)

Figure 4.1
Proportion of Teachers by nature of job- Institution wise



Source CAPE, IHRD, LBS & CCEK and SCTCE

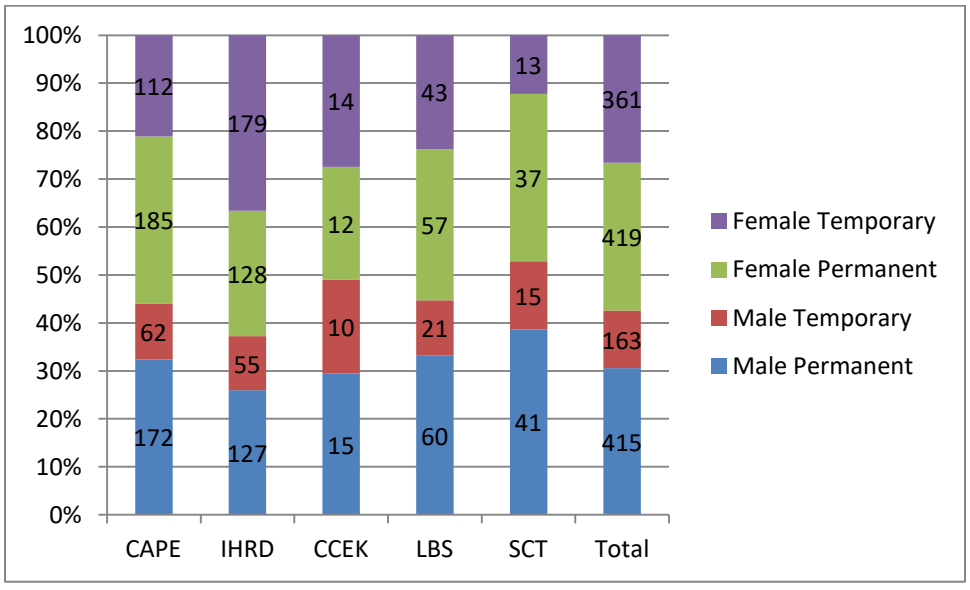
Table 4.2
Proportion of Permanent Teachers

Proportion of teachers	CAPE	IHRD	CCEK	LBS	SCTCE	Total
Female Teachers to the total teachers	59.30	63.09	50.98	55.25	48.67	59.01
Female permanent Teachers	54.25	39.63	46.15	57.00	67.27	49.59
Male permanent Teachers to the total male teachers	73.50	67.20	60.00	74.07	70.69	70.70
Proportion of Permanent teachers	62.09	49.80	52.94	64.64	69.03	58.24

Source: Compiled from the data given by CAPE, IHRD, CCEK, LBS and SCTCE

Though female teachers outnumber males, half of the females work on temporary basis. But most of the male teachers work mainly on permanent basis. See Table 4.2 and Figure 4.2.

Figure 4.2
Proportion of Teachers by nature of job and Gender



Source: Compiled from the data given by CAPE, IHRD, CCEK, LBS and SCTCE

The college wise details of the teachers' qualification in IHRD colleges and CAPE colleges are given in Annexure 4.1 and 4.2 respectively.

One-third of the total teachers have research background of M.Phil or Ph. D. 9 percent of teachers has doctorate degree while 17 percent is pursuing Ph.D. Likewise, these colleges have a

good number of experienced teachers. Out of the total teachers, 67 percent has the teaching experience of more than 3 years (see Table 4.3).

Table 4.3
Qualification of Teachers

Institution	CAPE	IHRD	CCEK	LBS	SCT	Total
No of teachers having P.G	575	432	51	181	84	1323
%	*100*	*84.38*	*100*	*100*	*74.34*	*92.39*
No of teachers having M. Phil	8	44	4	4	2	62
%	*1.39*	*8.59*	*7.84*	*2.21*	*1.77*	*4.33*
No of teachers having Ph. D	38	51	4	15	22	130
%	*6.61*	*9.96*	*7.84*	*8.29*	*19.47*	*9.08*
No of teachers doing Ph. D	64	71	8	34	73	250
%	*11.13*	*13.87*	*15.69*	*18.78*	*64.6*	*17.46*
No of teachers having more than 3 years of experience	431	305	37	107	79	959
% of teachers with more than three of experience	*74.96*	*59.57*	*72.55*	*59.12*	*69.91*	*66.97*
Total	575	512	51	181	113	1432

Source: Compiled from the data given by CAPE, IHRD, CCEK, LBS and SCTCE

Paper publication and participation in national and international seminars/conferences can be considered as a good indicator of the academic performance of the teachers as well as the quality of teaching. As given in Table 4.4, more than 40 percent of teachers are actively engaged in the academic activities of seminars, conferences and paper publication. The proportion is high in SCT College of Engineering and College of Engineering, Munnar. As per the data given by the college, 100 percent of teachers in SCTCE have published at least one paper in national journal while 97 percent participated atleast one national seminar/conference (see Table 4.4). Likewise the proportion of international publication is also high in SCTCE. Teachers in SCTCE seem to be more inspired than others since they are given salary and other benefits regularly. College wise details of teachers' publication of papers and participation in national and international seminars/ conferences (of IHRD and CAPE) are given in Annexure 4.3 and 4.4 respectively.

Table 4.4
Participation in Seminars and Publication of Papers by Teachers

Institution	CAPE	IHRD	CCEK	LBS	SCT	Total
No of teachers having atleast 1 international publication	215	207	40	79	84	625
%	37.39	40.43	78.43	43.65	74.34	43.65
No of teachers having atleast 1 national publication	129	105	41	65	113	453
%	22.43	20.51	80.39	35.91	100.00	31.63
No of teachers presented paper in atleast 1 international conference	193	190	40	71	84	578
%	33.57	37.11	78.43	39.23	74.34	40.36
No of teachers presented paper in atleast 1 national conference	194	164	41	88	109	596
%	33.74	32.03	80.39	48.62	96.46	41.62
Total Teachers	575	512	51	181	113	**1432**

Source: Compiled from the data given by CAPE, IHRD, CCEK, LBS and SCTCE

The gender wise details of the participation in seminars and publication of papers by teachers is given in annexure 4.1. It is seen that female teachers are more eager to participate in the seminars/conferences as well as paper publication.

4.2 Infrastructural Facilities

"Low living and high thinking may be a good dictum, but our educational institutions should have the minimum comforts and conveniences to enable the teachers and students to perform at the optimum level" T P Sreenivasan.

Most of the colleges have attained very good infrastructure facilities in terms of buildings, equipments, campus roads, library, transportation facilities etc either by own fund or through State Plan fund or MLA/ MP fund. As per an estimate done by CAPE on their assets and infrastructure, the total value comes above Rs.1000 cr (See Table 4.5). IHRD's asset and infrastructure value is given in Appendix 4&5. While visiting the colleges, we could see very good buildings, class rooms, computers and lab equipment everywhere except in a newly established engineering college of CAPE at Muttathara. During initial period, all these institutions were functioning with surplus revenue after meeting all the expenditure and hence, they could construct good buildings with their own fund. Apart from that, many of the institutions, especially in remote areas came into existence because of the effort and interests of elected representatives. In those institutions, MLA and MP development funds have been utilised

largely. For example, Applied Science College, Chelakkara of IHRD could build most of its infrastructure through MLA fund of Sri. K. Radhakrishnan.

Table 4.5
Infrastructural facilities under CAPE

Infrastructure	Area	Unit	Rate	Amount in Crore
Land	250 acre	Acre	1,24,00,000	310
Buildings	55,400	SQM	24,000	133
Machineries and lab				55
TEQIP purchases				50
Books and periodicals				1
Campus roads				10
Medical college				450
Total				1009

Source: CAPE

Through questionnaires we have collected the information regarding opinion of students on various infrastructural facilities available in the college. We collected information from 500 students (randomly) from 10 colleges we visited for the field survey. Though most of the students ranked the infrastructural facilities as moderate (good), in the case of hostel facilities and toilet availability, the percentage of students who ranked poor and very poor status is comparatively high. In the case of toilets, 24 percent of the students opined as poor or very poor while the proportion of dissatisfaction is further high regarding the hostel facilities. During the interaction with students, they expressed their dissatisfaction regarding hostel and toilet facilities. Though clean toilets are available in all colleges, the number of toilets is not sufficient in each floor, according to many students we talked with. Their opinion has been reflected in Table 4.6.

Table 4.6
Grading By Students

	Excellent	Very good	Moderate (good)	Poor	Very poor
Toilets					
CAPE	3	5	17		5
IHRD	7	33	82	43	28
LBS	6	26	45	15	5
CCEK	1	8	27	6	2
SCT	20	49	54	11	2
total	37	121	225	75	42
%	7.4	24.2	45	15	8.4
Drinking Water					
CAPE	4	11	11	1	3
IHRD	19	40	94	28	12
LBS	20	34	31	9	3
CCEK	8	14	18	3	1
SCT	29	69	30	7	1
total	80	168	184	48	20
%	16	33.6	36.8	9.6	4
Hostel Facility					
CAPE	3	7	12	1	7
IHRD	12	33	79	25	44
LBS	15	31	30	15	6
CCEK	7	9	21	4	3
SCT	5	19	29	32	51
total	42	99	171	77	111
%	8.4	19.8	34.2	15.4	22.2

Source: Primary Survey

In the case of hostels also, students are not satisfied. In many of the colleges which are remotely located, hostel facilities are very limited. In CE, Munnar, the hostels (which are taken for rent by the college authorities) are far away from the college. During rainy seasons, the journey from hostel to college seems to be hectic. Unfortunately, the suitable land is not available near the college due to the land sliding problem in Munnar. Likewise, the students of CE, Kasaragod (LBS) also expressed their dissatisfaction regarding the lack of sufficient hostel facilities. There plenty of land is available, but the construction is hindered by the scarcity of fund. Many of the students in CE, Kasaragod stay in private hostels and this makes their study more costly and less affordable.

Most of the students are satisfied with the lab and library facilities available in the colleges. Less than five percent of students expressed dissatisfaction on libraries and computer labs. During the interaction session with students in the visited colleges, some of them opined that though all equipment are installed in the labs, proper timely maintenance is not done.

Table 4.7
Grading By Students on Laboratories and Library

Library					
	Excellent	Very Good	Moderate (Good)	Poor	Very Poor
CAPE	10	10	9		1
IHRD	42	67	76	5	3
LBS	40	35	21	1	
CCEK	3	14	17	5	5
SCT	43	63	30		
total	138	189	153	11	9
%	27.6	37.8	30.6	2.2	1.8
Computer Labs					
CAPE	6	12	10	1	1
IHRD	28	71	81	10	3
LBS	36	41	19	1	
CCEK	5	11	23	4	1
SCT	44	66	26		
total	119	201	159	16	5
%	23.8	40.2	31.8	3.2	1
Other Labs					
CAPE	3	12	12	2	1
IHRD	25	48	90	24	6
LBS	18	39	35	4	1
CCEK	3	8	15	9	9
SCT	28	56	49	3	
total	77	163	201	42	17
%	15.4	32.6	40.2	8.4	3.4

Source: Primary Survey

The students of MEC Thrikkakkara, SCTCE Thiruvananthapuram, CE Thrikkarippur and CE Thalassery expressed very good opinion regarding all the infrastructure facilities available in the college (The field survey details of each college have been given in appendix 1). Good proportion of responded students (through questionnaires as well as in interaction session) is not satisfied with playground and refreshment rooms available in the college. 37 percent of students

ranked the status of play grounds as poor or very poor while the dissatisfied responses constitute 38 percent while considering the availability of refreshment rooms.

Table 4.8
Grading by Students on Playground and Refreshment rooms

Institution	Excellent	Very good	Moderate (good)	Poor	Very poor
Play Ground					
CAPE	2	4	11	3	10
IHRD	13	43	76	39	22
LBS	22	29	30	12	4
CCEK	1	5	15	11	12
SCT	5	25	38	29	39
total	43	106	170	94	87
%	8.6	21.2	34	18.8	17.4
Refreshment Rooms					
CAPE	3	4	9	8	6
IHRD	4	40	67	52	30
LBS	6	20	40	23	8
CCEK	2	1	17	11	13
SCT	11	40	48	22	15
total	26	105	181	116	72
%	5.2	21	36.2	23.2	14.4

Source: Primary Survey

4.3 Co-Curricular Activities and Extra-curricular activities

Most of the responded students opined that college encourages co-curricular and extra- curricular activities. More than 80 percent shared the same opinion while nearly 67 percent of the students are actively engaged in these activities (see the students' responses in Appendix 3). Though majority of the students are on the same opinion, some of the interaction sessions with students had different voices. The protesting voice came from the girls in the colleges where they are restricted to participate in extra-curricular and co-curricular activities due to various reasons. One important factor is the distance of hostel from the college and the girl students are compelled to enter into hostels even before the completion of programmes. Likewise, in the colleges where permanent teachers are not sufficient, students face problems to participate in the *techfests* and internships. These issues were mainly raised by the students in LBS Kasaragod and CE, Munnar. Though the academic performance in terms of pass percentage is very high in Women's College, Thiruvananthapuram, the students expressed their concern of being restricted

and constrained to be part of some major events and they pointed out the importance of co-education in engineering colleges.

4.4 Pass Percentages

Pass percentage is the direct indicator of the academic performance of the students. Here, a comparative analysis on the B Tech Result, 2019 is given. B Tech result 2019 has a special importance of being the 1st B Tech result of Kerala Technological University.

The result of government aided colleges having the pass percentage of 75.8 is better than of all others and government engineering colleges have also good performance with 73.5 per cent. With 65.1% pass percentage government self-financing colleges performed better than the private self-financing engineering colleges which secured 63.4 per cent.

Table 4.9

B.Tech Result, 2019

Management	Boys			Girls			Total		
	Registered Students	Passed Students	Pass Percentage	Registered Students	Passed Students	Pass Percentage	Registered Students	Passed Students	Pass Percentage
Government	2054	1428	69.5	1223	979	80.1	3277	2407	73.5
Private Aided	1296	910	70.2	607	533	87.8	1903	1443	75.8
Govt Self Financing	2453	1306	53.2	2357	1823	77.3	4810	3129	65.1
Private Self Financing	13963	6246	44.73	9798	8818	67.54	23761	15064	63.4
Total	19766	9890	50.0	13985	12153	86.9	33751	22043	65.3

Source: Kerala Technological University, 2019

In comparison to boys, girls performed excellent with pass percentage of 86.9. In the case of government self-financing colleges also, girls' performance is noteworthy with 77.3 percent while boys could secure about less than 10 percent of girls. It is interesting to be noted that though in general the registered number of boys are more than girls, the passed number of boys are less than girls. This is true in both government as well as private self-financing colleges(see Table 4.9).

It is a disturbing fact that the pass percentage of SC/ST students (36% and 44.6% respectively) is far below the state average and the percentage is comparatively better in government and government aided colleges (see Table 4.10).

Table 4.10
Pass percentage of SC/ST B.Tech students, 2019

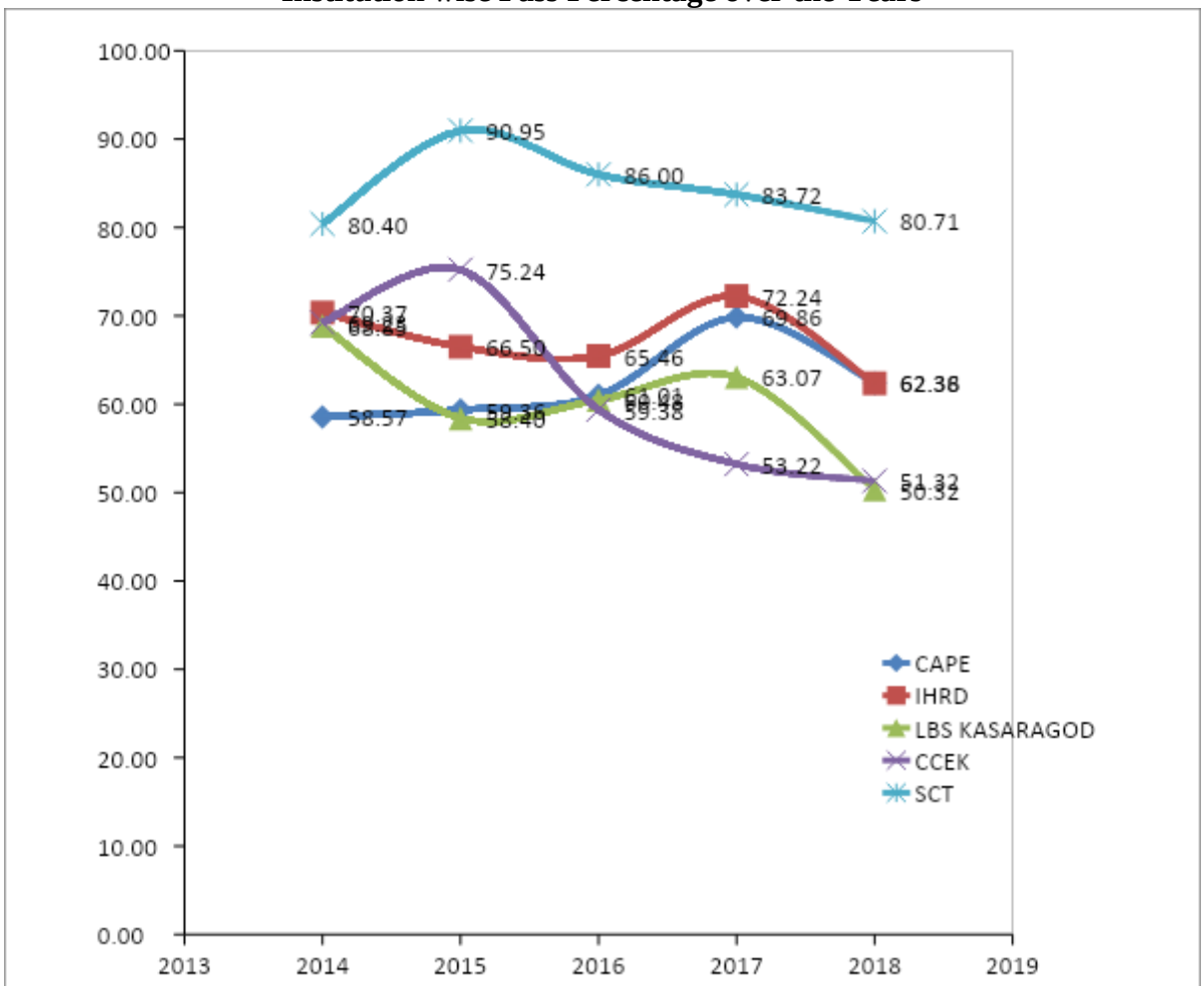
Management	SC			ST		
	Registered Students	Passed Students	Pass Percentage	Registered Students	Passed Students	Pass Percentage
Government	236	89	37.7	27	15	55.6
Private Aided	120	68	56.7	13	7	53.9
Govt-Autonomous	160	47	29.4	2	1	50.0
Private Self Financing	485	156	32.16	23	6	26.1
Total	1001	360	36.0	65	29	44.6

Source: Kerala Technological University, 2019

It is a positive thing with regard to the institutions under the purview of our study that the pass percentage of ST students is higher than that of state average as well as that of private self financing institutions.

The institution wise pass percentage over the last few years is seen in the following figure. SCTCE has kept very good pass percentage over the years. Though pass percentage of College of Engineering, Munnar (CCEK) and LBS engineering college were comparatively better earlier, their performance has fallen recently.

Figure 4.1
Institution wise Pass Percentage over the Years



Source: CAPE, IHRD, LBS, CCEK and SCTCE

But when we examine the college wise B Tech results over the last few years, Model Engineering College Thrikkakkara of IHRD followed by SCTCE stands ahead of all colleges. The results of CE, Kalluppara and CE Adoor are also very good. In the case of CAPE colleges, all colleges except CE, Pathanapuram and CE, Vadakara keep a moderate performance in B Tech results with pass percentage of around 60. No exceptionally good performers are seen among CAPE colleges in terms of pass percentages (See Annexure 4.6 and 4.7).

By examining the engineering education in Kerala, especially in self-financing sector, it is observed that since many students enrolled in self-financing engineering colleges have no minimum capability to complete the course successfully and the quality of teachers is also very poor, the actual output in the form of engineering graduates (Out-Turn Ratio - OTR) has been

steadily declining especially since 2004. The declining OTR is an indicative of the declining quality of engineering education (Mani and Arun, 2012). Fortunately this observation is not true in the institutions of our study. As per the last result published by Kerala Technological University some of the colleges have got very excellent results and majority of them have the pass percentage of above average. The college wise pass percentage of the B Tech results is given in Table 4.11 and colleges have been categorized into excellent, very good, good and below average.

Table 4.11
College wise B Tech Result, 2019

College	Registered Students	Passed Students	Pass %
Excellent			
Model Engineering College, Thrippoonihara	391	341	87.2
LBS Institute Of Technology For Women, Poojappura	335	281	83.9
Sree Chitra Thirunal College Of Engineering	455	353	77.6
Very Good			
College Of Engineering, Thalassery	364	261	71.7
College Of Engineering, Pathanapuram	127	91	71.7
College Of Engineering Trikaripur	209	148	70.8
College Of Engineering, Kottarakkara	53	37	69.8
College Of Engineering Perumon	259	177	68.3
College Of Engineering Chengannur	418	283	67.7
Good			
College Of Engineering Kidangoor	232	150	64.7
College Of Engineering Adoor	313	199	63.6
College Of Engineering, Poonjar	77	48	62.3
College Of Engineering Kallooppara	113	69	61.1
College Of Engineering Vadakara	294	178	60.5
College Of Engineering Cherthala	184	109	59.2
College Of Engineering Karunagappally	116	66	56.9
Below Average			
Lbs College Of Engineering, Kasaragod	449	241	53.7
College Of Engineering Munnar	172	87	50.6
College Of Engineering Aranmula	137	69	50.4
College Of Engineering Attingal	141	71	50.4
College Of Engineering And Management, Punnapra	271	135	49.8
Total	***5110***	***3394***	***66.4***

Source: Kerala Technological University, 2019

4.5 Placement Opportunities to the Students

The placement record of the students in these institutions is also relatively high. A large number of students are also being qualified for higher studies through competitive examinations like GATE, CAT etc. Most of the students get placement in multinational firms like WIPRO, MAHENDRA, TCS, and BOSCH etc. The details of students placed through the campus placement events conducted at the college or through college are given in Table 4.12.

Table 4.12
Details of Campus Placement since 2010

Year	Number Of Students									
	IHRD			CCEK	CAPE			SCTCE	LBS	LBS
	Thrikkakara	Adoor	Kottarakkara	Munnar	Thalassery	Vadakara	Thrikkarippur	Pappanamcode	TVM	KSD
2010	201	118	33	122	54	122		176	127	
2011	220	66	58	123	36	114	51	363	175	
2012	256	6	59	125	7	84	44	313	200	
2013	243	30	29	45	52	188	51	188	102	
2014	226	60	33	57	106	189	23	288	160	
2015	322	51	26	66	127	151	41	276	213	83
2016	308	0	19	56	107	140	49	288	241	22
2017	220	47	17	60	60	101	15	171	168	27
2018	280	0	25	87	0	82	15	156	94	23
Total	2276	378	299	850	549	1171	120	2219	1480	155

Source: Data compiled from these colleges

The largest number of students are placed from MEC, Thrikkakkara followed by SCTCE, Pappanamkkode. Women's college, Thiruvananthapuram has also given very good placement opportunities to the students. CE, Munnar has also placed good number of students.

4.6 Accreditation

The proportion of National Board of Accreditation (NBA) accredited colleges among government self-financing colleges is better compared to that of private self-financing colleges. The NBA has accredited 7 self-financing colleges under government sector which constitutes 30

percent. Nearly 90 percent of government and 100 percent of aided colleges have been accredited by NAB.

Even with the challenges of low students' intake and sufficient fund, one third of the colleges among government self-financing colleges could achieve the NAB accreditation and this is indeed a remarkable achievement and indicator of good quality of education available in these institutions.

Table 4.13
NBA Accredited Institutions

Government	Pvt. Aided	Govt:Self Financing	Private Self Financing
CET Kannur Thrissur Kottayam Barton Hill Palakkad Wayanad Kozhikode	TKM college NSS college Mar Athanasius college	MEC SCT Kidangoor Karunagapally Peruman Thrikkarippur Thalassery	TIST Vidya VimalJyothi Mar Basalius MES Rajadhani Rajagiri Santhigiri Sree Buddha St.Joseph Adi Sankara Amal Jyothi

Source: Kerala Technological University

To sum up, it is evident that the quality of teaching and learning is good in most GSFECs. We have made a limited comparative analysis with PSFECs and Government & Aided Colleges on the basis of secondary data available from the Kerala Technological University. The analysis shows that GSFECs stand next to Government and Aided Colleges in all respects related to the quality of education. Indeed, there are differences between colleges among GSFECs themselves. But those differences can be mitigated and elevated standard in quality can be attained in the institutions once they are brought under the same roof.

Chapter V

Concluding Remarks and Recommendations

The major issue faced by the GSFECs is the declining students' intake due to various reasons as specified in the previous chapters. The decline in admissions has led to the financial problems and poses serious questions about the very existence of these institutions. The situation is more alarming when we add the finding that even with admissions and intake running to their full and approved capacity these institutions can't survive without government's financial assistance at least for a short term period. An alternative to government's funding is to increase the students' fees. While considering the access and equity issues related to higher education, it is not advisable to increase the fees. It is thus recommended that the issues of GSFECs are to be addressed separately apart from addressing the engineering education in the state as a whole.

In this section, the previous chapters are summarised with a SWOC (Strength, Weakness, Opportunities and Challenges) Analysis of the GSFEC institutions in the state. The study also proposes some recommendations and thoughts to further gain clarity about the future courses of action. Some of these recommendations are government's consideration while others can be addressed by the managements of these institutions themselves.

Strength

- *Land, building and other Infrastructure*

  CAPE has roughly estimated the asset value of their institutions (land and building) as about Rs.1000 crore. The asset value of IHRD exceeds this. This huge infrastructure and investment has been built mainly through their own fund, plan fund of government and MLA/MP fund etc since their establishment.

- *Qualified and dedicated faculty*

  As we saw in Chapter IV, most of the faculty has M Tech degree and many of them have M.Phil too. Some of the faculty members have taken their P G from IITs. The faculty has shown credible record of paper presentation, publication of articles and research works.

- *Full-fledged Libraries, Well –equipped laboratories and Workshops*

Since the inception, these institutions have invested for enhancing the facilities in libraries, laboratories and workshops. Most of the libraries have very good infrastructural facilities including networking facilities.

- *Transportation facilities*

Most of the institutions have arranged own transportation facilities through different ways. Apart from own fund, the institutions have benefitted from M.P/ M. L.A fund allocation also.

- *Transparent admission process through KEAM*

Unlike private self-financing institutions, these institutions follow the guidelines and procedures suggested by the government meticulously. Unlike private self financing colleges there is no hidden financial burden for parents and admission procedures are also very transparent.

- *ISO certification and NAAC/NAB accreditation*

Out of the 21 colleges, 7 colleges have already achieved the NAB accreditation while 2 institutions are ready for accreditation. Many of the colleges have received the ISO certification.

- *Better result*

As seen in the Chapter IV, on an average, compared to private self-financing colleges, the results of these institutions are better while two institutions (MEC and SCTCE) have better results compared to some of the government colleges.

- *Fee Structure as per Government norms*

These institutions follow the government norms strictly in terms of fee structure and any additional financial burden need not to be committed by the parents.

- *Various Scholarship Schemes*

The students are eligible for availing various scholarships given by the various agencies and departments of government. This increases the affordability of technical education.

Weaknesses

- *Low demand for engineering courses*

There has been decline in the demand for engineering courses and also the number of seats in engineering colleges is more than the demand. That is why more than 50 percent of the sanctioned seats are vacant in the State (though this is more applicable in the case of private self-financing engineering colleges).

- *Poor Financial Position*

As seen in Chapter III, the financial position of government self-financing engineering colleges is not viable for the smooth functioning. Even all seats are filled, the salary and other daily expenses cannot be met fully from their own fund. Without the financial support from the government, no college can function properly.

- *Fixed fees and increasing salary*

Since 2008 the fees structure of the courses are fixed, the salary of the teachers is increasing and the stagnant position of the fees creates a big gap between the expenditure and the revenue. Most of the private engineering colleges follow flexible fee system according to the demand though they do not exceed the maximum amount. Also, good private colleges receive compulsory donation apart from the government fixed fees. But the government self-financing institutions have to follow fixed fee as directed by the government. Even for the vacant seats, the management cannot reduce the fee.

- *Locational Disadvantages*

Many of the colleges are located in remote places to where transportation facilities are rare and some places are prone to land sliding and natural calamities. One such institution is College of Engineering, Munnar

- *Lack of R and D*

  Due to fund problem, research and development activities are very few, though in some places (like MEC, SCTCE and LBSITW) research projects are undertaken by the faculty through some fund from central government and Technological university.

- *Lack of Academic bodies*

  The lack of higher level academic bodies creates problems in the co-ordination of the academic activities and the voices of the students and teachers of these institutions cannot be reflected in the decision/policy making bodies.

- Inadequate provision for higher education to faculty

  Because of the poor financial position of these institutions, the teachers are not able to avail the advantage of Faculty Improvement Programme (FIP) unlike in government and government aided colleges. Though many of the teachers had completed their M.Tech from known institutions, they have not proceeded for higher studies.

Opportunities

- *Goodwill and credibility of the institution*

  Many of the institutions, especially which were established earlier, have made good will among students and parents. Their good result, placement record and good infrastructural facilities have created credibility to the institutions.

- *Strong Alumni*

  Since, the government self-financing institutions were established before the advent of private self-financing institutions, students with good academic records had availed admission there and after the course, most of them have been placed well. The exposure and connections of well settled alumni immensely help the ongoing students of the institutions for internment and placement.

- *Support from the state government and department concerned*

Since these institutions are directly under the government departments, support from the government is given in terms of land acquisition, inception of infrastructural facilities, financial help for the sustenance etc.

- *Ample scope for new generation courses*

There is a good number of faculty in these colleges graduated from known institutions in various fields. Land and infrastructural facilities also suit for the specialized and new generation courses.

Challenges Ahead

- *Multiple agencies of administration*

These 22 institutions are managed by the 5 directorates under three government departments. This actually creates issues for co-ordination activities at government level. Some of the managements have actually nothing to do with technical education.

- *Discrimination in allotment process*

Since 2013 there has been a problem related to the allotment to the government owned self-financing technical educational institutions in Kerala. After 2 allotments the intake window is closed to these institutions and outflow window is kept open. This unduly helps the private self-financing institutions and affects the admission to self-financing colleges under government sector adversely. This results in the shortage of enrollment of students.

- Tag problem of self-financing college.

The tag of "self-financing colleges" affects the colleges adversely. This creates confusion among parents and students at the time of admission. When these institutions go for funds from the authority (AICTE) .this tag acts as a hindrance.

- *Declining demand*

  Most of the conventional courses have lost its demand in the market. Recently management oriented courses are getting demanded. This circumstance results in the reduction in enrolment. Even B.Tech qualified graduates opt MBA courses and banking sector

- *Delay in adapting Outcome Based Education (OBE) system*

  NAB accreditation is for ensuring the OBE system in technical education institutions, but many of the institutions are far away from NAB accreditation.

Recommendations

1. ***Common umbrella***

   All government controlled self-financing Engineering colleges (GSFEC) are hereby recommended to be brought under one management under state higher education department with academic autonomy. This integration process requires some of the colleges to be merged or moved from the current locations. Thus, the number of colleges can be reduced. The merging can be done considering the specificities of the locality, the SC/ST population and accessibility to other engineering colleges. The umbrella institution can be taken off with a catching name like ***Kerala Institute of Technology (KIT***) with introduction of new generation engineering courses.

2. ***Removal of self-financing tag***

   These government owned institutions can be termed as '***government autonomous engineering colleges***' instead of titling them as self-financing colleges. The term self-financing can always be misleading for the parents and students who might not be able to differentiate between private and government self financing colleges at the time of admission. Also the term self-financing does not match with the functioning of these institutions since most of them receive direct and indirect financial support from the government. So it is necessary to specifically re-categorize these colleges under a new tag.

3. ***Discriminatory Admission/allotment***

As mentioned in detail in the second chapter, discussions with the stakeholders on different occasions and in the section on challenges above (also to be checked in appendix one) there still exist serious forms of discrimination in the allotment process. This often provides undue advantage for private self- financing colleges over GSFECs. This has to be stopped to ensure a judicious admission process and this issue has to be resolved by the government.

4. Introduction of Career Guidance and Placement Cell (CGPC)

At present CGPCs are not established in any college and instead, one faculty is commonly given additional charge of co-ordination of placement activities. In order to enhance the standard of the institution, the functioning of CGPC is essential. If CGPC functions properly, network with known/prestigious companies as well as good constant connections with alumni can be established and maintained.

5. Automate office function using E-office

Office automation is necessary and all the office procedures will become more transparent and smooth. Merging of these institutions into one necessitates this.

6. Accreditation of all courses before 2022

We have already discussed about several courses in these colleges not yet accredited. Only if all courses are accredited before 2022, the institutions can function.

7. Research and Development

It is essential to start research centres at least in some colleges and thus, there will be opportunities for faculty to do Ph.D and/or engage in other research activities. Currently due to fund problem, there is no opportunity for Ph.D via Faculty Improvement Programme (FIP) as in the case of government and government aided colleges. Research centre is also a determinant factor directly relevant for the institution’s ranking as well as in updating the syllabuses and curricular frameworks. Hence, establishment of research centre is very much essential and requires special attention.

8. Quality of the faculty

Number of PhD holding faculty in the institutions is very few. The quality and qualification of teachers determine the overall teaching learning process and performance of the students. Quality of the faculty is to be enhanced further for the good performance of an institution, and it will help them build a legacy.

9. Introduction of demanding courses

The institutions have to implement innovative courses according to the changing trend of the market and industry. By interacting with the industries, the institutions can introduce new courses in accordance with the prevailing demand.

10. Syllabus and Curriculum Revision of KTU

Since the institutions have been re-affiliated to Kerala Technological University, a drastic decline in the enrollment is experienced. During the study it was noticed that many teachers and students had complaints about the KTU curriculum. It seems to be very difficult to cover the syllabus in the prescribed time, and not much provision for practical experience is given. Hence, curriculum revision is essential (Now the efforts have already been started by the University for the revision).

11. Need for a permanent body/high level committee

The integrated body of these institutions should have permanent setup to evaluate the current human resource capital in the state. The body must be capable to forecast long term goals as well as for making proper planning in the education field. Continuous evaluation and management of the human resource is very important.

12. Brand building

The umbrella body of the unified GSFECs can be branded which can go a long way in attracting students, parents and scholars alike, both from within and outside the country, seeking admissions, for collaborations and so on. The projection of the umbrella body merits attention in this context with an attractive name, logo, motto etc. Adopting modern management strategies is an important step in the changed higher educational scenario of our country.

13. Institution-Industry-Interaction

Practical sessions and field works are very important in the technical educational scenario. A dynamic and live interconnection between industries and technical education institutions is very essential to conduct these very effectively. Connection with industries is a vital component as it will keep the institute updated with the market trends and changing demands. Joint certification of courses with industries can also be thought of.

14. Rationalize the number of seats

An important recommendation emerged through interactions with stakeholders suggests that the number of seats to which admissions are made in a year be decided through a rationalization process rather than fixing it for all the years. Rationalization of the number of seats is very important since it will keep the demand and supply in balance with respect to individual courses branches.

15. Optimum use of faculty's skills and knowledge

A vibrant research and academic environment shall be meticulously sustained to ensure the best use of faculty's skills and knowledge. This shall not only result in a proper work allotment with better systems of assessment and knowledge dissemination but also help the institution and its faculties to actively engage in research and other related activities.

16. Better student-teacher connect

The teacher-student connect is at the heart of any educational institution. In the context of GSFECs mechanisms to sustain effective teacher-student connections shall be evolved. As part of this a system of mentoring and counseling can be started with each teacher assigned with a specific number of students for mentoring. Interested teachers may also be provided with training in students counseling.

17. Special Support to SC/ST students

Though the education in GSFECs is inclusive in terms of enrolment of SC/ST students, their pass percentage is below average. Hence,special mentoring is needed for SC/ST students. Deliberate attempts should be taken to give more academic support and exposure to these students. The college management should make use of the state and central government schemes supporting/benefiting the SC/ST students.

18. Financial Assistance from Government

It is hereby recommended that the government may provide a financial assistance of about Rs 100 crore per year for the next 2-3 years to the integrated body to meet its deficit. It needs to be noted here that such assistance is not completely an additional expenditure on the government's side. The amount mentioned above consists of the total amount already disbursed from the government to these institutions individually under different heads with a minor addition.

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Abbreviations

AICTE	All India Council for Technical Education
AI:	Actual Intake
CAPE:	Co-operative Academy for Professional Education
CCEK:	Centre for Continuing Education, Kerala
CE:	College of Engineering
GSFECs:	Government Self Financing Engineering Colleges
IHRD:	Institute for Human Resource Development
KSGD:	Kasaragod
LBSCE:	Lal Bahadur Shastri College of Engineering
LBSITW:	Lal Bahadur Shastri Institute of Technology for Women
PSFECs:	Private Self Financing Engineering Colleges
SCTCE:	Sree Chitra Thirunnal College of Engineering
SI :	Sanctioned Intake

Annexure 2.1

Course wise and College wise B Tech intake Under IHRD

Institution Name	Owned By	District	Branch	Approved Intake	Actual Intake	Vacant Seats	Intake Percentage
MEC	IHRD	EKM	CSE	120	122	0	100
MEC	IHRD	EKM	EC & C	120	126	0	100
MEC	IHRD	EKM	E & EC	60	62	0	100
MEC	IHRD	EKM	EC & B	60	60	0	100
CE Poonjar	IHRD	KTTM	CSE	30	16	14	53
CE Poonjar	IHRD	KTTM	E & EC	30	4	26	13
CE Poonjar	IHRD	KTTM	EC & C	30	5	25	16
CE, Karunagappally	IHRD	KLM	E & EC	60	20	40	33
CE, Karunagappally	IHRD	KLM	EC & C	60	15	45	25
CE, Karunagappally	IHRD	KLM	CSE	60	45	15	75
CE, Cherthala	IHRD	APZA	E & EC	60	24	36	40
CE, Cherthala	IHRD	APZA	CSE	90	59	31	65
CE, Cherthala	IHRD	APZA	EC & C	60	24	36	40
CE, Chengannur	IHRD	APZA	E & EC	120	67	53	55
CE, Chengannur	IHRD	APZA	CSE	120	123	0	100
CE, Chengannur	IHRD	APZA	EC & C	120	98	22	81
CE, Chengannur	IHRD	APZA	EC & I	60	20	40	33
CE, Attingal	IHRD	TVM	CSE	60	45	15	75
CE, Attingal	IHRD	TVM	EC & C	60	20	40	33
CE, Attingal	IHRD	TVM	E & EC	60	24	36	40
CE, Adoor	IHRD	PTTA	CSE	60	56	4	93
CE, Adoor	IHRD	PTTA	ME	120	90	30	75
CE, Adoor	IHRD	PTTA	EC & C	60	25	35	41
CE, Adoor	IHRD	PTTA	E & EC	60	26	34	43
CE, Kallooppara	IHRD	PTTA	E & EC	60	17	43	28
CE, Kallooppara	IHRD	PTTA	EC & C	60	21	39	35
CE, Kallooppara	IHRD	PTTA	CSE	60	54	6	90
CE, Kottarakkara	IHRD	KLM	EC & C	60	4	56	6
CE, Kottarakkara	IHRD	KLM	CSE	60	29	31	48

Source: Technological University

Annexure 2.2

IHRD-Course wise details of Polytechnic Colleges

Sl. No.	Colleges	Courses
1	Model Polytechnic College Vadakara	Diploma In Electronics Engineering
		Diploma In Biomedical Engineering
		Diploma In Computer Hardware Engineering
2	Model Polytechnic College Mala	Diploma In Electronics Engineering
		Diploma In Biomedical Engineering
		Diploma In Computer Hardware Engineering
		Diploma In Computer Engineering
3	Model Polytechnic College Mattakkara	Diploma In Electronics Engineering
		Diploma In Electronics & Communication Engineering
		Diploma In Computer Hardware Engineering
4	Model Polytechnic College Kalliassery	Diploma In Biomedical Engineering
		Diploma In Electronics & Communication Engineering
		Diploma In Computer Hardware Engineering
5	Model Polytechnic College Painavu	Diploma In Biomedical Engineering
		Diploma In Electronics & Communication Engineering
		Diploma In Computer Hardware Engineering
6	Model Polytechnic College Karunagappally	Diploma In Electronics Engineering
		Diploma In Electronics & Communication Engineering
		Diploma In Computer Hardware Engineering
7	Model Polytechnic College Poonjar	Diploma In Electronics Engineering
		Diploma In Computer Hardware Engineering
8	Model Polytechnic College Kuzhalmannam	Diploma In Civil Engineering

Source: IHRD

Annexure 2.3

Course wise and College wise B Tech intake under SCTCE, CCEK and LBS

Institution Name	Owned By	District	Branch	Approved Intake	Actual Intake	Vacant Seats	Intake Percentage
SCT	SCT	TVM	BT & BM	60	58	2	96
SCT	SCT	TVM	ME	60	62	0	100
SCT	SCT	TVM	E & C	120	123	0	100
SCT	SCT	TVM	ME (P)	60	61	0	100
SCT	SCT	TVM	CSE	60	62	0	100
SCT	SCT	TVM	ME (Auto)	60	62	0	100
LBS -TVM	LBS	TVM	AEC & I	60	32	28	53
LBS -TVM	LBS	TVM	CE	60	53	7	88
LBS -TVM	LBS	TVM	EC & C	60	54	6	90
LBS -TVM	LBS	TVM	IT	60	34	26	56
LBS -TVM	LBS	TVM	CSE	120	122	0	100
LBS CE	LBS	KKGD	CE	60	32	28	53
LBS CE	LBS	KKGD	ME	120	66	54	55
LBS CE	LBS	KKGD	CSE	120	89	31	74
LBS CE	LBS	KKGD	EC & C	120	46	74	38
LBS CE	LBS	KKGD	IT	60	23	37	38
LBS CE	LBS	KKGD	E & EC	60	22	38	36
CE, Munnar	CC	Idukky	E & EC	30	10	20	33
CE, Munnar	CC	Idukky	CSE	60	36	24	60
CE, Munnar	CC	Idukky	EC & C	30	9	21	30
CE, Munnar	CC	Idukky	ME	60	30	30	50

Source: Technological University

EE	Electrical Engineering
EC & C	Electronics and Communications
EC	Electronics
ME (Auto)	Mechanical Engineering
CSE	Computer Science Engineering
ME (P)	Mechanical Engineering (pdn)
E & EC	Electricals and Electronics Engineering
CE	Civil engineering
EC & B	Electronics and Bio Medical
AEC & I	Applied Electornics and Instrumentation
EC & I	Electornics and Instrumentation
BT & BM	Bio Technology and Biomedical

Annexure 2.4

Course Wise Details of LBS Institutions

No.	Long Term Courses	No.	Short Term Courses
1	PGDCA (Post Graduate Diploma in Computer Applications)- Fast Track	1	Data Entry and Office Automation
2	PGDCA	2	MS Office and Internet
3	PGDSE (Post Graduate Diploma in Software Engineering)	3	Office Automation and Internet
4	PGDIT (Post Graduate Diploma in Information Technology)	4	DTP(English and Malayalam)
5	DCA (Diploma in Computer Applications)	5	Programming in C++
6	IDCHNM (Integrated Diploma in Computer Hardware and Network Maintenance)	6	Computerised Financial Accounting Using TALLY
7	DCOM (Diploma in Computer Operation & Maintenance)	7	Programming in JAVA
8	DCFA (Diploma in Computerized Financial Accounting)	8	Programming in DOT NET Technologies
9	COOP (Certification in Object Programming)		

Source: LBS

Annexure 2.5

Course Wise / Year wise Details of Institutions under CCEK

YEAR	CENTRES	INSTITUTIONS	COURSES
2000		Government Engineering College Munnar	B.Tech Electronics And Communication Engineering
			B.Tech Computer Science And Engineering
			B.Tech Electrical And Electronics Engineering
			B.Tech Mechanical Engineering
			M.Tech Vlsi And Embedded System
			M.Tech Computer And Information Science
			M.Tech Power Electronics
			Allied Department (The Department Of Civil Engineering, Physics, Chemistry, Mathematics And Physical Education)
2010	Kollam	Institute Of Fashion Technology-Iftk	Bachelor Of Design (B.Des) Fashion Design(4 Years Duration, 8 Semesters)
2010	Thiruvananthapuram Ponnani Kozhikode Palakkad	Institute Of Career Studies & Research - Icsr	Civil Service Examination Coaching Civil Service Foundation Course Talent Development Course (For High School Students)
2010-11	Chennai	Muzik Lounge School Of Audio Technology - Mlsat	Diploma in Audio Engineering Diploma in Music Technology

Source: CCEK

Annexure 2.6

Course wise and College wise B Tech intake under CAPE

Institution Name	Owned By	District	Branch	Approved Intake	Actual Intake	Vacant Seats	Intake Percentage
CE Thalassery	CAPE	KNR	ME	60	56	4	93
CE Thalassery	CAPE	KNR	E & EC	60	37	23	61
CE Thalassery	CAPE	KNR	CE	60	57	3	95
CE Thalassery	CAPE	KNR	EC & C	120	81	39	67
CE Thalassery	CAPE	KNR	CSE	60	62	0	100
CE Thalassery	CAPE	KNR	IT	60	63	0	100
CE Pathanapuram	CAPE	KLM	E & EC	30	7	23	23
CE Pathanapuram	CAPE	KLM	EC & C	30	8	22	26
CE Pathanapuram	CAPE	KLM	CSE	60	40	20	66
CE Pathanapuram	CAPE	KLM	ME	60	36	24	60
CE Pathanapuram	CAPE	KLM	CE	60	37	23	61
CE Vadakara	CAPE	KKD	EC & C	60	22	38	36
CE Vadakara	CAPE	KKD	CE	60	37	23	61
CE Vadakara	CAPE	KKD	IT	30	16	14	53
CE Vadakara	CAPE	KKD	CSE	60	47	13	78
CE Vadakara	CAPE	KKD	E & EC	60	25	35	41
CE Thrikkarippur	CAPE	KKGD	E & EC	60	29	31	48
CE Thrikkarippur	CAPE	KKGD	IT	30	8	22	26
CE Thrikkarippur	CAPE	KKGD	CE	60	42	18	70
CE Thrikkarippur	CAPE	KKGD	EC & C	60	31	29	51
CE Thrikkarippur	CAPE	KKGD	CSE	60	52	8	86
CE, Peruman	CAPE	KLM	EC & C	90	65	25	72
CE, Peruman	CAPE	KLM	IT	30	11	19	36
CE, Peruman	CAPE	KLM	CSE	60	60	0	100
CE, Peruman	CAPE	KLM	EC & C	60	51	9	85
CE, Peruman	CAPE	KOLLAM	ME	60	62	0	100
CE, Muttathara	CAPE	TVM	CE	60	41	19	68
CE, Muttathara	CAPE	TVM	CSE	60	46	14	76
CE, Muttathara	CAPE	TVM	ME	60	38	22	63
CE, Muttathara	CAPE	TVM	EC & C	60	26	34	43
CE, Muttathara	CAPE	TVM	E & EC	60	15	45	25
CE, Kidangoor	CAPE	KTTM	E & EC	60	26	34	43
CE, Kidangoor	CAPE	KTTM	CSE	90	80	10	88
CE, Kidangoor	CAPE	KTTM	EC & C	60	28	32	46
CE, Kidangoor	CAPE	KTTM	CE	60	36	24	60
CE, Aranmula	CAPE	PTTA	E & EC	30	10	20	33
CE, Aranmula	CAPE	PTTA	CSE	60	35	25	58
CE, Aranmula	CAPE	PTTA	EC & C	30	5	25	16
CE, Aranmula	CAPE	PTTA	CE	60	25	35	41
CE, Punnapra	CAPE	APZA	EC & C	60	16	44	26
CE, Punnapra	CAPE	APZA	CE	60	42	18	70
CE, Punnapra	CAPE	APZA	E & EC	60	11	49	18
CE, Punnapra	CAPE	APZA	CSE	90	52	38	57
CE, Punnapra	CAPE	APZA	ME	60	34	26	56

Technological University, 2019

Annexure 2.7

Caste Wise Categorization of Students under Government owned Self-Financing Technical Institution in Kerala (2015-19)

NO.OF STUDENTS									
Institution		Technical (Engineering & Polytechnic Courses) 2015-19							
		Boys				Girls			
		General	SC/ST	OBC	Total	General	SC/ST	OBC	Total
IHRD (Engineering CollegeS)	Chengannur	571	27	186	784	539	26	136	701
	Kalloopara	207	10	28	245	201	7	28	236
	Karunagappally	47	9	89	145	72	10	98	180
	Kottarakkara	53	4	64	121	40	8	46	94
	Poonjar	63	13	31	107	47	22	44	113
	Thrikkakara	628	61	170	859	507	72	124	703
	Adoor	379	27	213	619	143	12	78	233
	Attingal	91	23	127	241	70	20	155	245
IHRD (Polytechnic Collleges)	Mala	215	65	347	627	22	43	60	125
	Mattakara	61	45	155	261	82	8	183	273
	Painavu	102	56	106	264	14	9	20	43
	Poonjar	70	45	125	240	9	21	21	51
	Vadakara	12	9	94	115	5	5	42	52
	Karunagappally	204	60	189	453	46	24	44	114
	Kuzhalmannam	24	147	128	299	2	113	39	154
	Total	2727	601	2052	5380	1799	400	1118	3317
CAPE (Engineering Colleges)	Kidangoor	246	26	169	441	197	26	150	373
	Mattathara	121	22	198	341	54	13	99	166
	Pathanapuram	179	34	122	335	123	24	90	237
	Perumon	254	33	354	641	143	11	267	421
	Punnapra	153	48	319	520	132	28	190	350
	Vadakara	91	11	362	464	105	19	378	502
	Aranmula	128	18	71	217	100	28	74	202
	Total	1172	192	1595	2959	854	149	1248	2251
CCEK	Munnar	128	25	200	353	44	29	45	118
LBS	Kasaragod	75	9	113	197	109	12	140	261

Source: IHRD, CAPE, LBS, CCEK and SCTCE

Annexure 3.1

Year Wise Admission Details

Year	*2007*			*2008*			*2009*		
	Sanctioned intake	actual Intake	%	Sanctioned intake	actual Intake	%	Sanctioned intake	actual Intake	%
IHRD	1026	950	92.59	1266	1199	94.71	1683	1467	87.17
CAPE	650	524	80.62	992	811	81.75	1414	1367	96.68
CCEK	180	203	112.78	180	207	115.00	180	164	91.11
LBS KSGD	360	256	71.11	420	347	82.62	540	424	78.52
LBS TVM							345	275	79.71
SCT	462	463	100.22	462	462	100.00	462	439	95.02
Year	*2010*			*2011*			*2012*		
IHRD	1743	1422	81.58	1875	1659	88.48	1995	1775	88.97
CAPE	2194	1840	83.86	2410	2165	89.83	2410	2018	83.73
CCEK	180	159	88.33	180	180	100.00	180	147	81.67
LBS KSGD	540	478	88.52	540	406	75.19	540	422	78.15
LBS TVM	345	285	82.61	345	304	88.12	414	386	93.24
SCT	462	363	78.57	441	413	93.65	441	424	96.15
Year	*2013*			*2014*			*2015*		
IHRD	1935	1617	83.57	2383	2131	89.43	2383	1743	73.14
CAPE	2410	1829	75.89	2295	1864	81.22	2610	1748	66.97
CCEK	240	166	69.17	240	169	70.42	240	160	66.67
LBS KSGD	540	398	73.70	480	437	91.04	180	146	81.11
LBS TVM	414	351	84.78	414	356	85.99	414	329	79.47
SCT	441	413	93.65	441	403	91.38	441	416	94.33
Year	*2016*			*2017*			*2018*		
IHRD	2323	1831	78.82	2413	1511	62.62	1873	915	48.85
CAPE	3002	2085	69.53	2895	1760	60.79	2640	1456	55.00
CCEK	240	142	59.17	240	99	41.25	240	65	27.08
LBS KSGD	180	145	80.56	180	111	61.67	180	65	36.11
LBS TVM	414	374	90.34	414	286	69.08	378	273	72.22
SCT	441	419	95.01	441	406	92.06	441	407	92.29

Source: IHRD, CAPE, LBS, CCEK and SCTCE

Annexure 3.2
College wise details of Students intake, 2019

Institution Name	Owned By	District	Approved Intake	Actual Intake	Intake %
MEC, Thrikkakkara	IHRD	Ernakulum	360	370	102.78
SCTCE, Pappanamkode	SCT	Thiruvananthapuram	420	428	101.90
CE Thalassery	CAPE	Kannur	420	356	84.76
CE Perumon	CAPE	Kollam	300	249	83.00
LBS, Poojappura	LBS	Thiruvananthapuram	360	295	81.94
CE Adoor	IHRD	Pathanamthitta	300	197	65.67
CE Kidangoor	CAPE	Kottayam	270	170	62.96
CE Trikaripur	CAPE	Kasaragod	270	162	60.00
CE Muttathara	CAPE	Thiruvananthapuram	300	166	55.33
CE Vadakara	CAPE	Kozhikode	270	147	54.44
CE Pathanapuram	CAPE	Kollam	240	128	53.33
LBS CE, Kasaragod	LBS	Kasaragod	540	278	51.48
CE Kallooppara	IHRD	Pathanamthitta	180	92	51.11
CE Cherthala	IHRD	Alappuzha	210	107	50.95
CE Attingal	IHRD	Thiruvananthapuram	180	89	49.44
CE Munnar	CC	Idukki	180	85	47.22
CE& M Punnapra	CAPE	Alappuzha	330	155	46.97
CE Karunagappally	IHRD	Kollam	180	80	44.44
CE Aranmula	CAPE	Pathanamthitta	180	75	41.67
CE Poonjar	IHRD	Kottayam	90	25	27.78
CE Kottarakkara	IHRD	Kollam	120	33	27.50

Source: APJ Abdul Kalam Technological University, 2019

Annexure 3.3
Revenue, Expenditure and Deficit of the Institutions
(Rs. in Crores)

Year	2007-08					2008-09					2009-10				
Institution	TR	RF	SE	TE	GAP	TR	RF	SE	TE	GAP	TR	RF	SE	TE	GAP
CAPE						37.28	26.73	11.15	24.26	13.02	48.65	34.32	15.68	32.63	16.02
CCEK	2.45	2.01	1.06	1.29	1.16	3.01	2.37	1.43	1.93	1.08	3.21	2.68	1.43	2.24	0.97
SCTCE	5.98	5.53	2.35	5.13	0.85	8.12	5.83	2.9	5.58	2.54	9.96	6.99	3.31	4.92	5.04
IHRD	16.64	15.71	9.99	15.26	1.38	19.89	18.84	14.7	19.73	0.16	25.65	23.65	16	21.96	3.69
	2010-11					2011-12					2012-13				
CAPE	59.58	43.62	24.4	63.06	-3.48	71.49	51.8	39.1	96.05	-24.56	84.97	62.48	48.4	87.69	-2.72
CCEK	3.46	2.79	1.67	2.41	1.05	4.44	3.51	2.59	4.09	0.35	4.16	3.31	2.78	5.06	-0.9
SCTCE	9.69	7.22	3.99	5.55	4.14	11.74	8.74	4.63	6.34	5.4	13.33	9.13	9.93	13.43	-0.1
IHRD	27.96	25.43	18.78	25.64	2.32	38.6	35.51	27.43	37.23	1.37	38.45	36.89	30.8	37.52	0.93
LBS															
LBSITW TVM						4.33	4.33	4.69	4.73	-0.4	6.34	6.34	4.09	4.11	2.23
LBS KSGD															
	2014-15					2015-16					2016-17				
CAPE	52.81	43.97	36.32	48.35	4.46	49.64	40.38	39.75	49.67	-0.03	46.11	38.46	45.93	55.64	-9.53
CCEK	6.11	4.12	3.41	6.65	-0.54	4.32	3.55	3.86	5.19	-0.87	6.43	3.12	4.28	6.36	0.07
SCTCE	14.56	10.66	9.64	14.6	-0.04	14.62	10.27	11.94	15.3	-0.68	16.13	11.2	12.22	16.3	-0.17
IHRD	48.45	46.54	39.94	47.01	1.44	45.75	44.49	46.51	52.01	-6.26	93.04		94.87	104.02	-10.98
LBS	22.41	16.55	16.06	24.02	-1.61	22.82	17.75	17.94	26.91	-4.09	24.67	18.42	17.55	26.41	-1.74
LBSITW TVM	8.25	7.99	8.21	8.48	-0.23	8.25	8	9.93	10.16	-1.91	7.58	7.32	8.49	8.71	-1.13
LBS KSGD											14.13	13.27	10.33	22.68	-8.55
	2017-18					2018-19									
CAPE	43.83	35.38	50.47	59.03	15.2	40	35	60	70	-30					
CCEK	4.87	2.9	4.13	5.09	0.22					0					
SCTCE	14.76	10.63	15.14	16.93	2.17		10.5	16	18.5	18.5					
IHRD	88.27		109.22	118.88	30.61	92.33		138.76	144.04	51.71					

LBS	22.21	17.8	19.12	26.5	-4.29	18.43	13.73	17.43	23.67	-5.24
LBSITW TVM	7.35	7.14	8.55	8.83	-1.48	6.23	6.23	8.08	8.12	-1.89
LBS KSGD	38.37	35.35	34.39	53.19	-14.82	69.7	61.54	59.59	82.13	-12.43

Source: IHRD, CAPE, LBS, CCEK and SCTCE

Annexure 3.4

College wise details of Students intake, 2019 (Gender Wise)

		Boys	Girls	Total	% of Girls
IHRD (Engineering Colleges)	Chengannur	784	701	1485	47.21
	Kalloopara	245	236	481	49.06
	Karunagappally	145	180	325	55.38
	Kottarakkara	121	94	215	43.72
	Poonjar	107	113	220	51.36
	Thrikkakara	859	703	1562	45.01
	Adoor	619	233	852	27.35
	Attingal	241	245	486	50.41
IHRD (Polytechnic Collleges)	Mala	627	125	752	16.62
	Mattakara	261	273	534	51.12
	Painavu	264	43	307	14.01
	Poonjar	240	51	291	17.53
	Vadakara	115	52	167	31.14
	Karunagappally	453	114	567	20.11
	Kuzhalmannam	299	154	453	34.00
	Total	5380	3317	8697	38.14
CAPE (Engineering Colleges)	Kidangoor	441	373	814	45.82
	Mattathara	341	166	507	32.74
	Pathanapuram	335	237	572	41.43
	Perumon	641	421	1062	39.64
	Punnapra	520	350	870	40.23
	Vadakara	464	502	966	51.97
	Aranmula	217	202	419	48.21
	Total	2959	2251	5210	43.21
CCEK	CCEK	353	118	471	25.05
LBS KSGD	LBS	197	261	458	56.99

Source: IHRD, CAPE, LBS

Annexure 3.5

College wise details of Students intake, 2019 (Caste wise)

	Colleges	General	SC/ST	OBC	Total	% of SC/SC	% of OBC
IHRD (Engineering Colleges)	Chengannur	1110	53	322	1485	3.57	21.68
	Kalloopara	408	17	56	481	3.53	11.64
	Karunagappally	119	19	187	325	5.85	57.54
	Kottarakkara	93	12	110	215	5.58	51.16
	Poonjar	110	35	75	220	15.91	34.09
	Thrikkakara	1135	133	294	1562	8.51	18.82
	Adoor	522	39	291	852	4.58	34.15
	Attingal	161	43	282	486	8.85	58.02
	Total	3658	351	1617	5626	6.24	28.74
IHRD (Polytechnic Collleges)	Mala	237	108	407	752	14.36	54.12
	Mattakara	143	53	338	534	9.93	63.30
	Painavu	116	65	126	307	21.17	41.04
	Poonjar	79	66	146	291	22.68	50.17
	Vadakara	17	14	136	167	8.38	81.44
	Karunagappally	250	84	233	567	14.81	41.09
	Kuzhalmannam	26	260	167	453	57.40	36.87
	Total	4526	1001	3170	8697	11.51	36.45
CAPE (Engineering Colleges)	Kidangoor	443	52	319	814	6.39	39.19
	Mattathara	175	35	297	507	6.90	58.58
	Pathanapuram	302	58	212	572	10.14	37.06
	Perumon	397	44	621	1062	4.14	58.47
	Punnapra	285	76	509	870	8.74	58.51
	Vadakara	196	30	740	966	3.11	76.60
	Aranmula	228	46	145	419	10.98	34.61
	Total	2026	341	2843	5210	6.55	54.57

Source: IHRD and CAPE

Annexure 3.6

Free Structure

Government/Aided Engineering Colleges	Rs.8,225/-	
Government Controlled Self Financing Engineering Colleges	50% Govt. Seats	35% Management Seats
	Rs. 35,000/-	Rs. 65,000/-
Self Financing Engineering College under Kerala University	Rs. 35,000/-	Rs. 65,000/-
Self Financing Engineering College under Calicut University	Rs. 50,000/-	Rs. 99,000/-
Self Financing Engineering College under M G University	50% Govt. Seats	40% Management Seats
	Rs. 35,000/-	Rs. 35,000/-
SCT College of Engineering, Trivandrum	50% Govt Seats	25% Management Seats
	Rs. 35,000/-	Rs. 65,000/-
Engineering College under Kerala Agricultural University	B. Tech Agricultural Engineering Rs. 9,9000/- (Per Semester Tuition Fee)	B. Tech Food Engineering & Technology Rs. 26,500/- (Per Semester Tuition Fee)
Engineering Colleges under Kerala Veterinary & Animal Sciences University	B. Tech (Dairy Science & Technology) Rs. 4,435/- (per Semester Tuition Fee) and refundable deposit of Rs. 2 Lakhs in the Colleges at Pookode and Chettachal	B. Tech (Food Technology) Rs. 40,000/- (per Semester Tuition Fee) and refundable deposit of Rs. 2 lakhs.
Private Self Financing Colleges under Kerala Self Financing Engineering College Management Association (KSFECMA) with reduced fees	50% Govt. Seats	
	Rs. 50,000/-	
Private Self Financing Colleges under Kerala Self Financing Engineering College Management Association (KSFECMA) with higher fees	50% Govt. Seats	
	*25% Lower Income Group Rs. 50,000/-	25% Others Tuition Fee-Rs. 50,000/- Special Fee- Rs. 25,000/-
	For Naval Architecture and Ship Building Course	
	*25% Lower Income Group Rs. 85,000/-	25% oOthers Tuition Fee- Rs. 85,000/- Special Fee- Rs. 50,000/-
Colleges under Kerala Catholic Engineering College Managements Association (KCECMA)	50% Govt. Seats Rs. 75,000/- Rs. 1,00,000/- as Refundable interest free deposit	Scholarship Management will set apart a sum of Rs. 3 lakhs for a batch of 60 students to be provided as scholarship in the form of Tuition Fee Waiver in accordance with GO(Ms) No.689/2013/H.Edn dated:16.11.2013

Source : office of Commissioner for Entrance Examinations

Annexure 4.1

IHRD Engineering Colleges – Qualification of the Teachers

Institution		Adoor	Attingal	Chengannur	Cherthala	Kallooppara	Karunagappally	Kottarakkara	Poonjar	Thrikkakkara	Total
Male	Permanent	24	9	22	12	13	13	8	11	16	127
	Temporary	15	1	8	3	6	1	4	3	15	55
	Total	39	10	30	15	19	12	12	14	38	189
Female	Permanent	11	12	24	16	10	15	7	6	27	128
	Temporary	23	15	42	23	16	18	7	11	24	179
	Total	34	27	66	39	27	36	15	18	61	323
Male	No Of Teachers Having P G	39	4	29	12	16	11	10	17	34	172
	No Of Teachers Having M.Phil	2	0	3	1	1	2	2	1	3	15
	No Of Teachers Having Ph.D	5	1	6	1	2	3	1	4	6	29
	No Of Teachers Doing Ph.D	5	0	5	7	0	4	0	6	4	31
Female	No Of Teachers Having P G	34	11	65	26	26	14	10	18	56	260
	No Of Teachers Having M.Phil	4	3	4	2	2	2	4	1	7	29
	No Of Teachers Having Ph.D	1	0	3	2	2	2	2	0	10	22
	No Of Teachers Doing Ph.D	3	3	9	9	2	5	0	1	8	40

Source: IHRD

Annexure 4.2

CAPE Engineering Colleges - Qualification of the Teachers

	Institution	Trikkarippur	Kidangoor	Muttathara	Pathanapuram	Perumon	Punnapra	Thalassery	Aranmula	Vadakara	Total
MALE	Permanent	22	19	15	12	21	21	25	11	26	172
	Temporary	8	3	7	0	13	10	7	7	7	62
	Total	30	22	22	12	34	31	32	18	33	234
FEMALE	Permanent	14	40	8	18	31	29	32	13	0	185
	Temporary	14	13	13	0	14	18	27	13	0	112
	Total	28	53	21	18	45	47	59	26	44	341
MALE	No Of Teachers Having PG	30	22	22	11	33	31	32	18	35	234
	No Of Teachers Having M.Phil	0	0	0	0	0	0	0	1	0	1
	No Of Teachers Having Ph.D	3	4	0	1	4	3	3	3	2	23
	No Of Teachers Doing Ph.D	5	1	5	4	0	3	5	4	8	35
FEMALE	No Of Teachers Having PG	28	53	21	17	45	47	59	27	44	341
	No Of Teachers Having M.Phil	0	0	2	0	4	1	0	0	0	7
	No Of Teachers Having Ph.D	2	3	1	1	3	1	2	1	1	15
	No Of Teachers Doing Ph.D	2	5	1	3	0	7	3	3	5	29

Source: CAPE

Annexure 4.3

IHRD Engineering Colleges – Academic Performance of Teachers

Institution		Adoor	Attingal	Chengannur	Cherthala	Kallooppara	Karunagappally	Kottarakkara	Poonjar	Thrikkakkara	Total
Male	No Of Teachers Having Atleast 1 International Publication	17	1	13	10	4	5	2	8	16	76
	No Of Teachers Having Atleast 1 National Publication	0	9	7	2	0	2	0	0	18	38
	No Of Teachers Presented Paper In Atleast 1 International Conference	0	1	14	10	4	10	1	7	17	64
	No Of Teachers Presented Paper In Atleast 1 National Conference	0	9	14	4	7	11	2	0	20	67
	No Of Teachers Having More Than 3 Years Of Experience	24	8	24	12	14	11	8	6	31	138
	No Of Teachers Continuing In The Same Institution For More Than 2 Years	16	3	18	6	5	7	7	9	23	94
Female	No Of Teachers Having Atleast 1 International Publication	12	0	32	17	12	17	8	2	31	131
	No Of Teachers Having Atleast 1 National Publication	0	12	10	6	7	14	3	0	15	67
	No Of Teachers Presented Paper In Atleast 1 International Conference	0	0	33	22	12	22	7	2	28	126
	No Of Teachers Presented Paper In Atleast 1 National Conference	0	12	12	19	9	21	3	0	21	97
	No Of Teachers Having More Than 3 Years Of Experience	7	12	39	25	18	14	7	6	39	167
	No Of Teachers Continuing In The Same Institution For More Than 2 Years	7	5	18	15	11	11	2	5	33	107

Source: IHRD

Annexure 4.4
CAPE Engineering Colleges – Academic Performance of Teachers

Institution		Trikkarippur	Kidangoor	Muttathara	Pathanapuram	Perumon	Punnapra	Thalassery	Aranmula	Vadakara	Total
Male	No Of Teachers Having Atleast 1 International Publication	13	5	7	11	17	16	4	6	12	91
	No Of Teachers Having Atleast 1 National Publication	0	3	10	8	11	8	2	7	5	54
	No Of Teachers Presented Paper In atleast 1 International Conference	15	5	6	10	20	5	10	6	15	92
	No Of Teachers Presented Paper In atleast 1 National Conference	13	3	12	7	14	9	6	10	12	86
	No Of Teachers Having More Than 3 Years Of Experience	17	13	20	12	26	13	31	15	30	177
	No Of Teachers Continuing In The Same Institution For More Than 2 Years	17	8	7	8	19	18	0	11	23	111
Female	No Of Teachers Having Atleast 1 International Publication	8	14	9	17	26	16	2	11	21	124
	No Of Teachers Having Atleast 1 National Publication	3	9	11	10	10	18	1	5	8	75
	No Of Teachers Presented Paper In atleast 1 International Conference	9	9	7	17	24	7	6	8	14	101
	No Of Teachers Presented Paper In atleast 1 National Conference	7	9	16	10	22	18	4	5	17	108
	No Of Teachers Having More Than 3 Years Of Experience	18	32	14	18	36	32	56	19	29	254
	No Of Teachers Continuing In The Same Institution For More Than 2 Years	18	27	13	17	34	21	54	13	34	231

Source: CAPE

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Annexure 4.5

Appearance of Final Year Examination and Pass Percentage for the last Five Years

	CAPE			IHRD			LBS KASARAGOD		
Year	No. Of Students Appeared	No.Of Students Passed	%	No. Of Students Appeared	No.Of Students Passed	%	No. Of Students Appeared	No.Of Students Passed	%
2014	2445	1432	58.57	1134	798	70.37	382	263	68.85
2015	2645	1570	59.36	1170	778	66.50	399	233	58.4
2016	2506	1529	61.01	2044	1338	65.46	415	251	60.48
2017	2147	1500	69.86	1956	1413	72.24	371	234	63.07
2018	2315	1444	62.38	1982	1236	62.36	475	239	50.32
	CCEK			SCT					
2014	195	135	69.23	454	365	80.4			
2015	206	155	75.24	453	412	90.95			
2016	160	95	59.38	457	393	86			
2017	171	91	53.22	430	360	83.72			
2018	189	97	51.32	451	364	80.71			

Source: IHRD, CAPE, LBS KSGD, CCEK, SCT

Annexure 4.6

Appearance of Final Year Examination and Pass Percentage for the last Five Years- IHRD (College Wise)

YEAR	ADOOR			CHENGANNUR			CHERTHALA			KALLOOPPARA		
	No of Students Appeared	No of Students Passed	%	No of Students Appeared	No of Students Passed	%	No of Students Appeared	No of Students Passed	%	No of Students Appeared	No of Students Passed	%
2011							135	73	54.07			
2012	279	199	71.33				139	73	52.52			
2013	269	182	67.66				164	110	67.07			
2014	253	176	69.57				175	99	56.57			
2015	303	204	67.33				180	100	55.56			
2016	383	235	61.36	463	267	57.67	250	152	60.80	152	134	88.16
2017	360	250	69.44	414	256	61.84	234	179	76.50	150	117	78.00
2018	378	227	60.05	460	254	55.22	228	120	52.63	152	115	75.66
	KARUNAGAPPALLY			KOTTARAKKARA			POONJAR			THRIKKAKARA		
2011				131	42	32.06	133	110	82.71			
2012				77	40	51.95	139	109	78.42			
2013				112	73	65.18	96	78	81.25	384	336	87.50
2014	117	87	74.36	120	42	35.00	106	78	73.58	363	316	87.05
2015	127	72	56.69	129	77	59.69	104	72	69.23	327	253	77.37
2016	186	108	58.06	103	78	75.73	105	65	61.90	402	299	74.38
2017	179	106	59.22	83	49	59.04	154	106	68.83	382	351	91.88
2018	143	71	49.65	74	42	56.76	136	63	46.32	411	344	83.70

Source: IHRD

Annexure 4.7

Appearance of Final Year Examination and Pass Percentage for the last Five Years – CAPE (College wise)

YEAR	Thrikaripur			Pathanapuram			Kidangoor			Perumon		
	No of Students Appeared	No of Students Passed	%	No of Students Appeared	No of Students Passed	%	No of Students Appeared	No of Students Passed	%	No of Students Appeared	No of Students Passed	%
2009	195	100	51.28				200	132	66.00	304	184	60.53
2010	219	93	42.47				239	179	74.90	287	163	56.79
2011	246	97	39.43				340	266	78.24	298	170	57.05
2012	232	162	69.83				336	258	76.79	313	193	61.66
2013	282	156	55.32	359	158	44.01	220	181	82.27	272	153	56.25
2014	295	170	57.63	358	238	66.48	367	233	63.49	247	160	64.78
2015	302	157	51.99	382	208	54.45	385	271	70.39	280	174	62.14
2016	279	139	49.82	339	161	47.49	370	258	69.73	344	255	74.13
2017	257	152	59.14	283	218	77.03	332	199	59.94	326	210	64.42
2018	284	181	63.73	322	159	49.38	341	238	69.79	326	201	61.66

	Punnapra			Thalassery			Vadakara		
2009									
2010				387	275	71.06			
2011				426	353	82.86			
2012	172	172	100.00	434	355	81.80			
2013	250	250	100.00	407	326	80.10	359	158	44.01
2014	407	204	50.12	413	342	82.81	358	238	66.48
2015	491	229	46.64	413	323	78.21	382	208	54.45
2016	441	249	56.46	394	306	77.66	339	161	47.49
2017	275	203	73.82	391	310	79.28	283	218	77.03
2018	275	179	65.09	445	327	73.48	322	159	49.38

Source: CAPE

Appendix I
Field Visits- at a Glance

For gathering the information about the functioning, academic atmosphere, students and teachers response we have conducted field survey in 10 engineering colleges, two polytechnic colleges, two Applied Science College and two computer centres.

The institutions we visited for the study are:

1. Model Engineering College, Thrikkakkara (IHRD)
2. College of Engineering Adoor, Pathanamthitta
3. College of Engineering, Kottarakkara
4. College of Engineering, Thrikkarippoor
5. College of Engineering Thalassery
6. College of Engineering Vadakara
7. LBS College of Engineering, Kasaragod
8. LBS Institute for Technology for Women, Poojappura
9. College of Engineering Munnar
10. SCTCE Engineering College, Thiruvananthapuram
11. College of Applied Science, Chelakkara
12. Model Residential Polytechnic College, Kuzhalmannam
13. Model Polytechnic College, Mala

In this section we summarize the students' as well as teachers' responses. To gather their responses, we conducted focus group discussions (FGD) with teachers and students separately. Apart from FGDs, individual discussions with Principal, Students' representative, Career/Placement Cell Co-ordinator, hostel warden and physical education teacher.

I. Model Engineering College, Thrikkakkara (IHRD)

About the College

Government Model Engineering College (MEC) is a benchmark institution functioning under the management of IHRD located at Thrikkakara (Ernakulam district). It was established in 1989.) Now MEC is affiliated to the APJ Abdul Kalam Technological University (KTU) and was the first self-financing college to be established by the Government of Kerala under the aegis of IHRD. It was previously affiliated to Cochin University of Science and Technology (CUSAT) and has also an excellent research centre in Electronics**.**

Courses

- B. Tech degree in Computer Science And Engineering
- B. Tech degree in Electronics And Communication
- B. Tech degree in Electronics And Biomedical Engineering
- B. Tech degree in Electrical And Electronics Engineering
- M. Tech degree in VLSI Design And Embedded System
- M. Tech in Mechanical Engineering with Specialization in Energy Management
- M. Tech degree in Electronics with specialization in Signal Processing
- M. Tech in Electronics with specialization in Optoelectronics and Communication System
- M. Tech degree Computer Science and Engineering in Image Processing

Summary of Discussions

- *Good reputation*
  During the time of admission, students and parents prefer this pioneer college to good government engineering colleges and unlike other government owned autonomous colleges, all seats are filled. Outlook magazine and Data Quest have featured MEC as 37th among the top 100 engineering colleges and 35th among top 100 T –Schools in India respectively for the year 2017.
- *Infrastructure facilities*
  Through various sources, the institute has built up good infrastructural facilities like buildings, labs computers, equipment, class rooms and play grounds.
- *Placement Record*
  The colleges has an impressive placement record which reflects the quality of students and teaching-learning process in the institute. Some of the top recruiters are Amazon, Microsoft, Yahoo, LinkedIn, Nvidia, Cypress Semiconductor, Open-Silicon, GE, Philips Healthcare, FactSet, D. E. Shaw & Co. and Nutanix . For students' summer internships, the college has made links to prestigious organizations such as Oracle, Siemens, Ansys, S&P Capital IQ and Deloitte.
- *Academic programmes*

  The college conducts numerous academic programmes, workshops and seminars and also host programmes conducted by prominent companies which give exposure to the students.
- *Consultancies and projects:*
  The faculty in this college has taken a lot of international as well as national projects and consultancies
- *Strong alumni*
  There are strong alumni in the institution who help the ongoing students to get campus placements. The alumni also support the financially backward as well as good performing students by providing scholarships. Their involvement is very much helpful to conduct campus placements by known companies and organizations. The institution has faculty from alumni and it is a great advantage to the institution to make an organized group for the wellbeing of the students' future.
- *Participation in the extra-curricular activities:*
  Students are active in arts, sports and other club activities in the institution. The social c ommitments of the students were remarkable, especially during the the time of flood.
- *Strong Student union*
  There is a union which represents the strength and needs of the students. The union is not supported by any political party. The students have the proper way to convey their needs through this representation and there is a healthy relationship between the students and teachers in the institution.
- *Scarcity of land for development:*
  Scarcity of land is a problem in the institution. For further infrastructural developments acquisition of land is inevitable.
- *Tagging as self-financing institution:*
  The faculty don't accept the usage of self-financing tag towards institution. They say that this tagging causes serious issues during the admission process as well as fund release (for research projects) from central government.
- *Incentives from government*
  As an incentive to good performance, government can make some improvement activities in the institutions which are running well as well as making good results. Unlike giving importance to already dead institutions, they suggest to concentrate on the institutions which are running excellent with limited facilities.

- *Improvement of and addition to the infrastructure:*
  Lift, ramp, fire & safety facilities are not sufficient in the institution. There is the need for improvement of toilet facilities. There is no toilet facility for the girls in the 3rd, 4th, and 5th floors of the institution. There is no hostel facility for girls. The condition of the auditorium is poor. There are only 23 class rooms in which tutorials are conducted by shift method. Actually there is the need for 44 class rooms. The institution is not disabled friendly one.

- *Liberal approach of the system:*
  The prevailing system is not serious about the dropout tendency of the students. Even if they dropout during the academic year, after the admission process closes, there no any compensation to be paid by the student or parent. Even the quotient deposit has to be paid back to the student. It will result in vacant seats after the closure of admission. Likewise, since there is no any strict action from the management, a minority of the students are not serious about their studies.. This liberal attitude of the system must change. A kind of strict policies and controlling methods are inevitable for the betterment and overall performance of the institution.
- *Need of addressing the backward students*
  There will be stress on the students who are not capable to follow the curriculum and keep up with the bright students' performance. Without adequate facilities and mentoring, it is very difficult to relieve the stress of the students as well as teachers. Hence, the backward students need to be addressed separately.
  The students' involvement in arts and sports, to a certain extent, helps in this regard. But a counseling / supporting mechanism is needed to be established.
- *Fund flow from Central govt*
  Without the concurrence/knowledge of the State Govt, , there is flow of fund from the central government through the programmes like Pradhan Mantri Kaushal Vikas Yojana (PMKVY). This makes problems in co-ordination
- *The problem of vicious circle:*
  Inputs, performance, result and placements create a vicious circle. By lowering fees more caliber students will come to study and it will improve the academic performance of the institution. Without reducing the fees and increasing the govt. fund, the vicious circle can't be broken.
- *PG course in mechanical engineering*
  This will help the faculty of that discipline to specialize in their area and can take more national or international projects. The institution has the capacity to build up several national and international projects and consultancies, with further infrastructure.

II. College Of Applied Science, Chelakkara, Thrissur, Kerala

The college was established in 2008 and is located at Pazhayannur (Chelakkara) in Thrissur district.

Courses

- B.sc. Computer science
- B.sc. Electronics
- B.com with computer application
- Bachelor of computer application
- Master of commerce

Summary of Discussions

- *Rush in commerce*
  Inspite of the booming trend in the technical education sector, it is found that there is a high demand for courses in commerce and management fields.

- *Demand for commerce oriented extra courses*
  New and advanced courses (with more specialization) in commerce are in demand. There is definitely a chance for starting new courses even with little bit high fees.
- *Campus placements*
  In the last year (2017) 40 students got campus placements from the college. There are good connections between the pass out students and the present students. The well placed alumina help the ongoing students to expose to the placement drive of the companies
- *Revenue to IHRD:*
  College gives an annual amount of nearly Rs. 40 to 50 lakhs to IHRD after meeting minimum needs of the institution. There is no provision to use this amount for the infrastructure development of the institution. If the college gets any part of this revenue (atleast 10%) they can surely improve a lot from the current situation.
- *Inclusivity and Accessibility:*
  The majority of the students are coming from the families of agriculture background. Majority students are coming from lower or middle class families. The institution is situated in a remote area and there is no any other Arts and Science Government/aided college in the surroundings. So it is the responsibility of the government to keep such a self-sustainable institution and give proper support for further development.
- *Lack of infrastructure:*
  Institution experiences the lack of sufficient infrastructure facilities like toilets, refreshment rooms, adequate number of class rooms, auditorium etc.
- *Play Ground and Physical Education Department*
  Another problem is related with the playground. There is no ground facility for the students to practice. The existing facilities are not sufficient to improve the sports skills of the students. There is no physical education department in the college and a proper mentoring in sports can't be done.
- *Transportation:*
  Major drawbacks noted are the lack of football ground and the problem of bus transportation. The ordinary buses are not ready to pick up the students from the college stop and because of this problem the students are forced to go to pazhayannur (2.5 km away from the college) by foot. From pazhayannur they get bus but they don't get any students concession. Hence, students are in need of sufficient transportation facilities.
- *Library:*
  There are 2068 text books and 17 journals/magazines in the library. Other than academic books, the number of fictions, poems and other category books are very few. The internet facility in the college is also very poor. In order to improve the outlook of the students vast reading is compulsory and hence, apart from academic books, various books including fiction may be made available.
- *Lack of scholarships:*
  The institution experiences the lack of proper scholarships to poor students. The existing few scholarships are not yet distributed among the students. The majority of the students belongs to financially backward families and it is compulsory to give financial support to those students.
- *Lack of permanent faculty:*
  The number of permanent faculty in the institution is few. M.Com is the only post graduate department in the institution and there is no permanent faculty in the department. So the students lack the guidance of an experienced faculty in the department. Temporary faculty is appointed on yearly basis and this system is not good for academic improvement. Good student- teacher relationship is inevitable for the good performance of the institution.

III. College of Engineering Adoor, Pathanamthitta

It is a well-known engineering college under IHRD located in pathanamthitta district. It was established in1995.

Courses

- B.Tech Electronics & Communications Engineering
- B.Tech Electrical & Electronics Engineering
- B.Tech Computer Science Engineering
- B.Tech. Mechanical Engineering
- M.Tech. Thermal Engineering

Summary of Discussions

- *Performance Evaluation System*

  Institution lacks a proper evaluation system. There should be a performance evaluation system in the college, in order to make proper development decisions in the academic activities. There will be a system to evaluate the performance of both students as well as the teachers. It will encourage a healthy competition among the faculty and will definitely reflect in the performance of the students.

- *Practical Oriented Syllabus*

  Syllabus is too vast and the 4 month semester duration makes students more stressed. There are no adequate industrial visits or field visits which are very important for the quality enhancement of engineering study.

- *Infrastructure Facilities*

  Existing infrastructures must be modernized and library must be rich with more academic resources.

- *Problem of Temporary Staff*

  To make a good relationship with students, permanent faculty is needed in every institution. Students miss the continuity of teaching learning process since temporary teachers are appointed year by year.

- *Problem of Sedentary*

  The campus is filled with buildings and there is no place for students to spend free time in the campus. There should be more cultural activities, sports events, exposure activities and technical events in the college in order to avoid the difficulties of bookish atmosphere prevailing in the campus.

IV. Model Residential Polytechnic College, Kuzhalmannam (IHRD)

The Model Residential Polytechnic College, Kuzhalmannam, started in 2010 offers two diploma level courses in Civil Engineering in Environmental Engineering and Water Resource Management.

Summary of Discussions

- *Location*

  Institution is located at Kuzhalmannam, Palakkad district. This is the only institution which provides civil engineering as a course under IHRD. The rural population (students in Palakkad district) gets the opportunity to educate their children technically through such an institution.

- *Reservation*
  50 % of the seats are exclusively reserved for scheduled caste / scheduled tribe students and other backward communities. Through this provision upliftment of the backward students and more inclusive technical education become possible.
- *Industry- Institute Collaboration*
  The institution is established as a joint venture of Institute of Human Resources Development (IHRD) and the Agency for Non-Conventional Energy and Rural Technology (ANERT) . Later it was handed over to IHRD. The campus is located in 5 acres of land. There is a chance for industry-institution collaboration in the location. For this a deliberate action is necessary from the side of the departments concerned.
- *Hostel Facility*
  There is no hostel facility in the institution. The name of the institution is model residential polytechnic college, and it is a drawback that there is no hostel facility in the institution.
- *Poor Physical Education Facilities*
  The involvement of physical education department is only during the 1st semester. After that there are no sports activities of the students in the college. The condition of the play ground is very poor. There are talented students in the institution. And there are no proper basic facilities for the students to improve their skills in sports.
- *Transportation facility*
  There is no transportation facility in the college. College bus is a necessary for the institution.
- *Regular Faculty*
  There is no regular faculty in the civil engineering department which is the only department in the institution. The problem of lack of regular faculty is a serious issue and it negatively affects the academic performance of the students as well as the institution. The consistency in the teacher-student relationship is very much important for the development of academic performance.
- *Lack of sufficient facilities*
  The conditions of the infrastructure facilities are not satisfactory. Clean toilets are not sufficient in the college..
- *Lab Facilities*
  There exists good lab facility in the institution. But the majority of the students don't make use of them, especially the students belong to backward community. The 50 % percent of the seats are exclusively reserved for the SC/ST and backward community. The government has to mold these students at the basic level itself towards the unknown world of technical education. Student's attitude and taste must be the baisis towards the selection of the course.

V. LBS College of Engineering, Kasaragod

It was established on 1993 and is located at Bovikanam (Kasaragod district).

Courses

- B.Tech Computer Science And Engineering
- B.Tech Mechanical Engineering
- B.Tech Electronics And Communication Engineering
- B.Tech Electrical And Electronics Engineering
- B.Tech Information Technology
- B.Tech Civil Engineering

- M.Tech (Me) Thermal & Fluid Engineering
- M.Tech (Cs) Computer Science And Information Security
- M.Tech (Ec) VLSI Design And Signal Processing
- M. Tech (Ee) Power Systems And Power Electronics

Summary of Discussions

- *Land*

The major benefit of the institution is the possession of 52 acres of land. So there is a possibility of constructing extra buildings, playgrounds and even institution linked industrial buildings.

- *N.S.S, Entrepreneurship Development Cell and ASAP*

A well organized and well managed N.S.S unit is working in the institution. Entrepreneurship development cell is also active in the campus. The functioning of the ASAP is an added advantage to the students .

- *Accessibility*

LBS definitely provides an opportunity for the students to seek technical education. The number of other district students is less in the institution and majority of the students belongs to Kasaragod and nearby places.

- *Possibilities of further development*

College tries to provide maximum efficiency in the education with existing infrastructure and faculty. A better improvement in the institution is possible through proper fund allocation and its fruitful usage. Institution is facing difficulties in maintaining the minimum requirements demanded by the AICTE

- *Poor up-dation of Infrastructure and lab facilities*

Because of the shortage of fund the existing infrastructure facilities and labs are not maintained well. There is no smart class room in the institution. Projector facility is also poor in condition.

- *Lack of practical knowledge*

Other than lab experiments, there are no sufficient opportunities for further practical knowledge. Internships to known institutes or industries are rare. It is essential to make sure these activities in the field of technical education.

- *Lack of Extra Curricular Activities*

The institute is not giving the opportunities for extra-curricular activities to the students. If there are proper arts and sports festivals, students will interestingly engage in those activities and it will help them to stress out the difficulties of semester studies. Sports activities and infrastructural activities for sports are also very poor. Though college possesses comparatively good area of land, playground development and its maintenance are not taken care of.

- *Faculty*

There is a lack of proper number of regular and qualified faculty in the institution,. Appointment of permanent faculty will help to improve the academic performance. Students also raised the issue of timely coverage of syllabus.

- *Lack of academic motivation and technical events*

Institution lacks proper mentoring to the students, though recently management has started some initiatives. Not much technical events are conducted..

- *Infrastructure facilities including hostel Facilities*

The condition of hostel facilities are poor, especially ladies hostel. An overall development in the infrastructure facilities of the college is necessary. It includes toilets, hostels, playground, labs, drinking water facility etc.

VI. College of Engineering, Thalassery (CAPE)

This is a good performing college located in Kannur district under Co-Operative Academy Of Professional Education. It was established on 2000.

Courses

- B.Tech Civi.l Engineering
- B.Tech Computer Science And Engineering
- B.Tech Electrical & Electronics Engineering
- B.Tech Electronics & Communication Engineering
- B.Tech Information Technology
- B.Tech Mechanical Engineering
- M.Tech Electronics And Communication Engineering (Signal Processing)
- M.Tech Mechanical Engineering (Manufacturing Systems And Manegement)

Summary of Discussions

- *Good Infrastructure*
  Building and infrastructure of the college are well developed. Re arrangement of lab facilities are important and proper maintenance is needed.
- *Digitalised Library*
  A well digitalized 3 floor library is available in the campus.
- *Participation in Extra-Curricular Activities*
  Students are actively engaged in extra-curricular activities such as sports and arts.
- *Access of Economically and Socially Backward Students*
  College provides technical education to the economically as well as socially backward students in the locality. Many of the students enjoy the benefit of various scholarships from the government.
- *Possibility of Starting New Courses*
  Since some of the traditional courses are outdated, there exist the possibilities of new courses which will meet the prevailing demand in the market. It is important to keep constant interaction between industries and institution.
- *Flexibility of the Curriculum*
  It is necessary to keep a flexible curriculum to accommodate the changing tendency of the market demand.
- *Rationalization of the Seats*
  Number of seats in courses/batches must be rationalized in accordance with the changing trend and demand.
- *Permit Autonomy Status or Aided Status*
  For the smooth working of the institution, the label of self-financing must be removed. It is also thinkable to provide autonomy status or aided status for these institutions. It will definitely reflect on the overall performance of the institution. Centre also provides fund for autonomy institutions.
- *Need of High Level Committee*
  There should be a permanent body or committee to study the human resource management in the state not only in technical field but also in general higher education. Long term perspective plans are inevitable in the field of technical education in Kerala.
- *Vast Syllabus*
  The syllabus is too vast and the coverage of syllabus is too difficult in the prescribed time. Syllabus should be specific in order to develop the technical as well as the practical skill of the students.

- *Lack of Practical Knowledge*
  Since the syllabus is too vast, there is no sufficient time to make training and practical work. Theory without practical knowledge is not effective especially in the case of technical education.

- *Lack of Technical Staffs*
  Lack of proper number of technical staff is a problem in the institution. Middle level management is poor. Huge work load is experienced by the faculty.

VII. College of Engineering Munnar

College is situated in Munnar, which is a well-known tourist place in Kerala.

Summary of Discussions

- *Hostel Facility*
  Though college is considered as a residential campus, it lacks proper hostel facilities for both girls and boys. To attract students from all over the state, hostel facility is a must.
- *Problem of Fund*
  The entire building construction was done by own generated fund. Since 2015 , there has been a shortage in the fund, because of the decline in the enrollment of the students, reduction in the allocation of fund from the government and other sources. Now even the salary of the faculty cannot be given properly.
- *Management and Approach*
  Basically CCEK is not meant for running engineering institutions, and it lacks proper experience in the operations of a technical institute. Professional approach towards the working of engineering college is important. The number of well-placed students from the college, describing the facilities of the college, and projection of the potential faculty are the strength of the college, which are not much known to outside Munnar..
- *Labs, Classrooms and Library*
  There is no smart classroom in the college. Labs are not properly maintained; more lab equipments are also needed. Newly constructed library building lacks optimum utilization and proper planning.
- *Teacher-Student Relationship*
  Teacher –student relationship is not satisfactory. There is no proper support for extracurricular activities, Tec fests and other programmes are very important in a technical institution.
- *Lack of leadership*
  Institution got an experienced teacher as principal in October 2018 after a long gap of 4 years. These 4 years of mismanagement has affected the institution negatively (opinion of teachers).

VIII LBS Institute of Technology for Women, Thiruvananthapuram

LBS Institute of Technology for Women, Poojappura, Thiruvananthapuram, started functioning in 2001, is the first women engineering college in the state, managed by LBS Centre for Science and Technology (LBSCST), Thiruvananthapuram**.**

- *Only Government Women's College in Kerala*
  LBS institute of technology for women has its own merits and demerits. Women get more opportunity to study engineering since there is such a college exclusively for girls and have the privilege to conduct all programmes in the institutions like sports, arts and other academic fests.

- *Infrastructure Facility*
  College has well equipped infrastructure facility in terms equipment, machinery buildings etc. The students are satisfied with the facilities available to them.
- *Issue of Clean campus*
  The campus has the problem of waste management. The only issue raised by the students was the problem of waste management and sewage plant.
- *Good reputation and campus placement*
  A good number of students from the college are placed in well known companies. There exists a healthy relationship between the present students and alumni in the college.
- *More procedures of being a women's college*
  The students are not allowed to go out from the campus without prior sanction from the authority. The interaction with students points out that majority of the students did not choose the college, they are forced to opt, because of the parent's compulsion. Most of them are not in favour of women's college, but for co-education. They are also have the opinion that girls alone college has its limitation while conducting and participating in special events like tech-fests.
- *Problem of Permanent Faculty and Student – Teacher Ratio*
  The present student – teacher ratio is not capable to meet the mandatory provision of NBA accreditation in 2020. College lacks permanent as well as PhD holding faculty.

IX. Sree Chitra Thirunal College of Engineering, Pappanamcode, Thiruvananthapuram

- Sree Chitra Thirunal College of Engineering, Pappanamcode, Thiruvananthapuram, since its establishment in 1995 has functioned as a prestigious Government controlled self financing Engineering college.. The college keeps high standards in terms of quality education and social responsibility, not sacrificing the value of higher education, adhering strictly to the rules and regulations of the State Government, the university to which the college is affiliated and the All India Council for Technical Education (AICTE).
- The college is looking ahead to improve the bench mark of Technical Education as a whole where good students, better infrastructural facilities and best faculties are the important parameters. In order to achieve this platform, aided status to the college will open up lot of opportunities in many ways, especially to the students who are the ultimate beneficiaries.
- The student community and the college as a whole will welcome aided status whole heartedly. The fee structure, if it is maintained to the Government fees level, higher ranking students will prefer the college and the academic standards of the institution can be raised to the National levels. Encouraging the existence and sustainability of such Government controlled Institutions becomes a priority in the prevailing unhealthy environment of Engineering Education in India.

Strength

- Highly qualified and competent academic faculty and other non-teaching staffs.
- Faculty and other non-teaching staff are non-transferable and having long service here.
- Very active Career Guidance and Placement cell for students (high recruitment rate)
- Top ranked and academically brilliant students from the Entrance Examination
- Location of College (by the side of NH, 4 km from the city and 7 km from the airport)
- QIP and other facilities for improving quality improvement and Academic system.
- Top ranked in the results of the Kerala technological University.
- Accredited twice by NBA earlier and ISO certified Institution throughout
- A good number of alumini placed all over the world including in civil services.

Weakness

- Highly Congested Campus and shortage of the built-up area
- Expenditure exceeds the income due to Government approved fees and subsidies
- Shortage of facilities for the extra-curricular activities
- Lack of research opportunities and Incubation Facilities for start -ups within the campus.
- Lack of facilities for the students extra -curricular activities.
- No external funding from any of the agencies or Government grant-in-aid.
- Less consultancy works due to minimum infrastructural facilities.
- Absence of core branches like Civil and electrical Engineering.

Opportunities

- Applying for NBA Accreditation in 2017 which will improve the quality of Education (outcome based education)
- College is located in prime location (by the side of the NH, 4 km from the heart of the city and 7 km from the airport) which may attract better students, better companies for placements and increases the start ups and incubation possibilities.
- Quality improvement programme (QIP) increases the percentage of PhD degree holders among the staffs and is a good indication of the quality of Education (outcome based).
- This in turn increases the research work among the staff members and hence the quality of the education.
- Large number of alumini spread all over the world including MNCs and the civil services.
- Good relationship with the state government may increase the Research and Consultancy. (Eg:-Vehicle body testing and Certification Centre allotted by the transport Department).
- Approved KTU research centre (increases research opportunities for staffs and students)

Threats

- Highly Congested Campus and shortage of the built-up area retards the growth of the institutionto become an Institute of National Repute.
- As the revenue is almost stagnant over the last 5 years, the expenditure exceeds the income since the 2012-13 financial year.

Suggestions from the teachers

- The college at present is working without receiving any external funding from any of the agencies or Government grant-in-aid.
- The college is facing net financial deficit from 2012-13, due to Government approved fees and subsidies.
- This makes very difficult to find enough fund for the expansion and the infrastructural developments.
- As the college is undergoing financial shortage from 2012-13 onwards, it has affected the overall development of the college in almost all the areas.
- The Government may take necessary action to sanction aided status to the college to compensate for the fiscal deficit (as per the audit reports of each financial years).

Appendix II

Survey - Teachers' Responses

Teachers Qualification

Most of the teachers in this institute are highly qualified with M Tech and Ph.D. From the interaction with teachers, it is gathered that many of the teachers won their M Tech from IITs and NITs (This is true in the case of teachers who were appointed earlier).

Out of responded 87 teachers 66 are M.Tec holders and 18 have Ph.D.

Teachers Qualification					
	M.TECH	PHD	MSC	B.TECH	Total
CAPE	19	4	1	…	24
IHRD	18	5	…	1	24
LBS	16	3	1	….	20
CCEK	3	1	….	….	4
SCTCE	10	5	….	….	15
Total	66	18	2	1	87

Medium of instruction

58.62 percent of teachers are using only English as the medium of teaching and the remaining ones are using both English and Malayalam as medium. Since many students are from very poor background and less exposure to English, teachers are forced take classes in both languages.

Opinion about the present curriculum

60.92 percent of teachers have the opinion that present curriculum is up to date to the changing needs and it is helpful for getting better job opportunities. According to the teachers they are not getting enough space for practical section and for industrial experience. Each institution gives very much importance to the extracurricular activities. 84 percent of teachers said that extracurricular activities help in academic improvements. Only 2 percent have the opinion that it will adversely affect the academic performance. Above 90 percent of teachers conduct internal assessment at regular intervals and it is based on correct guidance.

High mark scoring students and their opportunities

From the survey we can understand that, scoring high marks in colleges are not an important factor for getting good job opportunities. In the case of campus interview, the performance figure shows only a slight difference between high scoring students and the rest.

About the Institution

97 percent of them are happy to be as a teacher in that institution. Most of the teachers get a chance to teach their own interested or specialized subject. Library facilities of the institutions are properly used by 86.21 percent of the teachers. According to the teachers, they are not getting enough facilities for research in their respective institutions and also they are not got an opportunity to do a research work in their specialized area.

The tabulation of the responses of the teachers to the individual questions given in questionnaires are given as follows:

Medium of Teaching		
	Both English And Malayalam	ENGLISH
CAPE	14	10
IHRD	10	14
LBS	7	13
CCEK	2	2
SCTCE	3	12
Total	36	51
%	41.38	58.62

Opionion about whether present curriculum is up to date to the changing needs		
	NO	YES
CAPE	12	12
IHRD	7	17
LBS	6	14
CCEK	2	2
SCTCE	7	8
Total	34	53
%	39.08	60.92

Helpful for Getting Job		
	NO	YES
CAPE	12	12
IHRD	10	14
LBS	2	18
CCEK	2	2
SCTCE	6	9
Total	32	55
%	36.78	63.22

Enough Space for Practical Sessions		
	NO	YES
CAPE	14	10
IHRD	18	6
LBS	11	9
CCEK	3	1
SCTCE	9	6
Total	55	32
%	63.22	36.78

Enough industry experience		
	NO	YES
CAPE	22	2
IHRD	17	7
LBS	13	7
CCEK	2	2
SCTCE	13	2
Total	67	20
%	77.01	22.99

Whether Scoring High Marks Helps The Students For Getting Job		
	NO	YES
CAPE	13	11
IHRD	9	15
LBS	7	13
CCEK	4	0
SCTCE	6	9
Total	39	48
%	44.83	55.17
Whether High Mark Scoring Students Perform Better In Campus Placement Than The Other Students		
	NO	YES
CAPE	9	15
IHRD	12	12
LBS	6	14
CCEK	3	1
SCTCE	9	6
Total	39	48
%	44.83	55.17
Whether institution encourages the extra-curricular activities of the students		
	NO	YES
CAPE	1	23
IHRD	1	23
LBS	0	20
CCEK	0	4
SCTCE	0	15

Impact Of Extra-Curricular Activities Of Students On The Academic Performance			
	Adversely affect the academic performance	Helps very much in academic improvements	Has no any role
CAPE	2	19	3
IHRD	0	20	4
LBS		17	3
CCEK		3	1
SCTCE		14	1
Total	2	73	12
%	2.30	83.91	13.79

Do you get the opportunity to teach the subject of your specialization/interest?

	NO	YES
CAPE	0	24
IHRD	2	22
LBS	1	19
CCEK	0	4
SCTCE	0	15
Total	3	84
%	3.45	96.55
Can you make the proper use of library facility in the institution?		
	NO	YES
CAPE	4	20
IHRD	3	21
LBS	3	17
CCEK	0	4
SCTCE	2	13
total	12	75
%	13.79	86.21
Is there proper internal assessment about the students at regular intervals?		
	NO	YES
CAPE	1	23
IHRD	0	24
LBS	0	20
CCEK	0	4
SCTCE	0	15
total	1	86
%	1.15	98.85

Do you think that the internal assessments made are based on correct guidelines?		
	NO	YES
CAPE	0	24
IHRD	2	22
LBS	1	19
CCEK	1	3
SCTCE	1	14
Total	5	82
%	5.75	94.25
Do you enjoy the dignity of being a teacher in the institution?		
	NO	YES
CAPE	2	22
IHRD	1	23
LBS	0	20
CCEK	0	4
SCTCE	0	15
total	3	84
%	3.45	96.55
Do you have the proper research facility in the institution?		
	NO	YES
CAPE	19	5
IHRD	18	6
LBS	16	4
CCEK	0	4
SCTCE	12	3
total	65	22
%	74.71	25.29
Do you get the opportunity to do research work in your area of specialization		
	NO	YES
CAPE	16	8
IHRD	16	8
LBS	11	9
CCEK	0	4
SCTCE	10	5
total	53	34
%	60.92	39.08

Appendix III

Survey - Students Response

We took the responses from the students through questionnaires. Instead of interview method, we adopted survey method by sending the questionnaires via e-mails and collecting information. The emails of the students were collected through students' representatives.

Here we go through the responses of 500 students from different colleges of Kerala. Out of this, 209 are girls while 291 constitute boys. They are from different castes; 173 are from general category, 221 from OBC and 98 students did not mention their caste. Number of responded students from SC and ST communities is less.

Caste wise distribution of Responded Students

Caste	SC	ST	OBC	General	Not mentioned
No. of students	7	1	221	173	98

Academic Qualification

88.6 percent of them had secured above 80% marks in their higher secondary level. Above 50% of the students had gone through an aptitude test before taking admissions in the institution concerned.

Percentage of marks obtained in the Higher Secondary Examination			
Mark	Above 50%	Above 60%	Above 80%
No. of students (%)	0.4	11	88.6

Financial background

Parents of 17 percent of students are government employees. Only 5 percent of parents are working as farmers and 7 percent are doing business.

Occupation	Govt EMPLOYEE	BUSINESS	FARMER	PRIVATE JOB	TEACHER	COLLEGE TEACHER	WAGE EARNER	SELF EMPLOY	OTHERS
No.of parents (%)	16.8	7.1	5.2	9.6	6.8	0.9	2.7	5.1	45.8

331 (66.2%) students' annual family income was less than 5 lakh. But only 13.2 percent of students availed educational loan. Loan amount of 47 out of 67 students was in between Rs. 2lakh to Rs. 5 lakh.

Extracurricular activities

About 67 percent of the students are still engaged in extracurricular activities. 82 percent of the students have the opinion that colleges are giving good support to their extracurricular activities. Most of them read only less than 10 books in a year.

About Fees

Students around 11 percent said that there was some unnecessary fees like PTA fund, increased bus fees, mobile phone usage charge etc.

College Union

In the college, student union was strong according to 75 percent of the students. 82 percent of the students have the opinion that, union have an important role in the personality development of a student. But only 53% of them joined in the students union. 29 percent of the students are NSS volunteers. But 16% of the students have not joined any of the clubs.

About their interest in the course

428 out of 500 students joined the particular course with their own interest. 277 of them selected this course, because they like the particular subject and most of them are not going for any extra tuition.

Facilities

About 96 percent of the students have the opinion that their library and computer lab facilities are good. 60% of the students opined that playground, refreshment room and hostel are moderate ones. 90 percent of the students

have good opinion about their toilets and the drinking water facilities. Most of them said that there was no misleading advertisement by the institution at the time of their admission. Only 77% of the students agreed that the institutions provided all the facilities promised in the prospects. Only few had the opportunity of having basic technical education during the period of their elementary education.

About the syllabus

Many of them have the opinion that the syllabus is too vast and very difficult to follow. 64 percent of the students said that teachers completed above 80 percent of the portions. Almost all of them heard about campus interview and the placement and 98 percent of their seniors got job through these campus interviews. 85 percent of them are interested to follow a career in the same field and some of them have the interest of civil service and other government jobs. 73 percent of them have a confidence to get a job in the same field.

Campus placements

Most (97.6 per cent) of the students knew about the campus placement in the institutions. According to them 97.6 per cent of their seniors (who wished to get job) have been placed through campus placement. Only 46.2 per cent of students prefer job in their own field. 16.4 per cent prefers job in the Government sector. Out of 500 students 366 of them have the confidence of getting job after the completion of their course.

The tables on each and every questions in the questionnaires are given below:

Consolidated Tables on Students' Responses

Details of 500 students			
	Female	Male	Total
CAPE	15	15	30
IHRD	61	132	193
LBS	50	47	97
CCEK	6	38	44
SCTCE	77	59	136
Total	209	291	500

Religious wise Status				
	Hindu	Christian	Muslim	Nil
CAPE	25	0	5	
IHRD	115	66	10	2
LBS	59	3	33	2
CCEK	14	11	17	2
SCTCE	103	21	11	1
	316	101	76	7

Percentage of marks obtained in the higher secondary examination			
	Above 50%	Above 60%	Above 80%
CAPE		8	22
IHRD		11	182
LBS	1	15	81
CCEK	1	4	39
SCTCE		17	119
total	2	55	443
%	0.4	11	88.6

Whether you have gone through any aptitude test on technical education, before taking admission in the institution		
	YES	NO
CAPE	17	13
IHRD	115	78
LBS	45	52
CCEK	22	22
SCTCE	81	55
Total	280	220
%	56	44

Occupation Of Father									
	Gvt employee	Business	Farmer	Private job	Teacher	College teacher	Wage earner	Self empt	Others
CAPE	5	7		2			4	1	11
IHRD	46	16	15	44	2	3	8	16	43
LBS	19	14	16	8			3	8	29
CCEK	2	5	10	2			4	5	16
SCTCE	35	25	8	22	3	4	3	5	31
total	107	67	49	78	5	7	22	35	130
%	21.4	13.4	9.8	15.6	1	1.4	4.4	7	26

Occupation of Mother									
	Gvt employee	Business	Farmer	Private job	Teacher	College teacher	Wage earner	Self empt	Others
CAPE	1			1	1			1	26
IHRD	26	1	1	7	29	1	2	9	117
LBS	9		1	1	11		3	3	69
CCEK	4	1		1	4				34
SCTCE	21	2	1	8	18	1		3	82
total	61	4	3	18	63	2	5	16	328
%	12.2	0.8	0.6	3.6	12.6	0.4	1	3.2	65.6

Annual income of family			
	Less than 5 lakhs	Between 5 to 10 lakh	Above 10 lakh
CAPE	26	4	
IHRD	109	65	19
LBS	80	15	2
CCEK	40	3	1
SCTCE	76	47	13
total	331	134	35
%	66.2	26.8	7

Whether You Have Availed Educational Loan For Your Study		
	YES	NO
CAPE	5	25
IHRD	27	166
LBS	9	88
CCEK	13	31
SCTCE	13	123
total	67	433
%	13.4	86.6

If yes, amount of loan			
	Less than 2 lakh	Between 2 and 5 lakh	Above 5 lakh
CAPE	5		
IHRD	2	24	1
LBS	5	4	
CCEK	3	10	
SCTCE	1	9	3
total	16	47	4
%	23.88	70.15	5.97

Whether you have benefited of grace marks for extra-curricular activities at the time of admission		
	YES	NO
CAPE	2	28
IHRD	10	183
LBS	8	89
CCEK	3	41
SCTCE	9	127
Total	32	468
%	6.4	93.6

Are you still actively engaging in the extra-curricular activity		
	YES	NO
CAPE	20	10
IHRD	120	73
LBS	63	34
CCEK	29	15
SCTCE	103	33
Total	335	165
%	67	33

Whether College Encourages Your Extra-Curricular Activity		
	YES	NO
CAPE	26	4
IHRD	155	38
LBS	84	13
CCEK	19	25
SCTCE	127	9
Total	411	89
%	82.2	17.8

IF Yes, How								
	Arts festival	Sports festival	Opportunity to perform as part of other academic programmes/functions	Arts festival, sports festival	Arts festival, opportunity to perform as part of other academic programmes/functions	Sports festival,opportunity to perform as part of other academic programmes/functions	All of the above	Other
CAPE	1	2	3		18		1	1
IHRD	27	22		18	16	4	54	14
LBS	6	7	12	6	2	3	40	8
CCEK					16			3
SCTCE	22	8	10	9	9		64	3
total	56	39	25	33	61	7	159	29
%	11.2	7.8	5	6.6	12.2	1.4	31.8	5.8

During this year, how many books, have you read					
	Between 10 and 20	Between 5 and 10	Less than 5	None	More than 20
CAPE		5	18	5	2
IHRD	6	45	93	46	3
LBS	5	25	49	13	5
CCEK	2	6	27	8	1
SCTCE	7	44	59	23	3
total	20	125	246	95	14
%	4	25	49.2	19	2.8

Whether the students unions are strong in your college		
	YES	NO
CAPE	25	5
IHRD	104	89
LBS	95	2
CCEK	19	25
SCTCE	130	6
Total	373	127
%	74.6	25.4

Do you think that presence of students' union is important for the personality development of students		
	YES	NO
CAPE	19	11
IHRD	148	45
LBS	87	10
CCEK	36	8
SCTCE	119	17
total	409	91
%	81.8	18.2
Are you a member of any students' union		
	YES	NO
CAPE	8	22
IHRD	147	46
LBS	73	24
CCEK	17	27
SCTCE	22	114
total	267	233
%	53.4	46.6

Are you a member of any of the following						
	N.C.C	N.S.S	ECO CLUB	ARTS CLUB	OTHERS	NILL
CAPE		7	1	5	12	5
IHRD	1	38	15	28	69	42
LBS		29	7	13	32	16
CCEK	1	23	6	1	11	2
SCTCE		47	3	42	31	13
total	2	144	32	89	155	78
%	0.4	28.8	6.4	17.8	31	15.6

Who motivated you to join this course				
	Motivated by friends	Your own interest	Parents choice	Inspiration by teachers
CAPE	2	23	3	2
IHRD	14	164	12	3
LBS	4	81	11	1
CCEK		40	3	1
SCTCE	4	120	12	
total	24	428	41	7
%	4.8	85.6	8.2	1.4

The factor which motivated you to join this course						
	Getting professional degree	Your own interest in the subject	Thought of getting job immediately after the course	To know more about the subject	Interest towards mathematics	No other option
CAPE	9	13	7	1		
IHRD	51	112	29		1	
LBS	20	57	17			
CCEK	14	25	4			1
SCTCE	44	70	20			
total	138	277	77	1	1	1

Whether there was any misleading advertisement by the institution at the time of admission		
	YES	NO
CAPE	3	27
IHRD	7	186
LBS	4	93
CCEK	18	26
SCTCE	1	135
total	33	467
%	6.6	93.4
Has the institution provided all the amenities/facilities as promised in the prospectus		
	YES	NO
CAPE	22	8
IHRD	147	46
LBS	83	14
CCEK	12	32
SCTCE	123	13
Total	387	113
%	77.4	22.6

Availability of basic technical education at the elementary education level			
	Only after joining the course	Via any career guidance	Short term course in par with school
CAPE	20	7	3
IHRD	138	31	24
LBS	54	17	26
CCEK	28	10	6
SCTCE	65	48	23
total	305	113	82
%	61	22.6	16.4
Capacity to follow the syllabus			
	Difficult to follow	Easy to follow	Syllabus is too vast
CAPE	9	5	16
IHRD	53	32	108
LBS	36	27	34
CCEK	22	4	18
SCTCE	24	43	69
total	144	111	245
%	28.8	22.2	49

Syllabus coverage by the teachers during the academic year				
	Above 80%	Fully covered	Less than 50%	Above 50%
CAPE	21	4	1	4
IHRD	115	36	4	38
LBS	64	24	1	8
CCEK	27	4		13
SCTCE	94	17	1	94
total	321	85	7	157
%	64.2	17	1.4	31.4

Are you aware of the Campus Placements In Your Institution		
	YES	NO
CAPE	25	5
IHRD	188	5
LBS	97	0
CCEK	42	2
SCTCE	136	0
Total	488	12
%	97.6	2.4

Whether your seniors have been placed through campus placements and job fairs conducted in this college		
	Yes	NO
CAPE	24	6
IHRD	188	5
LBS	97	0
CCEK	44	0
SCTCE	135	1
Total	488	12
%	97.6	2.4
Are You Particular To Pursue A Career In This Field		
	YES	NO
CAPE	26	4
IHRD	163	30
LBS	93	4
CCEK	37	7
SCTCE	106	30
Total	425	75
%	85	15

Your future plan after this course						
	Employment in the same field	Further study	Coaching for banking recruitment	Civil service	Government job	Other
CAPE	14	1	1	4	9	1
IHRD	109	44		12	23	5
LBS	32	18		11	25	11
CCEK	25	9		2	6	2
SCTCE	51	53		7	19	6
total	231	125	1	36	82	25

Do you have the confidence that you will definitely get a job in this field after the completion of the course		
	YES	NO
CAPE	12	18
IHRD	160	33
LBS	55	42
CCEK	20	24
SCTCE	119	17
Total	366	134
%	73.2	26.8