



GOVERNMENT OF KERALA

MANPOWER STUDY SERIES—37

**STUDY ON THE UTILITY PATTERN OF
ENGINEERING GRADUATES IN KERALA**

MANPOWER DIVISION
DEPARTMENT OF ECONOMICS & STATISTICS
KERALA
FEBRUARY, 1984

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MANPOWER STUDY SERIES-3A

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LABOUR DIVISION
DEPARTMENT OF ECONOMICS & REVENUE
KERALA
TRIPUNITHUR, 1966

PREFACE

'Manpower Study Series' incorporates study reports on important manpower subjects. This study on "the utility pattern of engineering graduates in Kerala" conducted by Sri N. Sivadasan, Manpower Officer of Department of Technical Education makes a deep analysis of the employment unemployment problem of engineering graduates in the state and also examines their utility pattern. It is hoped that findings of this study will be useful in understanding the problem of unemployment of technically qualified persons in the State.

Trivandrum,
6-1-1984.

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CHAPTER I

GENERAL

1.1 Introduction

Kerala State is beset with the acute problem of educated unemployment. The Employment and Housing Survey—1980 reveals that 18 per cent of the total labour force in Kerala are employment seekers. Employment exchange data reveals that the number of the unemployed has been swelling from year to year. It is a fact that even the technically qualified persons are not able to escape fully from the grip of educated unemployment. In this study, an attempt is made to assess the magnitude of unemployment among engineering graduates and to know their absorption in various public and private industrial sectors and establishments, and their utility pattern.

1.2 Objectives of the Study

The following are the main objectives of the study.

1. To find out the present activity status of Engineering graduates of various branches and their employment position.
2. To assess the extent of unemployment among engineering graduates of various branches and to measure their employment opportunities.
3. To measure the normal duration of waiting period for securing employment for various branches of engineering.
4. To evaluate their absorption pattern in the employment market and pattern of economic activity.
5. To assess utility pattern of various categories of engineering graduates in different sectors and places.

1.3 Methodology of the Study

Engineering graduates passed during 1974-75 to 1978-79 from the six Engineering Colleges in the state formed the population for this sample survey. 20% of Civil, Mechanical and Electrical engineering graduates were selected using systematic sampling method. As graduates of other branches viz. Chemical, Architecture, Electronics and Telecommunication were small in number, all of them were selected. On the whole 877 persons were addressed through the questionnaire. Only 152 filled-in-questionnaire were received. The percentage of response was 17.9 of the selected persons and 5.3% of the total engineering graduates passed during the period. Table I of Appendix II gives details of filed response.

1.4 Period of Study

The study took a period of 23 months since its planning in April 1981 till the preparation of draft report in March 1983.

1.5 Limitations

1. The list of engineering graduates, collected and used as the frame for this survey is not complete, since all the institutions had not maintained proper register showing the correct and full address of the students who passed every year from the institutions.

2. As the system of gathering the information from individual persons was by mailing method, the response is poor and consequently the coverage is low.

FINDINGS OF THE STUDY

2.1 Activity Status

It is seen that 69.4 per cent of engineering graduates contacted were employed at the time of enquiry leaving the remaining 30.6% only unemployed at the time of reporting.

TABLE 2.1

Activity status of engineering graduates (Branch-wise)

Branches	Employed		Unemployed		Total		Rank as per employment percentage	Remarks
	No.	%	No.	%	No.	%		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Civil	27	79.4	7	20.6	34	100.0	3	
Mechanical	26	66.7	13	33.3	39	100.0	5	Received data from
Electrical	22	52.4	20	47.6	42	100.0	6	employed persons only
Electronics & Telecommunication	20	87.0	3	13.0	23	100.0	2	
Chemical	11	68.8	5	31.2	16	100.0	4	
Architecture	3	100.0	..	..	3	100.0	1	
Total	109	69.4	48	30.6	157	100.0	..	

Next to Architectural Engineers, who reported cent per cent employment, it can be seen that Electronics Engineers have better employment opportunities than the other categories of engineers. 87 per cent of the Electronics Engineers is seen employed whereas for electrical branch the corresponding percentage is only 52.4. If we assign rank to different categories of engineering graduate according to the employment position, it can be seen that Civil Engineering graduates stand next to the Electronic Engineering graduates in the case of employment opportunity. It is seen that Mechanical and Chemical Engineering graduates have more or less equal employment opportunity.

2.2 Employment status and marks obtained

In this section, attempt is made to assess the extent to which the marks secured by the candidates helped them in getting employment. To make the analysis easy 60% marks is taken as the standard and those who got marks below 60% are taken into one group and those got above 60% are taken into another group. It is seen in table 2.2 that 78.4% of Engineering graduates having marks above 60% and 55% having marks below 60% have been employed. In other words, of the total employed engineering graduates, 69.4% have marks above 60% and 30.6% have marks below 60%.

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As seen in table 2.2., 25% of the Civil Engineering Graduates with marks below 60% is unemployed. But among those who secured above 60% marks, only 16.7 is unemployed. In the case of Mechanical Engineering graduates 44.4% of the unemployed have secured marks below 60% only. But in the case of Electrical Engineering graduates, 66.7% of those who got below 60% marks is seen unemployed. All the Electronics Engineering graduates with marks above 60% are seen employed. With regard to the Architecture Engineering graduates all, both with below 60% and above 60% marks, reported as employed. Hence in their case the relation of marks with employment position cannot be assessed. From the above it can be seen, that in general, engineering graduates with higher marks have more employment opportunities than those with less marks.

2.3. Sex and activity status

In this portion, an attempt is made to compare the employment status of male and female engineering graduates. It is a fact that in the matter of higher professional education such as Medicine, Engineering etc., engineering education is less preferred by the female. It is seen that out of 157 engineering graduates studied female are only 18, i.e. only less than 12 per cent, and even in certain branches such as Mechanical and Architecture no females have reported (Table 4 appendix). Table 2.3 gives the percentage, of employed and unemployed male and female engineering graduates of different branches.

TABLE 2.3

Distribution of engineering graduates according to sex and activity status.

Branches	Percentage					
	Employed			Unemployed		
	M	F	Total	M	F	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Civil	74.1	100.0	79.4	25.9	..	20.6
Mechanical	66.7	..	66.7	35.3	..	33.3
Electrical	58.3	16.7	52.4	41.7	83.3	47.6
Electronics	89.5	75.0	87.0	10.5	25.0	13.0
Chemical	73.7	..	68.8	26.7	100.0	31.2
Architecture	100.0	..	100.0	..	..	..
Total	70.5	61.1	69.4	29.5	38.9	30.6

It is seen that out of total male engineering graduates, 70.5% is employed, whereas the corresponding percentage of female engineering graduate is only 61.1. This shows lesser representation of female in the employment market. This state of affairs is generally seen in all categories except civil branch. In the case of Electrical Engineering graduates, only 16.7% of female have got employment whereas the corresponding percentage of male is seen 58.3. In the Chemical Engineering branch cent percent of female are found unemployed.

2.4. Waiting period for employment

Waiting period is the completed years of waiting for employment after passing B.Sc. Engineering course. The period spent for higher studies, apprenticeship etc., if any, is not accounted.

Table 2.4 shows the percentage of engineering graduates of different branches and the duration of waiting for employment.

TABLE 2.4

Percentage of employed engineering graduates according to waiting period

Branch	Waiting period					Total
	Below 1 year	1 year	2 years	3 years	4 years	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Civil	14.8	48.2	22.2	11.1	3.7	100.0
Mechanical	34.6	46.2	19.2	..	..	100.0
Electrical	32.8	40.0	22.7	..	4.5	100.0
Electronics & Tele-communications	40.0	30.0	25.0	5.0	..	100.0
Chemical	13.2	54.5	27.3	..	..	100.0
Architecture	..	100.0	..	..	..	..
Total	28.4	44.9	21.1	3.7	1.9	100.0

It is seen that 28.4 per cent of the total employed engineering graduates obtained employment within a period of 1 year 44.9% had to wait up to 2 years. Only 1.9% of the total employed engineers waited for 4 to 5 years.

2.5. Place of employment

The data on the place of employment of the engineering graduates of various branches throw some light on the magnitude of the out migration. The place of employment, mentioned under this study is broadly classified into, within the state, outside state but within India and outside India.

TABLE 2.5

Percentages of employed according to place of employment

<i>Branch</i>	<i>Within the State</i>	<i>Outside the State (within India)</i>	<i>Outside India</i>	<i>Total</i>
(1)	(2)	(3)	(4)	(5)
Civil	85.2	14.8	..	100.0
Mechanical	42.3	53.8	3.9	100.0
Electrical	54.6	45.4	..	100.0
Electronics & Tele- communication	30.0	65.0	5.0	100.0
Chemical	63.6	36.4	..	100.0
Architecture	100.0	..	..	100.0
Total	56.9	41.3	1.8	100.0

Table 2.5 shows that 56.9% of total employed engineering graduates are working within the state and the remaining 43.1% outside the state, of which 1.8% are working outside India. This shows that more than 43% of the engineering graduates are outmigrated (skill drain). Comparing the different branches, it is seen that 85.2% Civil Engineers are working within the State, whereas for Electronics and Mechanical Engineering the corresponding percentages are only 30.0 and 42.3 respectively. It shows that majority of Electronics (70%) and Mechanical Engineers (57.7%) are working outside the State. As far as Chemical Engineers are concerned, 63.6% is seen employed within the state.

2.6 Employment absorption inside the state

Table 2.6 shows the percentage of engineering graduates of various branches employed in different sectors within the state like State government departments autonomous boards and corporation, central government, quasi government, private, etc. It is seen that 59.7 per cent of engineering graduates are working in various departments of the state government and autonomous boards and corporations put together.

TABLE 2.6

**Employment of engineering graduates of various branches
in different sectors within the state**

<i>Branches/ Sectors</i>	<i>Percentage employed</i>						<i>Total</i>
	<i>Civil</i>	<i>Mech.</i>	<i>Elect.</i>	<i>Elec- tro. & Tele- commu.</i>	<i>Chemical</i>	<i>Architect- ure</i>	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
State Government Department							
State Government Boards Corporations, etc.	86.9	18.2	66.7	83.3	..	66.7	59.7
Central Government	8.7	..	..	..	14.2	..	4.8
Quasi Government	4.4	27.3	8.3	..	42.9	..	12.9
Private	..	54.5	25.0	16.7	42.9	..	21.0
Self employed	..	..	..	..	..	33.3	1.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Thus as far as engineers are concerned, state government including Government sponsored boards and Corporation is the major employer. It is seen that private sector has absorbed only 21.0 per cent of engineers. The engineering personnel employed under central Government within the state is as low as 4.8 per cent. Branch-wise analysis, shows that all the civil engineering graduates are seen working in various government and quasi government departments. In the case of Mechanical Engineers, 54.5 are employed under private sector. State Government boards and corporation including K.S.E Board and Keltron are the major sectors that absorb Electrical Engineering graduates (66.7) and Electronics (85.3) engineers. Regarding the Chemical Engineering graduates private sectors and quasi government concerns equally absorb them with the percentages 42.9 each. 33.3% of the Architectural Engineers are self employed.

2.7 Employment absorption outside the State

Table 2.7 shows the percentage distribution of 43.1% of engineering graduates of various branches employed in different sectors outside the State.

TABLE 2.7

**Employment absorption of various branches of Engineers
in different sectors outside the state**

<i>Branches/ Sectors</i>	<i>Percentage employed</i>						<i>Total</i>
	<i>Civil</i>	<i>Mech.</i>	<i>Elect.</i>	<i>Electro. & Tele.</i>	<i>Chem.</i>	<i>Arch.</i>	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Central Govt.	25.0	13.3	10.0	21.5	25.0	..	17.0
Other State Govt.	50.0	6.7	20.0	..	..	..	10.6
Quasi Govt.	25.0	20.0	20.0	7.1	25.0	..	17.0
Private	..	53.3	50.0	64.3	50.0	..	51.1
Outside India	..	6.7	..	7.1	..	..	4.3
Total	100.0	100.0	100.0	100.0	100.0	..	100.0

It is seen that among the engineering graduates working outside the state 51.1 percent are employed under Private Sectors, whereas the corresponding percentages under Central Government and other state governments are only 17.0 and 10.6 respectively. It is seen that 17% are working under quasi government and the remaining 4.3% in foreign countries. Branch-wise analysis shows that more than fifty per cent of engineering graduates other than civil engineers are employed in private sector. In the case of Civil Engineers 50% are seen working under other state government.

2.8 Emolument and employment

TABLE 2.8

**Percentage distribution of employed engineering graduates
according to emolument and place of employment**

<i>Monthly emoluments</i>	<i>Employed within the state</i>	<i>Employed outside the state</i>	<i>Employed outside India</i>	<i>Total</i>
(1)	(2)	(3)	(4)	(5)
Below Rs. 800	21.0	8.9	..	15.6
800 & above to 1000	50.0	22.2	..	37.6
Above 1000 to 1200	11.3	22.2	..	15.6
Above 1200 to 1500	14.5	28.9	..	20.2
Above 1500 to 2000	1.6	13.3	..	6.4
Above 2000	1.6	4.5	100.0	4.6
Total	100.0	100.0	100.0	100.0

Table 2.8 reveals that out of the total employed engineering graduates studied, more than 50% are getting below Rs. 1000 p.m. as emoluments, 4.6% get above Rs. 2000. In the case of those employed within the state 50% are in the income group of 800 to 1000 and only 31.2% are having emoluments above Rs. 1200 per mensem. But in the case of those employed outside Kerala, largest number with 28.9% are in the range 1200 to Rs. 1500 and 4.5% are getting income above Rs. 2000. From the above table, it can be seen more than $\frac{2}{3}$ of the engineering graduates employed outside the state are getting more than Rs. 1000 per mensem as emoluments.

Table 2.9 shows that majority of all the Civil Engineers employed within the state are getting emoluments below Rs. 1000 p.m. In the case of Mechanical Engineers, 27.3 per cent have income Rs. 1200 to 1500 and even 9 per cent are getting emoluments above Rs. 2000. In the case of Electrical Engineers, 41.7 per cent are in the emolument group of 1000 to 1200. Regarding Electronics Engineers 50% are getting emoluments of Rs. 1200 to 1500, whereas for Chemical Engineers only 14.3 per cent are getting that emolument. 33.3 per cent of Architecture Engineers earn income above Rs. 1500 by self-employment. The above fact shows that Electronics and Telecommunication Engineers are generally getting more attractive remuneration than engineers of other branches of specialisation.

TABLE 2.9

Percentage distribution of engineering graduates of different branches working with in the State according to emoluments

[illegible]

TABLE 2.10

Percentage distribution of engineering graduates of different categories employed outside the state according to emoluments

Emoluments	% of the Engineers of the Branch						Remarks
	Civil	Mech.	Elec.	Elect.	Chemi.	Total	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Below Rs. 800	..	13.3	10.0	7.1	..	8.5	..
800 to 1000	75.0	20.0	20.0	14.3	..	21.2	..
1000 to 1200	25.0	13.3	40.0	..	75.0	21.2	..
1200 to 1500	..	20.0	20.0	50.0	25.0	27.8	..
1500 to 2000	..	13.4	10.0	21.4	..	12.8	Excluding employed
Above 2000	..	20.0	..	7.2	..	8.5	outside India
Total	100.0	100.0	100.0	100.0	100.0	100.0	..

As is seen from Table No. 2.10 75% Civil Engineers employed outside Kerala get emoluments Rs. 800 to 1000 whereas the corresponding percentage of Mechanical and Electrical Engineers in that group are only 20% each. In the case of Mechanical Engineers 20% are getting emoluments above Rs. 2000 which include those working outside India. As far as the Electronics engineering graduates employed outside Kerala are concerned, 50% are getting emoluments 1200 to 1500 and 7.2% get emoluments above Rs. 2000, majority with 75% chemical engineers are in the emoluments range 1000 to 1200.

TABLE 2.11

Percentage distribution of Engineers working in different sectors in the State according to emoluments

Emoluments	Percentage Employed					Total
	State Govt. Dept.	State Govt. Board & Copor.	Central Government	Quasi Govt.	Private	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Below 800	16.0	..	33.3	25.0	42.9	21.0
800 to 1000	84.0	25.0	33.3	37.5	21.4	50.0
1000 to 1200	..	41.6	..	25.0	..	11.3
1200 to 1500	..	33.4	33.4	..	28.6	14.5
1500 to 2000	..	..	..	..	7.1	1.6
above 2000	..	..	..	12.5	..	1.6
Total	100.0	100.0	100.0	100.0	100.0	100.0

The above table shows that 84% of the total engineers working in different departments of the State Government get emoluments Rs. 800 to 1000, whereas 41.6 per cent of engineering graduates working under boards and corporations of the State are getting emoluments Rs. 1000 to 1200 and 33.4% are getting 1200 to 1500. In the case of those employed under Central Govt. within the State only 33.4% are getting emoluments of Rs. 1200-1500. In the case of the engineering graduates employed under quasi-government, it can be seen that 12.5% are getting emoluments above Rs. 2000. The emoluments received by the engineering graduates employed in private establishments within the State are not so attractive because while 28.6 per cent are getting emoluments Rs. 1200 to 1500 and 7.1% are getting 1500-2000, 42.9% are getting only emoluments below Rs. 800.

2.9 Unemployment of engineering graduates

It has already been stated that 30.6 per cent of engineering graduates surveyed are found unemployed at the time of enquiry. Table 2.12 given below shows the percentage of unemployed in each category of engineers,

TABLE 2.12

Percentage distribution of unemployed engineering graduates in different disciplines

<i>Branches</i>	<i>No. of unemployed</i>	<i>Total respondents</i>	<i>percentage of unemployed to the total respondents</i>
(1)	(2)	(3)	(4)
Civil	7	34	20.6
Mechanical	13	39	33.3
Electrical	20	42	47.6
Electronics and Telecommunications	3	23	13.0
Chemical	5	16	31.3
Architecture	..	3	..
Tota	48	157	30.6

The above table shows that unemployment is much less among Electronics Engineer. 13.0 per cent, and highest among Electrical Engineers 47.6%). But this situation is only a temporary phenomenon.

2.10 Classification of Unemployed engineering graduates according to sex

Table 2.13 given below shows the number of unemployed engineering graduates of different categories according to sex and the respective percentages to the total number.

TABLE 2.13

Unemployed Engineering graduates according to sex

<i>Branches</i>	<i>Number of unemployed</i>			<i>Percentage to the total respondents</i>		
	M	F	T	M	F	T
(1)	2)	(3)	(4)	(5)	(6)	(7)
Civil	7	..	7	20.6	..	20.6
Mechanical	13	..	13	33.3	..	33.3
Electrical	15	5	20	35.7	11.9	47.6
Electronics & Telecommunications	2	1	3	8.7	4.3	13.0
Chemical	4	1	5	25.0	6.3	31.3
Total	41	7	48	26.1	4.5	30.6

From the above data, it can be inferred that though female Engineering graduates are less in number, unemployment among them is higher than that of male Engineering Graduates. No female Chemical Engineering Graduate is found employed. 83.5% of female Electrical Engineering graduates is unemployed. The percentage of unemployed is found high among female Electronic Engineering graduates (25%) compared to the male (10.5%). Unemployment of female Civil Engineering graduate is found nil.

2.11 Unemployment and marks

Table 2.14 given below shows the number of unemployed Engineering graduates of different categories with marks below 60% and above 60% and the respective percentages. It is seen that unemployment is higher among those secured marks below 60% (56.3%). In the case of Electronics & Telecommunication branch all the three unemployed graduates are having less than 60% marks.

TABLE 2.14

Number of unemployed Engineers with marks obtained

<i>Branches</i>	<i>No. of persons</i>		<i>Percentage of unemployed with marks</i>			
	<i>Below 60% marks</i>	<i>Above 60% marks</i>	<i>Total</i>	<i>Below 60% marks</i>	<i>Above 60% marks</i>	<i>Total</i>
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Civil	4	3	7	57.1	42.9	100.0
Mechanical	9	4	13	69.2	30.8	100.0
Electrical	12	8	20	60.0	40.0	100.0
Electronics & Telecommunications	3	..	3	100.0	..	100.0
Chemical	..	5	5	..	100.0	100.0
Total	28	20	48	56.3	43.7	100.0

2.12 Employment exchange registration

Table 2.15 given below shows details of unemployed engineering graduates of different branches according to registration with employment exchanges and called for interview.

TABLE 2.15

Distribution of unemployed Engineering graduates according to employment exchange registration and called for interview

<i>Branches</i>	<i>Unemployed</i>				<i>Called for interview among registered</i>	
	<i>Registered</i>		<i>unregistered</i>			
	<i>Number</i>	<i>Percentage</i>	<i>Number</i>	<i>Percentage</i>	<i>Number</i>	<i>Percentage</i>
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Civil	5	71.5	2	28.5	4	80.0
Mechanical	10	77.0	3	23.0	6	60.0
Electrical	19	95.0	1	5.0	3	15.0
Electronics & Telecommunication	3	100.0	..	..	2	66.7
Chemical	2	40.0	3	60.0	1	50.0
Total	39	81.0	9	19.0	16	41.0

It is seen that 81 per cent of the unemployed engineering graduates have registered their name with Employment Exchanges. The remaining 19% have not registered. This may be due to various factors like inconvenience registration cancellation, higher studies etc. In the case of Electronics engineering graduates, all unemployed are seen registered, where as for Chemical engineering graduates only 40% are seen registered. The number of unemployed who have been called for interview for appointment, obviously shows the employment scope for a particular branch. It is seen that out of the total unemployed engineering graduates who had registered, only 41.1 per cent were called for interview for appointment. Category-wise analysis shows that in all cases, except Electrical branch percentage of registered unemployed, called for interview, is higher comparatively. The above facts show that employment opportunity is greater in all branches except Electrical.

2.13 Unemployment and apprenticeship training

Table 2.16 shows the number and percentages of unemployed engineering graduates undergone apprenticeship training.

TABLE 2.16

Distribution of unemployed engineering graduates according to apprenticeship training received

<i>Branch</i>	<i>Underwent apprenticeship</i>		<i>Not underwent apprenticeship</i>	
	<i>No.</i>	<i>Percentage</i>	<i>No.</i>	<i>Percentage</i>
(1)	(2)	(3)	(4)	(5)
Civil	5	71.4	2	28.6
Mechanical	11	84.6	2	15.4
Electrical	17	85.0	3	15.0
Electronics	3	100.0	..	..
Chemical	3	60.0	2	40.0
Total	39	81.3	9	18.7

It is seen that 81.3 per cent of the unemployed Engineering graduates have received apprenticeship training. While all the unemployed Electronics engineering graduates, have undergone apprenticeship training, only 25% of the Electrical engineers have received apprenticeship training.

2.14 Unemployed and previous experience

Table 2.17 shows the number and percentage of unemployed engineering graduates, employed previously.

TABLE 2.17

Distribution of unemployed engineering graduates according to experience

<i>Branch</i>	<i>Total Number of unemployed</i>	<i>No. previously employed</i>	<i>Percentage</i>
(1)	(2)	(3)	(4)
Civil	7	3	43.0
Mechanical	13	3	23.0
Electrical	20	2	10.0
Electronics	3	..	..
Chemical	5	..	..
Total	48	8	16.7

It is seen that 16.7 per cent of unemployed have got temporary job previously. In the case of Chemical and Electronics engineers no one is seen employed previously, whereas for Civil 43% have got temporary job previously.

2.16 Unemployed engineering graduates and community

In the analysis of unemployed and their community, all communities and caste included under socially & educationally backward are grouped under backward community. Table 2.18 gives the number of unemployed belonging to forward communities, backward communities and SC/ST and respective percentages to the total for different branches.

TABLE 2.18

**Distribution of unemployed engineering graduates
according to community**

<i>Branch</i>	<i>No. belonging</i>				<i>Percentage</i>			
	<i>For- ward</i>	<i>Back- ward</i>	<i>SC/STs</i>	<i>Total</i>	<i>For- ward</i>	<i>Back- ward</i>	<i>SC/STs</i>	<i>Total</i>
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Civil	5	2	..	7	71.4	28.6	..	100.0
Mechanical	8	5	..	13	61.5	38.5	..	100.0
Electrical	10	10	..	20	50.0	50.0	..	100.0
Electronic	..	3	..	3	..	100.0	..	100.0
Chemical	3	2	..	5	60.0	40.0	..	100.0
Total	26	22	..	48	54.2	45.8	..	100.0

The above table shows that all the engineering graduates belonging to SC/ST are employed. Out of the total unemployed, 54.2% belong to forward communities. In all branches except Electronics and Electrical, majority of unemployed belong to forward community.

CHAPTER 3

SUMMARY OF FINDINGS

1. 30.6 per cent of engineering graduates are seen unemployed during the period under survey (1981). Unemployment is greater among Electrical engineering graduates and less among Electronics, Architecture and Civil engineering graduates.
2. Marks secured by the engineering graduates help to a considerable extent in getting employment. Among the unemployed 56.3 per cent have marks below 60%.
3. Female engineering graduates other than Civil Engineering branch have less employment opportunity than male. Nearly 39% of the total female engineering graduates are seen unemployed.
4. Among the employed, 26.7 per cent had to wait more than 2 years to get employment, but those with marks above 60% only 13 per cent have waited 2 years and more.
5. Among the employed engineering graduates 43.1 per cent are seen employed outside the State including foreign countries. Outside migration is lesser among Civil engineering graduates and highest among Electronics and Mechanical engineering graduates.
6. Out of these employed inside the State, 59.7 per cent are employed under State Government Department, Boards and Corporations. This absorption of engineering graduates in government sector is seen higher among Civil engineering graduates (86.9%) and less in Mechanical and Chemical branches.
7. Among those employed outside the state 51.1% are seen employed in private establishments. Absorption of engineering graduates in Private sector outside the state is higher in Electronics (54.3%) and Mechanical (53.3%) branches and practically nil in Civil and Architecture branches.
8. If all the engineering graduates employed inside and outside the State put together, it can be seen that 35.8 per cent are employed under private establishment and 33.9 per cent are employed in State Government Department, Boards and Corporations and the remaining are employed in Central Government, Other State Government and Quasi Government establishments.
9. Regarding emoluments, those employed outside the State (excluding those working in foreign countries) 17.8 per cent receive emoluments of more than Rs. 1500 per month, where as those employed within the State only 3.2 per cent receive emoluments more than Rs. 1500.

10. In the case of those employed inside the State excluding Architecture engineering graduates, 50 per cent of electronics and 36.3 per cent of Mechanical engineering graduates get monthly emoluments of more than Rs. 1200 whereas the corresponding percentage of electrical and chemical engineering graduates and only 16.7% and 14.3 per cent respectively and nil for civil engineering graduates (as per the data made available). The chances of getting higher emoluments to electronics and mechanical engineering graduates is also seen among those working outside the State.

11. In the different sectors within the State, only quasi Government and Private establishments are seen paying emoluments of above Rs. 1500 to the engineering graduates.

12. In the case of electronic engineering graduates, the unemployed are only those who secured below 60% marks.

13. Among the unemployed engineering graduates 81.25 per cent are seen registered their names in the employment exchanges as on the date of reporting. Out of registered 41.1 per cent were called for interview.

14. 81.3 per cent of the unemployed engineering graduates have utilised the facility of apprenticeship training programme.

15. 16.7 per cent of the unemployed had short-term appointment in various establishments.

16. No Scheduled Caste and Tribe engineering graduates are seen unemployed.

17. Among the unemployed engineering graduates 54.2%, belong to forward community and 45.4% to backward community respectively.

APPENDIX I

DEPARTMENT OF TECHNICAL EDUCATION,
KERALA STATE**Study on the Utilisation Pattern of Engineering Graduates
in Kerala**

QUESTIONNAIRE

A. Identification Particulars.

1. Name
2. Present address
3. Age
4. Sex
5. Marital status
6. Whether belongs to SC/ST
(Backward class if any, specify)

B. Educational Details

1. Highest Examinations passed, year and month
2. General
3. Special/Technical
4. Branch in which specialised
5. Percentage of marks

*C. Activity Status**I. Unemployment particulars:*

1. Whether registered in the employment
exchange or other similar agency
Yes/No
2. If Yes, the name of establishment where
registration was done and the date of 1st
registration.
3. Call for interview
- (a) Whether called for interview
Yes/No

(b) If yes, month and year of I call, II call,
III call

(c) Called by whom

Central Government

State Government

Local Bodies

Government undertakings

Other establishment (specify)

4. Whether tried for employment through other sources
5. If yes, result of trial
6. Whether prepared to accept employment with in the State only, any where in the country, outside the country.
7. Whether willing to start own industry/ trade if financial assistance is received
8. If you are not interested in getting employment specify the reasons there of

II. *Details of present employment:*

1. Are you employed
2. If yes, the name of establishment where employed and the year of appointment
3. Monthly emoluments Rs.
4. Designation of Post
5. Minimum qualification
6. State whether the employment obtained is through Employment Exchange, Public Service Commission, other agency
7. State whether the employment is permanent temporary
8. Do you consider your present:
 - (a) Job satisfactory
 - (b) Emoluments commensurate with your educational status.
9. If not, state the reasons
10. Do you possess the knowledge and skills actually demanded by the job?
11. If not what are the areas which you feel deficient, and lacking in your curriculum of studies.

III. *Details of previous employment, if any*

1. Period of employment (from—
2. Monthly emoluments Rs.
3. State whether the employment was obtained through employment exchange/other agency
4. Reasons for termination

IV. *Apprenticeship training*

1. Month and year of Registration
2. Whether called for interview, Yes /No
3. If yes, have you been selected, Yes/No
4. If yes, the name of establishment/Department in which placement was given
5. Designation of job
6. Monthly emoluments Rs.
7. Whether you have been absorbed in the establishment on a regular basis.
8. Whether the knowledge and skills which you possess are adequate as demanded by the job
9. If not, what other skills and knowledge are required for the job.
10. Do you think that the apprenticeship scheme is beneficial
11. If not, state the reasons
12. What is the minimum qualifications prescribed for the job if appointed on a regular basis.
13. Whether you have completed the full term of apprenticeship training.
14. If not, state the reasons for discontinuances
15. State whether you have been selected for apprenticeship training in the field in which you are really interested
16. Those who are currently pursuing studies.—
 - (1) Name of the course of study
 - (2) Name of Institution
 - (3) Duration of course
 - (4) What is the specific benefit you get after undergoing the studies

STATISTICAL TABLES IN APPENDIX II

- Table 1 Statement showing the response
- Table 2 Branch-wise number of employed and unemployed engineering graduates
- Table 3 Branch-wise number and percentage of employed and unemployed engineering graduates according to marks
- Table 4 Branch-wise number of employed and unemployed engineering graduates according to sex.
- Table 5 Branch-wise number of employed engineering graduates according to marks and waiting period
- Table 6 Branch-wise number and percentages of employed engineering graduates according to place of employment
- Table 7 Branch-wise number of employed engineering graduates according to sector and place
- Table 8 Branch-wise number of employed engineering graduates according to emoluments and place of employment.
- Table 9 Sectorwise number of employed engineering graduates according to emoluments and place of employment.

TABLE I

Statement showing the Response

<i>Sl. No.</i>	<i>Branches</i>	<i>Total No. of engineering graduates</i>	<i>No. selected and address</i>	<i>No. furnished the data</i>	<i>% of response</i>
(1)	(2)	(3)	(4)	(5)	(6)
1.	Civil	775	155	34	21.9
2.	Electrical	880	176	42	23.9
3.	Mechanical	956	191	39	20.4
4.	Telecommuni- cation	172	172	23	13.4
5.	Chemical	130	130	16	12.3
6.	Architecture	53	53	3	5.6
Total		2966	877	157	17.9

TABLE 2

**Branch-wise Number of Employed and Unemployed
Engineering Graduates**

<i>Sl. No.</i>	<i>Branch</i>	<i>Number of employed Engg. graduates</i>	<i>Number of unemployed Engg. graduates</i>	<i>Total</i>
(1)	(2)	(3)	(4)	(5)
1.	Civil	27	7	34
2.	Mechanical	26	13	39
3.	Electrical	22	20	42
4.	Electronics Telecommuni- cation	20	3	23
5.	Chemical	11	5	16
6.	Architecture	3	..	3*
	Total	109	48	157

*Employed persons have only reported.

TABLE 3
Branch-wise number and Percentage of Employed and Unemployed Engineering Graduates
According to Marks

Branch	Activity status	Marks Below 60%		Marks Above 60%		Total	
		No.	%	No.	%	No.	%
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Civil	E	12	75.0	15	83.3	27	79.4
	U.E.	4	25.0	3	16.7	7	20.6
	Total	16	100.0	18	100.0	34	100.0
Mechanical	E	10	55.6	16	76.2	26	66.7
	U.E.	8	44.4	5	23.8	13	33.3
	Total	18	100.0	21	100.0	39	100.0
Electrical	E	6	33.3	16	66.7	22	52.4
	U.E.	12	66.7	8	33.3	20	47.6
	Total	18	100.0	24	100.0	42	100.0
Total	E	4	57.1	16	100.0	20	86.9
	U.E.	3	42.9	..	..	3	13.1
	Total	7	100.0	16	100.0	23	100.0
Chemical	E	..	..	11	68.8	11	68.8
	U.E.	..	..	5	31.2	5	31.2
	Total	..	..	16	100.0	16	100.0
Architecture	E	1	100.0	2	100.0	3	100.0
	U.E.	..	..	..	..	..	..
	Total	1	100.0	2	100.0	3	100.0

Note: E—Employed U.E.—Unemployed.

TABLE 4

Branch-wise Number of Employed and Unemployed Engineering Graduates According to Sex

Sl. No.	Branch	Employed			Unemployed			Total	
		Male	Female	Total	Male	Female	Total	Male	Female
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Civil	20	7	27	7	..	7	27	7
2	Mechanical	26	..	26	13	..	13	39	..
3	Electrical	21	1	22	15	5	20	36	6
4	Electronics & Tele-communication	17	3	20	2	1	3	19	4
5	Chemical	11	..	11	4	1	5	15	1
6	Architecture	3	..	3	..	..	..	3	..
Total		98	11	109	41	7	48	139	18
								157	

TABLE 5

Branch-wise Number of Employed Engineering Graduates according to Marks and Waiting Period

Branch & Markssituating period	Civil																					
	Mechanical		Electrical		Electronics & Tele.		Chemical		Architecture		Total		Marks Above 60%		Marks Below 60%		Total		Marks Above 60%		Marks Below 60%	
	Marks Above 60%	Marks Below 60%	Marks Above 60%	Marks Below 60%	Marks Above 60%	Marks Below 60%	Marks Above 60%	Marks Below 60%	Marks Above 60%	Marks Below 60%	Marks Above 60%	Marks Below 60%	Marks Above 60%	Marks Below 60%	Marks Above 60%	Marks Below 60%	Marks Above 60%	Marks Below 60%	Marks Above 60%	Marks Below 60%	Marks Above 60%	Marks Below 60%
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	
Below 1 year	1	3	4	3	6	9	1	6	7	..	9	9	..	2	2	..	..	..	5	26	31
1 to 2 years	3	10	13	2	10	12	1	8	9	2	4	6	..	6	6	..	3	3	8	41	49	
2 to 3 years	5	1	6	5	..	5	3	2	5	1	3	4	..	3	3	..	..	..	14	9	23
3 to 4 years	2	1	3	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	3	1	4
4 to 5 years	1	..	1	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	2	..	2
5 years & above	Nil.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	12	15	27	10	16	26	6	16	22	4	16	20	..	11	11	..	3	3	32	77	109	

TABLE 6

Branch-wise Number and Percentages of Employed Engineering Graduates and According to Place of Employment

Place of Employment/Branches	Inside the State		Outside Kerala		Outside India		Total	
	No.	%	No.	%	No.	%	No.	%
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Civil	23	85.2	4	14.8	..	..	27	100.0
Mechanical	12	46.2	13	50.0	1	3.8	26	100.0
Electrical	13	59.1	9	40.9	..	..	22	100.0
Tele-Communication	7	35.0	12	60.0	1	5.0	20	100.0
Chemical	7	63.6	4	36.4	..	..	11	100.0
Architecture	3	100.0	..	..	..	..	3	100.0
Total	65	59.6	42	38.5	2	1.9	109	100.0

TABLE 7

Branch-wise Number of Engineering Graduates Employed According to Sector and Place

Sector	Place	Branch							Total
		Civil	Mechanical	Electrical	Electronics & Tele.	Chemical	Architecture		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
State Government Department & Government Boards & Corporation	Inside	20	2	8	5	..	2	37	
	Outside	..	..	..	..	..	..	..
	Total	20	2	8	5	..	2	37	
Central Government	Inside	2	..	..	..	1	..	3
	Outside	1	2	1	3	1	..	8	
	Total	3	2	1	3	2	..	11	
Other Government	Inside	..	1	2	..	..	..	5
	Outside	2	..	..	..	..	..	..
	Total	2	1	2	..	..	..	5
Quasi-Government	Inside	1	3	1	..	3	..	8	
	Outside	1	3	2	1	1	..	8	
	Total	2	6	3	1	4	..	16	
Private	Inside	..	6	3	1	3	..	13	
	Outside	..	8	5	9	..	..	22
	Total	..	14	8	10	3	..	35	
Self	Inside	..	..	..	..	..	1	1
	Outside	..	1	..	1	..	..	2
	Total	23	11	12	6	7	3	62	
Foreign Country	Inside	4	15	10	14	4	..	47	
	Outside	27	26	22	20	11	3	109	
	Total								

TABLE 8

Branch-wise Number of Employed Engineering Graduates According to Enrolments and Place of Employment

Enrolments	Place of Employment	Branches							Total
		Civil	Mechanical	Electrical	Electronics & Tele.	Chemical	Architect		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Below 800	Inside	4	3	3	..	3	..	13	
	Outside	..	2	1	1	..	..	4
	Total	4	5	4	1	3	..	17	
800 to 1000	Inside	19	3	2	2	3	2	31	
	Outside	3	3	2	2	..	..	10
	Total	22	6	4	4	3	2	41	
1000 to 1200	Inside	..	1	5	1	..	..	7
	Outside	1	2	4	..	3	..	10	
	Total	1	3	9	1	3	..	17	
1200 to 1500	Inside	..	3	2	3	1	..	9	
	Outside	..	3	2	7	1	..	13	
	Total	..	6	4	10	2	..	22	
1500 to 2000	Inside	..	..	..	..	..	1*	1
	Outside	..	2	1	3	..	..	6
	Total	..	2	1	3	..	1	7	
Above 2000	Inside	..	1	..	..	..	..	1
	Outside	..	3	..	1	..	..	4 ^(a)
	Total	..	4	..	1	..	..	5
Total	Inside	23	11	12	6	7	3	62	
	Outside	4	15	10	14	4	..	47	
	Total	27	26	22	20	11	3	109	

Note: *Self employee

@ including these (2) employed outside India.

Sector-wise Number of Employed Engineering Graduates According to Emoluments and Place of Employment

Sector	Place	Emoluments (Rs.)							
		Below 800	800-1000	1000-1200	1200-1500	1500-2000	2000 & above	Total	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
State Government & Corporation	Inside	4	21	..	..	..	..	25	
	Outside	..	3	5	4	..	..	12	
	Total	4	24	5	4	..	..	37	
Central Government	Inside	1	1	..	1	..	..	3	
	Outside	1	..	3	3	1	..	8	
	Total	2	1	3	4	1	..	11	
Other State Government	Inside	Nil							
	Outside	..	3	2	..	..	..	5	
	Total	..	3	2	..	..	..	5	
Quasi-Government	Inside	2	3	2	..	..	1	8	
	Outside	..	1	1	4	1	1	8	
	Total	2	4	3	4	1	2	16	
Private	Inside	6	3	..	4	..	..	13	
	Outside	3	6	4	6	4	1	24	
	Total	9	9	4	10	4	1	37	
Self	Inside	..	..	..	..	1	..	1	
	Total	..	..	..	..	1	..	1	
Foreign Service Total	Outside	2	2	
	Inside	13	31	7	9	1	1	62	
	Outside	4	10	10	13	6	4	47	
	Total	17	41	17	22	7	5	109	

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