

Government of Tamil Nadu

Teachers Recruitment Board

4th Floor, EVK Sampath Maaligai, DPI Campus, College Road, Chennai – 600 006 **Website :** <u>http://www.trb.tn.nic.in</u>

Important Note :

As per Judgment of Hon'ble Supreme Court of India, New Delhi made in SLP (C) Nos.14206-14217 of 2019 dated 08.08.2019 fresh notification is issued calling for application for the post of Lecturers in Government Polytechnic Colleges (Engineering / Non- Engineering) for the year 2017- 2018.

NOTIFICATION

Applications are invited from eligible candidates for Direct Recruitment for the post of Lecturers in Government Polytechnic Colleges and Special Institutions (Engineering / Non Engineering) Tamil Nadu Educational Service for the year 2017-2018 only through online mode.

S1. No	Name of the Post & Scale of Pay	Service	Post Code	Total Vacancies
1.	Lecturers in Government Polytechnic Colleges and Special Institutions (Engineering / Non Engineering) Rs.56100 – 177500 (Level 22)	Tamil Nadu Educational Service	19PT	1060

1. Important Dates :

A.	Date of Notification	:	27.11.2019
В.	Date of Commencement of Application through online mode	:	Will be announced shortly
C.	Last Date for Submission of Application through online mode	:	Will be announced shortly
D.	Date of Computer based Examination and Certificate Verification	•	Will be announced later

2. Details of Vacancies:

(i) As per G.O.(D) No.46, Adi Dravidar and Tribal Welfare Department dated: 23.09.2016(ii) As per Directorate of Technical Education, Letter No. 32483/B2/2019 dated:06.09.2019

A.	Shortfall Vacancies	••	2	
В.	Current Vacancies	:	1058	
	Total	:	1060	*

* Vacancies above mentioned are only provisional and subject to modification

3. Subject wise Vacancies:

S1.No.	SUBJECT	Short fall Vacancies in ST Category	Current Vacancies	TOTAL
1	Civil Engineering		112	112
2	Mechanical Engineering		219	219
3	Electrical and Electronics Engineering		91	91
4	Electronics and Communication Engineering	1	118	119
5	Instrumentation and Control Engineering		3	3
6	Computer Engineering	1	134	135
7	Information Technology		6	6
8	Production Engineering		6	6
9	Textile Technology		3	3
10	Printing Technology		6	6
11	English		88	88
12	Mathematics		88	88
13	Physics		83	83
14	Chemistry		84	84
15	Modern Office Practice		17	17
	Total	2	1058	1060

4. Subject wise and Community wise Vacancies :

a) The Subject-wise and communal turn-wise details of vacancies are as follows:-

Communal Turn	Civil Engineering	Mechanical Engineering	Electrical & Electronics Engineering	Electronics & Communication Engineering	Instrumentatio n & Control Engineering	Computer Engineering	Information Technology	Production Engineering	Textile Technology	Printing Technology	English	Mathematics	Physics	Chemistry	Modern Office Practice
GT	19	38	15	21	-	23	1	1	1	1	20	16	14	14	2
GT T	5	9	4	5	-	6	-	-	-	-	-	4	4	4	1
GT W	9	17	7	8	1	10	1	1	-	1	8	7	6	7	1
GT WT	2	4	1	2	-	2	-	-	-	-	-	2	2	2	-
BC	16	32	14	18	1	19	1	1	-	1	15	12	12	12	2
BC T	4	9	3	4	-	5	-	-	-	-	-	3	3	3	1
BC W	7	14	7	8	-	9	-	-	-	-	7	5	5	5	1
BC WT	2	3	1	2	-	2	-	-	-	-	-	2	2	2	-
BCM	2	4	2	2	-	2	-	-	-	-	2	1	1	1	1
BCM T	1	1	-	1	-	1	-	-	-	-	-	1	1	1	-
BCM W	1	3	1	1	-	2	-	-	-	-	1	1	1	1	-
MBC	12	24	10	13	-	15	1	1	1	1	12	10	10	9	2
MBC T	3	6	2	3	-	4	-	-	-	-	-	2	2	2	1
MBC W	6	11	5	7	-	7	-	-	-	-	6	4	4	4	1
MBC WT	1	2	1	1	-	1	-	-	-	-		1	1	1	-
SC	10	19	8	10	1	12	1	1	-	1	9	8	7	8	2
SC T	2	4	2	2	-	3	-	-	-	-	-	1	1	1	-
SC W	5	8	4	5	-	5	-	-	-	-	4	3	2	2	1
SC WT	1	2	1	1	-	1	-	-	-	-	-	1	1	1	-
SCA	1	4	1	1	-	2	-	-	-	-	2	1	1	1	-
SCA T	1	1	1	1	-	1	-	-	-	-	-	1	1	1	-
SCA W	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-
SCA WT	1	1	-	1	-	1	1	1	1	1	-	1	1	1	1
ST	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-
ST T	1	1	1	1	-	1	-	-	-	-	-	1	1	1	-
Total	112	219	91	118	3	134	6	6	3	6	88	88	83	84	17

Note: The estimated number of vacancies given above is tentative and subject to modification and inclusion from time to time.

ABBREVIATIONS

GT	: General Turn	BC	: Backward Class	ВСМ	: Backward Class Muslim
MBC/DNC	: Most Backward Class / D	enotified	Communities		
ST	: Scheduled Tribe	SC	: Scheduled Caste	SCA	: Scheduled Caste Arunthathiyar
w	: Women	Т	: Tamil Medium		

b) Shortfall Vacancies: (notified as per Notification No.07/2019 dated 09.02.2019)

	Subject		Total No.	
Communal Turn Electronics and Communication Engineering		Computer Engineering	of vacancies	
ST	N N	1	1	2

Person with Disability – 4% Reservation Vacancies

S.No	Subject	Category I	Category II	Category III	Category IV	Total
1	Civil Engineering	GT-1	GT(W)-1	MBC/DNC-1	BC-1	4
2	Mechanical Engineering	GT-1, BC-1, MBC/DNC-1	GT(W)1 MBC/DNC-1	MBC/DNC-1, SC-1,	BC- 1, BCW -1	9
3	Electrical and Electronics Engineering	GT-1	GT(W)-1	MBC/DNC-1		3
4	Electronics and Communication Engineering	GT-1	GT(W)-1	MBC/ DNC-1	BC-1	4
5	Instrumentation and Control Engineering	-	-	-	-	-
6	Computer Engineering	GT-1, BC-1	GT(W)-1	MBC/ DNC-1,	BC-1	5
7	Information Technology	-	-	-	-	-
8	Production Engineering	-	-	-	-	-
9	Textile Technology	-	-	-	-	-
10	Printing Technology	-	-	-	-	-
11	English	GT-1	GT(W)-1	MBC/ DNC-1	BC-1	4

12	Mathematics	GT-1	GT(W)-1	MBC/ DNC-1	BC-1	4	
13	Physics	-	GT(W)-1	MBC/DNC-1	BC-1	3	
14	Chemistry	-	GT(W)-1	MBC/DNC-1	BC-1	3	
15	Modern Office Practice	-	-	-	-		
	TOTAL	10	10	10	9	39	
Categor	y I : (a) Bl	indness and Low vis	sion – 1% Reservatio	on			
Categor	y II : (b) De	eaf and Hard of Hea	ring – 1% Reservati	on			
Category III : (c) Loo lep dy		comotor disability including cerebral palsy, prosy cured, dwarfism, acid victims, muscular strophy – 1% Reservation.					
Categor	y IV : (d) Au di fr	utism, intellectual d sability and mental om amongst person	isability, specific lea illness and Multiple s under clauses (a)	arning e disabilities to (d) - 1%			

5. Rule of Reservation :

The Rule of Reservation of appointments is applicable to this recruitment.

- a) Vertical Reservation: 69% Communal reservation will be followed vertically as per existing Government rules / Orders i.e., 18% shall be reserved for Scheduled Castes including 3% offered to Arunthathiyars on preferential basis amongst the Scheduled Castes, 1% for Scheduled Tribes, 26.5% for Backward Classes (other than Backward Class Muslims), 3.5% for the Backward Class Muslims, 20% for Most Backward Classes and Denotified Communities and 31% shall be filled on the basis of merit. Provided that even after filling up of the required candidates for posts for Arunthathiyars amongst the Scheduled Castes, if more number of qualified Arunthathiyars are available, such excess number of candidates of Arunthathiyars shall be entitled to compete with the other Scheduled Castes in the inter-se-merit among them and if any appointment or post reserved for Arunthathiyars remains unfilled for want of adequate number of qualified candidates, it shall be filled up by Scheduled Caste candidates other than Arunthathiyars.
- b) Horizontal Reservation :

- i. **Women Reservation :** 30% Women reservation will be provided horizontally as per existing Government Rules / Orders. If qualified and suitable women candidates are not available for selection against the vacancies reserved for them, those vacancies will be filled by male candidates belonging to those respective communal categories.
- ii. Reservation for Persons Studied in Tamil Medium (PSTM): 20% horizontal reservation on preferential basis for Persons Studied in Tamil Medium will be followed as per existing G.O. Ms. No.145 Personnel and Administrative Reforms (S) Department dated: 30.09.2010. This reservation is subject to the availability of suitable eligible candidates. In the event of non-availability of such candidates the posts reserved for PSTM candidates will be filled by non-tamil medium candidates belonging to those respective communal categories.
- iii. Special Reservation for Persons with Disability: 4% Horizontal Reservation as per Tamil Nadu Government Servants (Conditions of Service) Amendment Act 2016, shall be applicable as per G.O (Ms) No 20, Welfare of Differently Abled Persons (DAP 3.2) Department, dated: 20.06.2018, (As per Tamil Nadu Government Gazette Extraordinary No.247 dated July 26, 2017) the benchmark disabilities are applicable with respect to the notified posts.

6. Qualifications :

- a) Age Limit : Candidates should not have completed 57 years as on 01/07/2019 as per G.O. (Ms) No.156 Higher Education (B1) Department Dated: 15/09/2014.
- b) Educational Qualifications :

Candidates should possess the following qualification on the date of notification:

- - Candidates should possess the requisite qualification in relevant subject awarded by an University or Institution recognized by University Grants Commission.
 - As per the G.O.No.242 Higher Education (P1) Department dated 18.12.2012, for engineering subjects, the candidates should qualify 10+2+4 / 10+3+3 or 10+2+4+2 / 10+3+3+2 pattern for engineering subject and 10+2+3+2 / 11+2+3+2 pattern for non – engineering subject.
 - As per G.O. (Ms) No.149 Higher Education (J2) Department, Dated:22/07/2016, Diploma / B.E., degree qualification acquired through Distance Education not equivalent to the qualification acquired through regular stream.

The candidates should apply only for the vacancies notified and subject specified. The candidates applying for the posts mentioned in **Annexure-I** should have passed Tamil Language as Part I or part II up to SSLC or PUC /Higher Secondary Course levels. If not, he/she should pass Tamil Language Test conducted by the Tamil Nadu Public Service Commission within two years from the date of his/her appointment.

The candidates not having prescribed qualifications, as on prior to date of notification shall not be eligible to apply for the examination. The candidates should satisfy themselves above their eligibility before applying. It is to be noted that if a candidate is allowed to appear for the examination it does not imply that the eligibility of the candidate is verified. The eligibility shall be verified by the Board only at the time of Certificate Verification

Note: All the Educational qualifications and the results should have been obtained prior to the date of this notification.

7. Equivalent Qualification: Some of the equivalent qualifications are shown in the table below. Candidates possessing equivalent qualifications can also apply for which the Government Order has been issued. If a candidate claims his/her subject is equivalent to one of the subject notified and it is the responsibility of the candidate and the Institute/College/University in which the candidate obtained degree, to get equivalence of subject by way of Government Order from the Higher Education Department. Any said Government Order shall be obtained prior to the last date of the submission of online application form, otherwise the candidates are not eligible for recruitment for the particular subject.

The following table shows the Main Subjects and the equivalent Subject awarded by various Universities vide Government Orders from the Higher Education Department / P&AR Department.

<u>Non – Engineering Subject :</u>

S1.No	Subject	Equivalent Subject	University Offered	G.O.No and Date
1	Chemistry	M.Sc. (Applied Chemistry)	Gandhigram Rural University	G.O.Ms.No.133, P&AR (R) Department, Dated 28.07.1999.
2	Chemistry	M.Sc. (Applied Chemistry)	Anna University	G.O.Ms.No.164, P&AR (R) Department, Dated 21.08.2000.
3	Chemistry	M.Sc. (Analytical Chemistry)	Madras University	G.O.Ms.No.165, School Education (HS-2) Department, Dated 04.07.2012.
4	Chemistry	M.Sc. (Organic Chemistry)	Annamalai University	G.O.Ms.No.165, School Education (HS-2) Department, Dated 04.07.2012.
5	Chemistry	M.Sc. (Inorganic Chemistry)	Annamalai University	G.O.Ms.No.165, School Education (HS-2) Department, Dated 04.07.2012.
6	Chemistry	M.Sc. (Physical Chemistry)	Annamalai University	G.O.Ms.No.165, School Education (HS-2) Department, Dated 04.07.2012.
7	Chemistry	M.Sc. (Industrial Chemistry)	Alagappa University	G.O.Ms.No.24, Higher Education (K2) Department, Dated 13.02.2013
8	Chemistry	M.Sc. (Industrial Chemistry)	Bharathidasan University	G.O.Ms.No.24, Higher Education (K2) Department, Dated 13.02.2013
9	Chemistry	M.Sc. (Organic Chemistry)	***	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013
10	Chemistry	M.Sc. (Analytical Chemistry)	***	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013
11	Chemistry	M.Sc. (Inorganic Chemistry)	***	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013
12	Chemistry	M.Sc. (Polymer Chemistry)	***	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013
13	Chemistry	M.Sc. (Physical Chemistry)	***	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013
14	Chemistry	M.Sc. (Industrial Chemistry)	***	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013
15	Chemistry	M.Sc. 5 Years (Integrated Chemistry)	***	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013

S1.No	Subject	Equivalent Subject	University Offered	G.O.No and Date
16	Chemistry	M.Sc. Chemical Science	Pondicherry University	G.O. (Ms) No.323 Higher Education (k2) Department, Dated 13.11.2017
17	Chemistry	M.Sc. Nano Science and Technology Chemistry Based	Bharathiar University	G.O. (Ms) No.55 Higher Education (k2) Department, Dated 15.03.2018
18	Chemistry	M.Sc. Nano Science and Technology Chemistry Based	Bharathiar University	G.O.Ms.No.55, Higher Education (K2) Department, Dated:15.03.2018
19	Chemistry	M.Sc. Chemistry specialiation in Green Chemistry	Manonmaniam Sundaranar University	G.O.Ms.No.65, Higher Education (K2) Department, Dated:24.04.2019
20	Commerce	M.Com. With Computer Application	Bharathiyar University	G.O.Ms.No.29, Higher Education (K2) Department, Dated 04.03.2013
21	Commerce	M.Com. Information Technology	Bharathiyar University	G.O.Ms.No.29, Higher Education (K2) Department, Dated 04.03.2013
22	Commerce	M.Com. Finance and Cost Accounting	Bharathiyar University	G.O.Ms.No.29, Higher Education (K2) Department, Dated 04.03.2013
23	Commerce	M.Com. Finance and Control	Bharathiyar University	G.O.Ms.No.29, Higher Education (K2) Department, Dated 04.03.2013
24	Commerce	M.Com. Information Technology	Bharathiyar University	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013
25	Commerce	M.Com. Finance and Cost Accounting	Bharathiyar University	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013
26	Commerce	M.Com. Finance and Control	Bharathiyar University	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013
27	Commerce	M.Sc. Finance and Computer Application to M.Com	Bharathiyar University	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013
28	Commerce	M.I.B (Master of International Business) to M.Com	Bharathiyar University	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013
29	Commerce	M.Com. With Computer Application	Bharathidasan University	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013
30	Commerce	M.Com. With Bank Management	Bharathidasan University	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013
31	Commerce	M.Com. With Financial Management	Bharathidasan University	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013

S1.No	Subject	Equivalent Subject	University Offered	G.O.No and Date
32	Commerce	M.Com. Corporate Finance to M.Com	Bharathidasan University	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013
33	Commerce	M.Com Finance	Madurai Kamaraj University	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013
34	Commerce	M.Com with Computer Application	Periyar University	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013
35	Commerce	M.Com with Computer Application	Alagappa University	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013
36	Commerce	M.Com with B.B.A to M.Com	***	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013
37	Commerce	M.Com Trade and Service	Madras University	G.O.Ms.No.270, Higher Education (K2) Department, Dated 31.12.2013
38	Commerce	M.Com Business Systems	Madras University	G.O.Ms.No.270, Higher Education (K2) Department, Dated 31.12.2013
39	Commerce	M.Com Trade and Development	Madras University	G.O.Ms.No.270, Higher Education (K2) Department, Dated 31.12.2013
40	Commerce	M.Com. International Business	Madras University	G.O.Ms.No.270, Higher Education (K2) Department, Dated 31.12.2013
41	Commerce	M.Com. International Business and Finance	Madras University	G.O.Ms.No.270, Higher Education (K2) Department, Dated 31.12.2013
42	Commerce	M.Com. Accounting Finance	Madras University	G.O.Ms.No.270, Higher Education (K2) Department, Dated 31.12.2013
43	Commerce	M.Com (Trade and Service)	University of Madras	G.O. (Ms) No.270, Higher Education (k2) Department, Dated: 31.12.2013
44	Commerce	M.Com (Business Systems)	University of Madras	G.O. (Ms) No.270, Higher Education (k2) Department, Dated: 31.12.2013
45	Commerce	M.Com (Trade and Development)	University of Madras	G.O. (Ms) No.270, Higher Education (k2) Department, Dated: 31.12.2013
46	Commerce	M.Com (International Business)	University of Madras	G.O. (Ms) No.270, Higher Education (k2) Department, Dated: 31.12.2013
47	Commerce	M.Com (International Business and Finance)	University of Madras	G.O. (Ms) No.270, Higher Education (k2) Department, Dated: 31.12.2013
48	Commerce	M.Com (Accounting Finance)	University of Madras	G.O. (Ms) No.270, Higher Education (k2) Department, Dated: 31.12.2013

S1.No	Subject	Equivalent Subject	University Offered	G.O.No and Date
49	Commerce	M.Com. With Computer Application	Annamalai University	G.O.Ms.No.27, Higher Education (K2) Department, Dated 13.02.2014
50	Commerce	M.Com Entrepreneurship	Annamalai University	G.O.Ms.No.27, Higher Education (K2) Department, Dated 13.02.2014
51	Commerce	M.Com Banking and Insurance Management (Tamil & English Medium)	Annamalai University	G.O.Ms.No.27, Higher Education (K2) Department, Dated 13.02.2014
52	Commerce	M.Com Accounting and Finance	Annamalai University	G.O.Ms.No.27, Higher Education (K2) Department, Dated 13.02.2014
53	Commerce	M.Com Education Management	Annamalai University	G.O.Ms.No.27, Higher Education (K2) Department, Dated 13.02.2014
54	Commerce	M.Com Marketing	Annamalai University	G.O.Ms.No.27, Higher Education (K2) Department, Dated 13.02.2014
55	Commerce	M.Com Co-operative Management (Tamil & English Medium)	Annamalai University	G.O.Ms.No.27, Higher Education (K2) Department, Dated 13.02.2014
56	Commerce	M.Com (Enterpreneurship)	Annamalai University	G.O. (Ms) No.27, Higher Education (k2) Department, Dated: 13.02.2014
57	Commerce	M.Com (Banking and Insurance Management)	Annamalai University	G.O. (Ms) No.27, Higher Education (k2) Department, Dated: 13.02.2014
58	Commerce	M.Com (Computer Application)	Annamalai University	G.O. (Ms) No.27, Higher Education (k2) Department, Dated: 13.02.2014
59	Commerce	M.Com (Accounting and Finance)	Annamalai University	G.O. (Ms) No.27, Higher Education (k2) Department, Dated: 13.02.2014
60	Commerce	M.Com (Education Management)	Annamalai University	G.O. (Ms) No.27, Higher Education (k2) Department, Dated: 13.02.2014
61	Commerce	M.Com (Marketing)	Annamalai University	G.O. (Ms) No.27, Higher Education (k2) Department, Dated: 13.02.2014
62	Commerce	M.Com (Co-operative Management)	Annamalai University	G.O. (Ms) No.27, Higher Education (k2) Department, Dated: 13.02.2014
63	Commerce	M.Com International Banking to M.Com (General)	Annamalai University	G.O.Ms.No.112, Higher Education (K2) Department, Dated 18.07.2014

S1.No	Subject	Equivalent Subject	University Offered	G.O.No and Date
64	Commerce	M.Com Finance	Avinashilingam Institute for Home Science and Higher Education for Women, Deemed University	G.O.Ms.No.112, Higher Education (K2) Department, Dated 18.07.2014
65	Commerce	M.Com (Finance)	Avinashilingam Institute for Home Science and Higher Education for women	G.O. (Ms) No.112, Higher Education (k2) Department, Dated: 18.07.2014
66	Commerce	M.Com (International Banking) on Campus programme	Annamalai University	G.O. (Ms) No.112, Higher Education (k2) Department, Dated: 18.07.2014
67	Commerce	M.Com (Computer Application)	Arulmigu Kalasalingam college of Arts and Science Affialiated to Madurai Kamaraj University	G.O. (Ms) No.112, Higher Education (k2) Department, Dated: 18.07.2014
68	Commerce	M.Com with Computer Application	Alagappa University	G.O. (Ms) No.72 Higher Education (k2) Department, Dated: 20.04.2015
69	Commerce	M.Com (Finance)	Madurai Kamaraj University	G.O. (Ms) No.72 Higher Education (k2) Department, Dated: 20.04.2015
70	Commerce	M.Sc. Finance and Computer Application to M.Com	Bharathiyar University	G.O.Ms.No.37, Higher Education (K2) Department, Dated 17.02.2016
71	Commerce	M.Com. Finance and Accounting to M.Com	Bharathiyar University	G.O.Ms.No.37, Higher Education (K2) Department, Dated 17.02.2016
72	Commerce	M.Com. Finance and Accounting	Bharathiar University	G.O. (Ms) No.37 Higher Education (k2) Department, Dated:17.02.2016
73	Commerce	M.Com. Finance and Computer Application	Bharathiar University	G.O. (Ms) No.37 Higher Education (k2) Department, Dated:17.02.2016
74	Commerce	M.Com. Computer Oriented Business Application-COBA	Madras Christian College affiliated to University of Madras	G.O. (Ms) No.323 Higher Education (k2) Department, Dated 13.11.2017
75	Commerce	M.I.B. Master of International Business	Bharathidasan University	G.O. (Ms) No.194 Higher Education (k2) Department, Dated 14.08.2018
76	Commerce	M.Com- Accounting & Finance (Choice Based Credit System)	Annamalai University	G.O. (Ms) No.194 Higher Education (k2) Department, Dated 14.08.2018

S1.No	Subject	Equivalent Subject	University Offered	G.O.No and Date
77	Commerce	M.Com- International Business & Banking (Choice Based Credit System)	Annamalai University	G.O. (Ms) No.194 Higher Education (k2) Department, Dated 14.08.2018
78	English	M.A Communicative English	Gandhigram Rural University	G.O.Ms.No. 530, P & AR (R) Department, Dated 11.10.1981
79	English	M.A. English and Communication 5 years Integrated Course	Annamalai University	G.O. (1D) No. 269, Higher Education (H1) Department, Dated 20.09.2012
80	English	M.A. Comparative Literature and Cultural Studies	Gandigram Rural University	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013
81	English	M.A. English and Communicative Studies	Gandigram Rural University	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013
82	English	M.A. English with Computer Application	Bharathiyar University	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013
83	English	M.A. English Literature with Computer Application	Bharathiyar University	G.O.Ms.No. 27, Higher Education (K2) Department, Dated 13.02.2014
84	English	M.A. English Language and Literature	Bharathiyar University	G.O.Ms.No. 27, Higher Education (K2) Department, Dated 13.02.2014
85	English	M.A. English Literature with Computer Application	Manonmaiam Sundranar University	G.O.Ms.No. 2, Higher Education (K2) Department, Dated 05.01.2016
86	English	M.A. English Literature Language and Communication	Vels University	G.O.(Ms).No. 2, Higher Education (K2) Department, Dated 05.01.2016
87	English	M.A. English Studies	Bharathidasan University	G.O. (Ms) No.123 Higher Education (k2) Department, Dated 25.06.2018
88	English	M.A. Communicative English	Alagappa University	G.O. (Ms) No.123 Higher Education (k2) Department, Dated 25.06.2018
89	English	M.Phil. English and Communicative Studies)	Gandhigram Rural Institute (Deemed University)	G.O. (Ms) No.123, Higher Education (k2) Department, Dated: 25.06.2018
90	Mathematics	M.Sc., (Applied Mathematics)	Anna University	G.O.Ms.No.80, P&AR (R) Department, Dated 06.02.1996

S1.No	Subject	Equivalent Subject	University Offered	G.O.No and Date
91	Mathematics	M.Sc., Maths with Computer Application (CBCS)	Annamalai University	G.O. (1D) No. 260, Higher Education (H1) Department, Dated 15.09.2012
92	Mathematics	5 Years M.Sc., (Mathematics with Computer Application)	Annamalai University	G.O. (1D) No. 260, Higher Education (H1) Department, Dated 15.09.2012
93	Mathematics	M.Sc. Applied Maths	Bharathidasan University	G.O.Ms.No.58, Higher Education (K2) Department, Dated 15.04.2013
94	Mathematics	M.Sc. Applied Maths & Computer Science	Bharathidasan University	G.O.Ms.No.58, Higher Education (K2) Department, Dated 15.04.2013
95	Mathematics	M.Sc., (Mathematics with Computer Application)	Gandhigram Rural University	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013
96	Mathematics	M.Sc., Technology (Industrial Mathematics with Computer Application)	Gandhigram Rural University	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013
97	Mathematics	M.Sc., Maths with Computer Application	Periyar University	G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013
98	Mathematics	M.Sc. Statistics	Madras University	G.O.Ms.No.190, Higher Education (K2) Department, Dated 27.09.2013
99	Mathematics	M.Sc., Applicable Maths	Periyar University	G.O.Ms.No. 212, Higher Education (K2) Department, Dated 17.12.2014
100	Mathematics	M.Sc. Applied Mathematics Operation Research	Bharathidasan University	G.O.Ms.No.212, Higher Education (K2) Department, Dated 17.12.2014
101	Mathematics	M.Sc. Applied Mathematics	Bharathidasan University	G.O.Ms.No.212, Higher Education (K2) Department, Dated 17.12.2014
102	Mathematics	M.Sc. Applicable Mathematics	SDNB Vaishnav College for Women affiliated to University of Madras	G.O.Ms.No.65, Higher Education (K2) Department, Dated:24.04.2019
103	Mathematics	M.Sc. Maths (CA)	Periyar University	G.O.Ms.No.65, Higher Education (K2) Department, Dated:24.04.2019
104	Physics	M.Sc. Material Science	Anna University	G.O.Ms.No.80, P&AR (R) Department, Dated 06.02.1996
105	Physics	M.Sc. Applied Physics	Gandhigram Rural University	G.O.Ms.No.133, P&AR (R) Department, Dated 28.02.1996

S1.No	Subject	Equivalent Subject	University Offered	G.O.No and Date
106	Physics	M.Sc. Applied Physics	Gandhigram Rural University	G.O.Ms.No.133, P&AR (R) Department, Dated 28.07.1999
107	Physics	M.Sc. Bio-Physics ***		G.O.Ms.No.72, Higher Education (K2) Department, Dated 30.04.2013
108	Physics	M.Sc. Applied Physics	National Institute of Technology, Trichy.	G.O. (Ms) No. 37 Higher Education (J1) Department, Dated 28.02.2019
109	Physics	M.Sc. Physics (Five years integrated)	Bharathidasan University	G.O.Ms.No.65, Higher Education (K2) Department, Dated:24.04.2019
110	Physics	M.Sc. Physics (Five years integrated)	Annamalai University	G.O.Ms.No.65, Higher Education (K2) Department, Dated:24.04.2019

8. How to Apply :

- a) Read carefully "How to Apply" section given in the advertisement
- b) Candidates should apply only through online mode in the Teachers Recruitment Board website <u>http://www.trb.tn.nic.in</u>. The application process is entirely online. No other mode of application will be accepted.
- c) <u>A valid e-mail id and Mobile Number of candidate are mandatory for</u> registration and e-mail id should be kept active for any future <u>correspondence.</u>
- d) Evidence for claims made by the candidate while applying online shall be uploaded by the candidate at the time of Registration itself. The same will be verified subsequently at the time of Certificate Verification and Interview.
- e) All the particulars mentioned in the online application including name of the candidate, post applied for, subject applied for, communal reservation, date of birth, address and all other fields will be considered as final and **no modifications will be allowed after the last date specified for applying through online.** Since certain fields are mandatory and fixed which cannot

be edited, Candidates are requested to fill in the online application form with utmost care and caution, as no correspondence regarding change of particulars will be entertained at any cost.

- f) If a candidate is willing to apply for more than one subject (if he/she is otherwise eligible and qualified) separate application form shall be submitted through online mode. Use separate email id and mobile number for each application as these fields are kept as unique identity for individual candidates.
- g) The applicants are advised to submit only one application for each subject. However, if due to any unavoidable situation, he/she submits another/multiple applications, then he/she must ensure that application is complete in all respects like applicant's details, photograph, signature, fee etc. The fee paid against one application shall not be adjusted against any other.
- h) Incomplete or defective applications shall be summarily rejected. No representation or correspondence regarding such rejection shall be entertained under any circumstances.
- i) The candidates are advised to exercise due diligence at the time of filling the application. In case if duplicate application of a candidate for the same subject is detected, Board will consider only the latest application.

9. Examination Fee :

a) The Examination fee is Rs.600/- (Rupees Six Hundred only) for all candidates except SC, SCA, ST and Person with Disability. For SC, SCA, ST and Person with Disability Candidates, the examination fee is Rs.300/-(Rupees Three Hundred only). Since the examination fee is different for various categories, candidates are advised to enter the correct Community / Person with Disability category. Once the payment is made, it will not be refunded.

- b) Online payment to be made only through Payment Gateway. (Net banking / Credit Card / Debit Card).
- c) Offline mode of payment in any form such as Demand Draft / Postal order etc, will not be accepted.
- d) The candidate have also to pay the service charges as applicable for online payment.
- e) A candidate wish to apply for more than one subject, if equivalence permits, has to apply separately and Examination fee should be paid separately.

10.Scheme of Examination :

a) The Computer based examination will consist of a single paper of 3 hours duration with 150 MCQs.

Subject	Number of Questions	Maximum	Duration
		Marks	
Main Subject	1 Mark questions : 100	100	
	2 Marks questions : 40	80	
General	1 Mark questions : 10	10	3 Hours
Knowledge			
	Total : 150	190	

Note	1	Questions in the main subject will be on the subject for which the
		candidate has applied for.
	2	The question paper for all subjects will be of objective type with
		multiple choice questions in English version only.
	3	The syllabi for the subjects can be downloaded from the Teachers
		Recruitment Board official website www.trb.tn.nic.in

b) No Objection Certificate : Persons who are in the service of the Indian Union or a State in India or in the employment of Local Bodies or Universities, or Quasi Government Organizations constituted under the authority of the Government of India or of a State in India whether in regular service or in a temporary service need not send their application through their Head of Department or Employer. Instead, they may directly apply to the Teachers Recruitment Board after duly informing their Employer in writing that they are applying for the particular recruitment and with the condition that they should produce "No Objection Certificate" in the form prescribed below, from their Head of Department or Appointing authority at the time of attending the Certificate Verification.

NO OBJECTION CERTIFICATE BY THE HEAD OF DEPARTMENT OR

APPOINTING AUTHORITY

- 1. Name of the applicant
- 2. Name of the Post held
- 3. Whether the applicant is employed temporarily under the emergency provisions or whether the applicant is a probationer or an approved probationer or a full member of any of the sub-ordinate / State Services? :
- 4. Period of Employment From (date): To (date) :

:

:

Endorsement No:

a. I have no objection to the candidate`s application being considered for the post of / recruitment of

Dated :

- b. Certified that Thiru / Tmt / Selvi has the following punishment / has no punishment to his credit.
- c. It is also certified that no charge or / and criminal case is pending against him. (If there is pending copy of documents to be enclosed).

Place :	Office Seal & date	Signature
	Name in Capital Letters	:

Designation :

Note :

- Persons who get employment after the submission of their applications and before the receipt of intimation admitting them to the Certificate Verification / Oral Test / requiring produce original documents for verification should also produce the "No Objection Certificate".
- ii. In case any Criminal / Disciplinary action is taken against or if and punishment is imposed against such persons after the production of "No Objection Certificate" and before the actual appointment, such applicants should report this fact forthwith to the Teachers Recruitment Board indicating their Register Number. Any violation or failure to comply with these instructions will end in rejection of candidature.
- iii. "Others" i.e. Applicants not belonging to SCs, SC(A)s, STs, MBCs/DNCs, BC (BCMs) who have put in five years and more of service in the State are not eligible as per Section 3(r) and Section 20(8) of Tamil Nadu Government Servants (Conditions of Service) Act, 2016.
 - b) The Computer Based Examination may be conducted in multiple sessions. Whenever Computer Based Examination is conducted in multiple session based on the same syllabus, same pattern for candidates having same eligibility criteria, the raw marks obtained by the candidates in the different sessions will be converted to normalized marks. A candidate will be permitted to appear only in one session. Attending more than one session will automatically leads to disqualification of the candidature and no further correspondence in this regard will be entertained.

In case the examinations are conducted in only one session, actual marks obtained by the candidates will only be considered for calculating the Merit List.

c) Calculation of normalized marks for multi-session papers:

In case of multi-session papers, a suitable normalization is applied to take into account any variation in the difficulty levels of the question papers across different sessions.

The following Normalization formula for calculating the normalized marks for the multi-session paper is adopted as followed in various Competitive Examinations in India.

Normalization mark of jth candidate in ith session

 M_{ij} is given by:

$$\widehat{M}_{ij} = rac{\overline{M}_t^g - M_q^g}{\overline{M}_{ti} - M_{iq}} (M_{ij} - M_{iq}) + M_q^g$$

- M_{ij} : the actual marks obtained by the jth candidate in ith session.
- \overline{M}_t^g : the average marks of the top 0.1% of the candidates considering all sessions.
- M_q^g : the sum of mean and standard deviation marks of the candidates in the paper considering all sessions.
- $\overline{M_{ti}}$: the average marks of the top 0.1% of the candidates in the ith session or marks of topper if session strength is less than 1000.

the sum of the mean marks and standard deviation of the i^{th} : session.

10. Selection Procedure :

The selection will be based on two successive stages viz.

- a. Computer based examination;
- b. Awarding Weightage marks during Certificate Verification;

a) Computer Based Examination:

The Date, Time and Centre for the Computer Based Examination will be indicated in the Hall Ticket. The Hall Ticket for the eligible candidates will be uploaded by the Teachers Recruitment Board in its website. The candidates are advised to refer to the Teachers Recruitment Board website for details (http://www.trb.tn.nic.in). No written communication will be sent to the candidate.

The participation of the candidates in the Computer Based Examination is purely provisional and does not confer any acceptance of their claim in the application.

Scribes:

Visually Impaired candidates/eligible Orthopedically Impaired candidates will be allowed assistance of scribes based on the Disability Certificate / Medical Certificate submitted by the candidates.

Examination Results:

The Roll-Number-wise Mark List of all candidates will be published in the website of Teachers Recruitment Board viz. <u>http://www.trb.tn.nic.in.</u>

A press release will be issued in this connection through print or visual media.

b) Certificate Verification:

The Board will prepare the list of Candidates for Certificate Verification on 1:2 ratio based on the actual Marks in case of single session paper or Normalized marks in case of multiple session paper, duly following the communal rotation and other relevant rules in vogue.

Note:

✤ If more than one candidate secures the same cut-off mark for the particular communal turn, all such candidates will be called for Certificate Verification.

Certificate Verification List and Certificate Verification Call letter will be published in the Teachers Recruitment Board website http://www.trb.tn.nic.in only.

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✤ Candidates short-listed as above shall bring all the original and attested copies of all Certificates as stated in the Call Letter for Certificate Verification.

Candidates who are not personally present for the Certificate Verification on the prescribed date shall not be considered for further selection process even if they have secured the qualifying marks for selection.

Awarding Weightage Marks :

Weightage marks as detailed below will be awarded after Certificate Verification for the eligible short-listed candidates.

S.No.	Description	Engineering	Non-Engineering
(i)	For teaching experience of 2 years and above, on Full - Time basis in Govt/ Aided/ self-financing polytechnics or Engineering colleges.		
	OR For teaching experience of 4 years and above, on part time basis in Govt/ Aided/ self-financing polytechnics or Engineering colleges.	2 Marks	2 Marks
(ii)	Additional qualifications: a) M.E / M.Tech., in the appropriate Branch of study.	3 Marks	
	b) M.Phil., in the appropriate Branch of study.		3 Marks
(iii)	For Ph.D. in the appropriate Branch of study.	5 Marks	5 Marks

Important Note :-

1. The M.Phil and Ph.D degrees obtained through Correspondences/ Distance Education/ Open University System are **ineligible** for appointment as Lecturer vide G.O.Ms.No.91, Higher Education (K2) Department dated 03.04.2009, and as per Clarification letter issued by Govt. in letter No.8609A/F2/2014-1, Dated: 13-06-2014.

2. Those who are obtained PG/Ph.D degree in foreign Universities shall obtain equivalence certificate from Association of Indian Universities, New Delhi. This has to be produced at the time of Certificate Verification.

12. **Selection:** The list of provisionally selected candidates will be published in the website viz. http://www.trb.tn.nic.in. The final selection of the candidates is subject to fulfillment of necessary eligibility criteria and the decision of Teachers Recruitment Board is final. The appointment orders for provisionally selected candidates will be issued by the Appointing Authority after due verification and subject to fulfillment of eligibility criteria for appointments.

a) Original Certificates and Mark Statements pertaining to the following applicable Educational qualifications

- (i) 10th / SSLC.
- (ii) 12th / Higher Secondary or its equivalent.
- (iii) U.G. Degree in the appropriate branch of study.
- (iv) P.G. Degree in the appropriate branch of study.
- (v) M.Phil. Degree.
- (vi) Ph.D. Certificate

b) Community Certificate: Community Certificate should be obtained from the following authorities of Government of Tamil Nadu for candidates claiming Communal reservation as the case may be.

(i) ST - Revenue Divisional Officer (if the certificate is issued after 11.11.1989)

(ii) SC/SCA - Tahsildar of native taluk of the candidate.

(iii) BC / MBC / DNC - Headquarters Deputy Tahsildar or Special Deputy Tahsildar.

(iv) Community Certificate of married women issued in father's name alone (Not in Husband's Name) shall be accepted.

(v) Community certificates issued by any other State or Union Territory Authorities will not be considered against vacancies reserved for 69% communal reservation. They will be considered only under in General Turn.

c) Tamil Medium Study Certificate: Candidate who claims reservation under PSTM category has to produce Tamil Medium study certificate in the prescribed format (Annexure-II) for the prescribed qualifications.

d) Teaching Experience Certificates (If applicable) :

Teaching Experience Certificate in the prescribed format **(Annexure-III)** for working as a Lecturer in the applied post, after completing all the required qualifications for the post, to be produced for claiming weightage marks for Teaching experience. In case of any false certificate, TRB will initiate criminal action against the erring individual and the countersigning authority. All experience certificates will be verified by a competent authority during Certificate Verification.

e) Disability Certificate (If applicable) : A candidate who wants to avail the benefit of reservation under Person With Disability candidates would have to submit an Identity Card and Passbook with Disability Certificate issued by the <u>Competent Authorities</u>.

13. General Information:

a) Candidates should ensure that they have their scanned recent color passport size photograph (JPG/JPEG /PNG format of size 20-60 KB) and signature (JPG/JPEG/PNG format of size 10-30 KB) separately. The

candidates have to upload their photo image and signature image while applying online. The online application uploaded without the candidate's photograph and candidate's signature will be rejected. No correspondence in this regard will be entertained.

- b) A valid e-mail id and Mobile Number of candidate are mandatory for registration and e-mail id should be kept active as all the communications will be sent to the registered email id only.
- c) Evidence of claims made in the online application should be submitted at the time of Certificate Verification, if called for. Any subsequent claim made thereafter on submission of online application will not be entertained at any cost.
- d) Incomplete applications and applications containing false claims or incorrect particulars relating to category of reservation, basic qualifications, communal category, and other eligibility criteria will be liable for rejection.
- e) The number of vacancies notified is only tentative and it is liable for modification with reference to vacancy position of User Departments before finalization of selection.
- f) Possession or use of electronic devices such as Mobile phone, Micro phone or any other Associated Accessories, Calculator, Log Tables, Pager, Digital Diary, Books, Electronic equipment or gadgets, etc., are strictly prohibited in the Examination Hall. If any candidate is found in possession of any these devices/documents, candidate's candidature is liable to be cancelled. Also, the candidate should not bring any valuables to the Examination Centre and the Centre shall not be responsible for their safe custody.
- g) Canvassing in any form will be a disqualification for selection.

- h) No candidate should misbehave in any manner or create a disorderly scene in the Examination Centre or harass the staff employed by the Board during the conduct of the Examination. Any such misconduct will be viewed seriously and penalized accordingly.
- i) Candidates will have to bear their own expenses to attend the Examination and the Certificate Verification, if called for. No T.A./D.A. will be paid.
- j) In the matter of recruitment, the decision of the Teachers Recruitment Board is final.

Chairman

Annexure I

Subject-wise Vacancy Details

Department : Technical Education

Sl.No.	Subject	Shortfall Vacancy	Current Vacancy	Total
1.	Civil Engineering	-	112	112
2.	Mechanical Engineering	-	219	219
3.	Electrical and Electronics Engineering	-	91	91
4.	Electronics and Communication Engineering	1	118	119
5.	Instrumentation and Control Engineering	-	3	3
6.	Computer Engineering	1	134	135
7.	Information Technology	-	6	6
8.	Production Engineering	-	6	6
9.	Textile Technology	-	3	3
10.	Printing Technology	-	6	6
11.	English	-	88	88
12.	Mathematics	-	88	88
13.	Physics	-	83	83
14.	Chemistry	-	84	84
15.	Modern Office Practice	-	17	17
	Total	2	1058	1060

Annexure II

Tamil Medium: Persons Studied in Tamil Medium (PSTM) to produce evidence, such as Transfer Certificate, have Provisional Certificate / Degree Certificate / mark sheets received from the University or from the Institution, with a recording that he / she studied the prescribed educational Qualification in Tamil Medium. If no for 'Persons evidence studied in Medium' is found in the above certificates, Tamil then a certificate from the Head of the Institution as given below must be furnished:-

PSTM Certificate (Model Format)

(To be issued only by the Registrar / Principal / Head of the Institution)

This is to certify that Thiru/Tmt/Selvi.

(Name)...... has studied (course Name B.E.,/M.A/M.Sc/M.Com.,) in subject during the yearsto......in Tamil Medium. This certificate is issued after verifying the course content / Statement of Marks / Transfer Certificate.

Registrar/Principal/Head of the

Institution

Place :

Date :

ANNEXURE – III

Passport size –photograph of the Candidate duly attested by the certificate issuing authority.(Sign and Seal should be partly in photograph and application)

EXPERIENCE CERTIFICATE

Name of	the Candidate						
Name ar Instituti employe	nd address of the on in which d						
Type of I	Institution	Govt. / Aided / Sel Deemed University	f-Financing Co	olleges / Sta	ıte Univ	ersit	∵y/
Date of a	appointment as	FULL TIM	IE	PAR'	Γ ΤΙΜΕ	(ME	
(a) Lecturer							
(b) Assis	tant Professor						
Subjects	s taught						
S.No		No. of periods	Tota	l period of	service		
	Subjects taught	per week	D	ate	Pe	riod	*
			From	То	Y	М	D
	TOTAL						

* Y-Year, M-Month, D-Days

Certified that the above facts are verified with Pay acquaintance / Staff attendance register / Appointment & Termination letter and other relevant records available on behalf of the above individual and found correct.

Place:	Signature:
Date:	Name:
Seal:	Designation:

Principal (Issuing authority)

(In case of Govt./ Aided / Self Finance Colleges / State University/Deemed University) Counter Signature

Ref. No.				
Place:		Signature:		
Date:		Name:		
Seal:	1:		Designation:	
Director, DOTE	Registrar		Regional Joint Director of	
(In case of Govt/Aided/ Self-	(In case of		Collegiate Education	
finance Polytechnic/Engineering	State/		(In case of Govt/Aided/Self-	
Colleges)	Deemed		finance Arts &	
	Universities)		Science Collges).	

Note:

- Inconsistencies/errors that are not attested by the issuing officer with seal will result in rejection of the certificate.
- Teaching Experience Certificate in the particular subject for which the candidate applied for shall alone will be considered.
- ✤ No corrections or overwriting is allowed.
- The certificate issuing authority has to issue two original copies to the candidate.
- The issuing authorities should maintain records including serial Number, date of issue, place of issue and keep one original copy of the certificates issued by them for future verification.
- ✤ A passport size photograph should be affixed in each certificate. Those photographs have to be attested by the issuing Authority. Part of the signature and seal should be on the photograph.
- * The Countersigning Authority should ensure and verify that the experience certificate is issued for the periods in which the candidate is fully qualified for the Posts of Lecturer as prescribed in the Notification.
- Candidates have to obtain two original copies from each Institution in the prescribed format which should be produced at the time of Certificate Verification.
- The experience certificates have to be uploaded during online application itself.
- Marks will be awarded only when the candidate submit the Experience Certificate along with online application form.
- The Experience Certificates countersigned after the Date of Notification alone will be accepted.

CIVIL ENGINEERING

UNIT 1: ENGINEERING MATHEMATICS

Linear Algebra — matrix algebra, linear equations, - eigen values and eigen vectors. Calculus- Functions of single variable, limit, continuity and differentiability - mean value theorems, evaluation of definite and improper integrals - partial derivatives, total derivative - maxima and minima - gradient, divergence and curl - vector identities directional derivatives - line, surface and volume integrals - stokes, gauss and green's theorems.

Differential equations — first order equations (linear, nonlinear) — higher order linear differential equations with constant coefficients - Cauchy's and Euler's equations — initial and boundary value problems — Laplase transformations and equations — solutions to one dimensional heat and wave equations.

Complex variables — analytic functions — Cauchy's integral theorem — Taylor and Laurent series — Fourier series — general, odd and even functions.

Probability and Statistics - probability and sampling theorems- conditional probability — mean — median, mode and standard deviation — random variables — Poisson, Normal and Binomial distributions.

Numerical Methods — numerical solutions of linear and non-linear algebraic equations — integration by trapezoidal and simpson's rule, single and multistep methods for differential equations.

UNIT 2: MECHANICS

Simple stress and strain relationships in one, two and three dimensions — principal stresses, stress transformation — mohr's circle — properties of surfaces — friction — principle of conservation of energy — impulse and momentum — relative motions - bending moment and shear force in statically determinate beams— simple bending theory — flexural and shear stresses — unsymmetrical bending — shear center — pressure vessels (thin and thick walled) — uniform torsion— springs — buckling of columns —combined and direct bending stresses — theories of failure — shear stress, strain energy and distortion energy theories — residual stresses.

UNIT 3: STRUCTURAL ANALYSIS

Analysis of statically determinate and indeterminate trusses — arches — cables and frames — deflections of statically determinate structures (beams, frames and trusses) — analysis of statically indeterminate structures (slope deflection, moment distribution methods) — matrix methods of structural analysis — influence lines for determinate and indeterminate structures.

UNIT 4: CONCRETE STRUCTURES

Concrete technology — properties of concrete — mix design — working stress and limit state design concepts — design of all structural components (slab, beam, column, foundation and stair case) — retaining walls — water tanks — basic elements of prestressed concrete — methods - analysis of beams at transfer and service loads seismic load analysis — theory of vibration — seismology — response of structures design methodology - all related IS codes.

UNIT 5: STEEL STRUCTURES

Connections - analysis and design of tension, compression members, beams and beam columns — trusses - column bases — plate girders — plastic analysis — wind load analysis-all related IS codes.

UNIT 6: SOIL MECHANICS

Soil classification — engineering properties — three phase system — relationship and interrelationship — permeability — seepage — effective stress principle — consolidation — compaction — shear strength — CBR — Safe bearing capacity determination.

UNIT 7: FOUNDATION ENGINEERING

Sub surface investigation — sampling — standard penetration test — plate load test — earth pressure — effect of water table — layered soil — stability of slopes — foundation types and design requirements— stress distribution and settlement analysis — shallow and deep foundations.

UNIT 8: FLUID MECHANICS AND MACHINES AND HYDROLOGY

Properties of fluid — principle of conservation of mass — momentum — energy and corresponding equations — potential flow — Bernoulli's equation it and application — laminar and turbulent flow — flow in pipes — network — concept of boundary layer — uniform and non uniform flow — specific energy concept — hydraulic jump — forces on immersed bodies — flow measurements in open. channels and pipes dimensional analysis and hydraulic modeling — impact -kinematics of flow — velocity triangles — pumps and turbines.

Hydrologic cycle — rainfall — evaporation — infiltration — stage discharge relationships — unit hydrographs — flood estimation — reservoir capacity — reservoir and channel routing well hydraulics.

Duty — delta — estimation of evapo—transpiration — crop water requirements — design of lined and unlined canals — waterways — head works — gravity dams and spill ways — design of permeable foundation — types of irrigation system — irrigation methods water logging and drainage.

UNIT 9: WATER SUPPLY AND WASTE WATER DISPOSAL

Quality standards — basic unit processes and operations - water treatment — drinking water standards — water requirements — surface water treatment — distribution — sewage and its treatment — quantity and characteristics of waste water — primary, secondary and tertiary treatment — effluent discharge standards — domestic waste water treatment — quantity and characteristics — treatment unit operations and unit processes — sludge disposal. — types of pollutants — their sources and impacts — standards and limits.

UNIT 10: HIGHWAY ENGINEERING

IRC standards — geometric design of highways — materials — construction and maintenance — testing and specifications of materials — design of flexible and rigid pavements — traffic characteristics — theory of traffic flow — intersection design — traffic signs and signal design — highway capacity — importance of surveying — principles and classification — mapping — coordinate system — map projections — measurements of distance and directions — leveling — theodolite traversing —errors and adjustments — curves.

MECHANICAL ENGINEERING

UNIT 1: ENGINEERING MATHEMATICS

Linear Algebra: Matrix algebra, Systems of linear equations, Eigen values and eigen vectors.

Calculus: Functions of single variable, Limit, continuity and differentiability, Mean value theorems, Evaluation of definite and improper integrals, Partial derivatives, Total derivative, Maxima and minima, Gradient, Divergence and Curl, Vector identities, Directional derivatives, Line, Surface and Volume integrals, Stokes, Gauss and Green's theorems.

Differential equations: First order equations (linear and nonlinear), Higher order linear differential equations with constant coefficients, Cauchy's and Euler's equations, Initial and boundary value problems, Laplace transforms, Solutions of one dimensional heat and wave equations and Laplace equation.

Probability and Statistics: Definitions of probability and sampling theorems, Conditional probability, Mean, median, mode and standard deviation, Random variables, Poisson, Normal and Binomial distributions.

Numerical Methods: Numerical solutions of linear and non-linear algebraic equations Integration by trapezoidal and Simpson's rule, single and multi-step methods for differential equations.

UNIT 2: APPLIED MECHANICS AND STRENGTH OF MATERIALS

Engineering Mechanics: Free body diagrams and equilibrium; trusses and frames; virtual work; kinematics and dynamics of particles and of rigid bodies in plane motion, including impulse and momentum (linear and angular) and energy formulations; impact.

Strength of Materials: Stress and strain, stress-strain relationship and elastic constants, Mohr's circle for plane stress and plane strain, thin cylinders; shear force and bending moment diagrams; bending and shear stresses; deflection of beams; torsion of circular shafts; Euler's theory of columns; strain energy methods; thermal stresses.

UNIT 3: THEORY OF MACHINES AND DESIGN

Theory of Machines: Displacement, velocity and acceleration analysis of plane mechanisms; dynamic analysis of slider-crank mechanism; gear trains; flywheels.

Vibrations: Free and forced vibration of single degree of freedom systems; effect of damping; vibration isolation; resonance, critical speeds of shafts.

Design of machine elements: Failure theories; principles of design of bolted, riveted and welded joints, shafts, spur gears, rolling and sliding contact bearings, brakes and clutches.

UNIT 4: FLUID MECHANICS AND HYDRAULIC MACHINERY

Fluid Mechanics: Fluid properties; fluid statics, manometry, buoyancy; kinematics and dynamics of flow; Bernoulli's equation; viscous flow of incompressible fluids; boundary layer; elementary turbulent flow; flow through pipes, head losses. Hydraulic machines, Pelton-wheel, Francis and Kaplan turbines, velocity diagrams.

UNIT 5: HEAT TRANSFER

Heat Transfer: Modes of heat transfer; one dimensional heat conduction, resistance concept, electrical analogy, unsteady heat conduction, fins; dimensionless parameters in free and forced convective heat transfer, various correlations for heat transfer in flow over flat plates and through pipes; thermal boundary layer; effect of turbulence; radiative heat transfer, black and grey surfaces, shape factors, network analysis; heat exchanger performance, LMTD and NTU methods.

UNIT 6: THERMODYNAMICS

Thermodynamics: Zeroth, First and Second laws of thermodynamics; thermodynamic system and processes; Carnot cycle. irreversibility and availability; behaviour of ideal and real gases, properties of pure substances, calculation of work and heat in ideal processes; analysis of thermodynamic cycles related to energy conversion.

Power Engineering: Steam Tables, Rankine, Brayton cycles with regeneration and reheat. I.C. Engines: air-standard Otto, Diesel cycles. Refrigeration and airconditioning: Vapour refrigeration cycle, heat pumps, gas refrigeration, Reverse Brayton cycle; moist air: psychrometric chart, basic psychrometric processes.

UNIT 7: MANUFACTURING ENGINEERING

Engineering Materials: Structure and properties of engineering materials, heat treatment, stress-strain diagrams for engineering materials.

Metal Casting: Design of patterns, moulds and cores; solidification and cooling; riser and gating design, design considerations.

Forming: Plastic deformation and yield criteria; fundamentals of hot and cold working processes; load estimation for bulk (forging, rolling, extrusion, drawing) and sheet (shearing, deep drawing, bending) metal forming processes; principles of powder metallurgy.

Joining: Physics of welding, brazing and soldering; adhesive bonding; design considerations in welding.

UNIT 8: MACHINING AND MACHINE TOOL OPERATIONS

Machining and Machine Tool Operations: Mechanics of machining, single and multi-point cutting tools, tool geometry and materials, tool life and wear; economics of machining; principles of non-traditional machining processes; principles of work holding, principles of design of jigs and fixtures

Metrology and Inspection: Limits, fits and tolerances; linear and angular measurements; comparators; gauge design; interferometry; form and finish measurement; alignment and testing methods; tolerance analysis in manufacturing and assembly.

Computer Integrated Manufacturing: Basic concepts of CAD/CAM and their integration tools.

UNIT 9: PRODUCTION PLANNING AND CONTROL

Production Planning and Control: Forecasting models, aggregate production planning, scheduling, materials requirement planning.

Inventory Control: Deterministic and probabilistic models; safety stock inventory control systems.

UNIT 10: OPERATIONS RESEARCH

Operations Research: Linear programming, simplex and duplex method, transportation, assignment, network flow models, simple queuing models, PERT and CPM.

ELECTRONICS AND COMMUNICATION ENGINEERING

UNIT 1: ENGINEERING MATHEMATICS

Linear Algebra: Matrix Algebra, Systems of linear equations, Eigen values and eigen vectors.

Calculus: Mean value theorems, Theorems of integral calculus, Evaluation of definite and improper integrals, Partial Derivatives, Maxima and Minima, Multiple integrals, Fourier series. Vector identities, Directional derivatives, Line, Surface and Volume integrals, Stokes, Gauss and Green's theorems.

Differential equations: First order equation (linear and nonlinear), Higher order linear differential equations with constant coefficients, Method of variation of parameters, Cauchy's and Euler's equations, Initial and boundary value problems, Partial Differential Equation and variable separable method.

Complex variables: Analytic functions, Cauchy's integral theorem and integral formula, Taylor's and Laurent' series, Residue theorem, solution integrals.

Probability and Statistics: Sampling theorems, Conditional probability, Mean, median, mode and standard deviation, Random variables, Discrete and continuous distributions, Poisson, Normal and Binomial distribution, Correlation and regression analysis.

Numerical Methods: Solutions of non-linear algebraic equations, single and multistep methods for differential equations.

UNIT 2: NETWORKS

Graphs Theory: Matrices associated with graphs; incidence, fundamental cut set and fundamental circuit matrices. Network Analysis: Nodal and mesh analysis. Network theorems: Superposition, Thevenin's, Norton's, Maximum power transfer theorems, Wye-Delta transformation. Steady state sinusoidal analysis using phasors. Linear constant coefficient differential equations; time domain analysis of simple RLC circuits, Solution of network equations using Laplace transform: frequency domain analysis of RLC circuits. 2-port network parameters: driving point and transfer functions; State equations for networks.

UNIT 3: ELECTROMAGNETICS

Elements of vector calculus; Electrostatic Fields: Coulomb's Law, divergence and curl, Gauss' and Stokes' theorems; Magnetic Fields: Biot-Savat's Law, Ampere's circuital Law, Faraday's Law, Maxwell's equations, Poynting vector; Waveguides: TE and TM modes in rectangular and circular waveguides; boundary conditions; Transmission lines: characteristic impedance; impedance transformation; Smith chart; impedance matching; S parameters, pulse excitation. Fundamentals and Parameters of VHF and UHF antennas and Wave Propagation; RF and Microwave circuits and systems.

UNIT 4: ELECTRONIC DEVICES AND CIRCUITS

Energy bands, Carrier transport in silicon, Generation and recombination of carriers; P-N junction diode, Zener diode, Tunnel diode, BJT, JFET, MOS capacitor, MOSFET, LED, PIN and avalanche photo diode, Lasers; device technology of integrated circuits. Small signal equivalent circuits of diodes, BJTs, MOSFETs and analog CMOS. Biasing and bias stability of transistor and FET amplifiers. Rectifiers and Power Supplies; Feedback amplifiers and Oscillators, Tuned Amplifiers, Multivibrators; Operational Amplifiers and its applications; Function generators and wave-shaping circuits, 555 Timers

UNIT 5: DIGITAL CIRCUITS

Boolean algebra, minimization of Boolean functions; logic gates. Combinatorial circuits: arithmetic circuits, code converters, multiplexers, decoders, PROMs and PLAs. Sequential circuits: latches and flip-flops, counters and shift-registers; ADCs, DACs. Semiconductor memories; Microprocessors (8085 and 8086) and Microcontrollers (8051 and PIC): architecture, programming, and applications.

UNIT 6: CMOS VLSI SYSTEMS

MOSFET's as switches, Basic logic gates in CMOS, CMOS layers, CMOS inverter, Dynamic CMOS, Floor planning and Routing, Low power design, Reliability and testing of VLSI circuits, CMOS clocking and testing; Structural Gate Level Modeling; Switch Level Modeling; Behavioral and RTL Modeling — Multiplier, encoders, decoders, flip flops, registers; arithmetic circuits in CMOS VLSI.

UNIT 7: SIGNAL PROCESSING

Definitions and properties of Laplace transform, continuous-time and discrete-time Fourier series, continuous-time and discrete-time Fourier Transform, DFT and FFT, *z*transform. Sampling theorem. Linear Time-Invariant (LTI) Systems: Signal transmission through LTI systems. Infinite impulse response filters; finite impulse response filters; Quantization effects and DSP architecture.

UNIT 8: CONTROL SYSTEMS

Basic control system components; Open loop and closed loop systems and stability analysis of these systems. Signal flow graphs and their use in determining transfer functions of systems; transient and steady state analysis of LTI control systems and frequency response. Tools and techniques for LTI control system analysis: root loci, Routh-Hurwitz criterion, Bode and Nyquist plots. Control system compensators: elements of lead and lag compensation, elements of Proportional-Integral-Derivative control.

UNIT 9: ANALOG AND DIGITAL COMMUNICATION SYSTEMS

Random signals and noise theory: Amplitude, Angle and Pulse modulation and demodulation systems, superheterodyne receivers; signal-to-noise ratio; Pulse code modulation; differential pulse code modulation; digital modulation schemes: amplitude, phase and frequency shift keying schemes (ASK, PSK, FSK), Error Control Coding. Satellite Communication; Fundamentals of information theory and channel capacity theorem.

UNIT 10: COMPUTER COMMUNICATION

Data Communication: OSI reference model; Modems; Error detection and Correction; Data link control and Protocols; Local Area Networks and Metropolitan Networks; Wide Area Networks; Cloud Computing: architecture, services. Mobile Communication: architecture, structure; OFDM principle; Basics of TDMA, FDMA; CDMA, GSM, GPRS and WiMax.

ELECTRICAL AND ELECTRONICS ENGINEERING

UNIT 1: ENGINEERING MATHEMATICS

Linear Algebra: Matrix Algebra, Systems of Linear equations, Eigen Values and eigen vector. Calculus: Mean Value Theorems, Theorems of integral Calculus Evaluation of definite and improper integrals, Partial Derivatives, Maxima and minima, Multiple integrals, Fourier series. Vector identities, Directional derivatives, Line, surface and Volume integrals, Stokes, Gauss and Green's theorems. Differential equations: First order equation (linear and nonlinear), Higher order linear differential equations with constant coefficients, Method of variation of parameters, Cauchy's and Euler's equations, initial and boundary value problem, Partial Differential Equations and variable separable method. Complex variables: Analytic functions, Cauchy's integral theorem and integral formula, Taylor's and laurent's series, Residue theorem, solution integrals. Numerical Methods: solutions of non-linear algebraic equations, single and multistep methods for differential equations. Transform Theory: Fourier transform, Laplace transform, Z-transform.

UNIT 2: ELECTRIC CIRCUITS AND FIELDS

KCL, KVL, node and mesh analysis, transient response of dc and ac network, sinusoidal steady – state analysis, resonance, ideal current and voltage sources, Thevenin's Norton's and Superposition and Maximum Power Transfer theorems, three phase circuits. Gauss Theorem, electric field and potential due to point, line, plane and spherical charge distributions, Ampere's and Biot-Savart's laws, inductance, dielectrics, capacitance.

UNIT 3: DIGITAL SIGNAL PROCESSING

Representation of continuous and discrete-time signals, shifting and scaling operations, linear, time-invariant and causal systems, Fourier series representation of continuous periodic signals, sampling theorem, Fourier, Laplace and Z transforms.

UNIT 4: ELECTRICAL MACHINES

Single phase transformer – equivalent circuit, phase diagram, tests, regulation and efficiency, three phase transformers - connections, parallel operation, autotransformer, energy conversion principles, DC machines - types, windings, generator characteristics, armature reaction and commutation, starting and speed control of motors, three phase induction motors - principles, types, performance characteristics, starting and speed control, single phase induction motors, synchronous machines - performance, regulation and parallel operation of generators, motor starting, characteristics and applications, Special Electrical machines.

UNIT 5: POWER SYSTEMS

Basic power generation concepts, transmission line models and performance, cable performance insulation, corona and radio interference, distribution systems, per – unit quantities, bus impedance and admittance matrices, load flow, voltage control, power factor correction, Economic operation, symmetrical components, fault analysis.

UNIT 6: PROTECTION AND SWITCHGEAR

Principle of over - current, differential and distance protection, solid state relays and digital protection, circuit breakers, system stability concepts, swing curves and equal area criterion. High voltage generation and measurements.

UNIT 7: CONTROL SYSTEM

Principle and feedback, transfer function, block diagrams, steady – state errors, Routh and Nyquist techniques, Bode plots, root loci, lag, lead and lead-leg compensation.

UNIT 8: ELECTRICAL AND ELECTRONICS MEASUREMENTS

Bridges and potentiometers, PMMC, moving iron, dynamometer and induction type instruments, measurement of voltage, current, power, energy and power factor, instruments transformers, phase, time and frequency measurement, Q-meters, Oscilloscopes, Transducers and Data acquisition systems.

UNIT 9: ANALOG AND DIGITAL ELECTRONICS

Characteristics of diodes, BJT, FET, amplifiers - biasing. equivalent circuit and frequency response, oscillators and feedback amplifiers, operational amplifierscharacteristics and applications, simple active filters, VCOs' and timers, combinational and sequential logic circuit, multiplexer, Schmitt trigger, multi Vibrators, sample and hold circuit, A/D and D/A convertors, 8085 and 8086 - microprocessor and 8051 microcontroller basics, architecture, programming and interfacing.

UNIT 10: POWER ELECTRONICS AND DRIVES

Semiconductor power diodes, transistors, thyristors, TRIACs, MOSFETs and IGBTsstatic characteristics and principles of operation, triggering circuits, phase control rectifiers, bridge converters – fully controlled and half controlled, principles of choppers and inverters, basic concepts of adjustable speed dc and ac drives.