**PROSPECTUS FOR**
**B.TECH LATERAL ENTRY COURSE – 2019-2020**
**(Approved vide G.O.(Rt)No.426/2019 /HEDN. Dated, Thiruvananthapuram,   Dated.  20.03.2019)**

1. **Introduction**

   Lateral Entry Scheme is intended to admit meritorious Diploma/D.Voc/B.Sc holders to the Second Year/Third Semester of the B. Tech courses to acquire a Degree in Engineering. Lateral Entry Scheme is approved by Government of Kerala as per G.O (MS) No.156/2002/H.Edn dated: 13.11.2002 for 10% of the sanctioned seats in addition to total seats. A state level Entrance Examination for the selection is suggested to maintain uniformity among various schemes of Diploma /D.Voc/B.Sc holders.

2. **Institutions, Courses and Intake**

   The list of various Engineering colleges, the courses/ branches offered and the number of seats    available in each branch will be published in the website - **www.admissions.dtekerala.gov.in** before the ensuing online allotment.

3. **Fee Structure**

   Fee for the various courses in Govt/ aided/ Govt controlled/ self financing Colleges will be as fixed by the Government from time to time. Students will be liable to pay the fees and all other charges as per statutes. Fees structure of various courses in Government/aided Engineering (merit seats) colleges are given in annexure J of the prospectus.

4. **Eligibility for admission**

4.1  The admission will be subject to regulations prescribed in the prospectus and of the Universities concerned.

4.2  Maximum age as on the last date of submission of application will be 30 Years.

4.3  Non-Keralites are also eligible to apply but their admission will be restricted to the Private Self-Financing Institution and Non-Government seats in the Government controlled Self- Financing Institutions.

4.4  Diploma candidates will be admitted only to the branch of Engineering as per the equivalency given in Annexure  A.

4.5  Candidates who have passed diploma in Engineering/ Technology awarded by any state board of Technical Education or Institutions under Govt. of India after undergoing regular course with at least 45% marks (42% in the case of candidates belonging to SEBC and OEC category and 40% in the case of candidates belonging to SC/ST category) are eligible for writing the entrance examination. All candidates should produce a certificate showing the duration of the course and the details of the certificate issuing authority properly authenticated by the head of institution concerned, in the space provided in the body of the application form.

4.6  Candidates who have passed D.Voc (Vocational Diploma) stream in the same and allied sector in Engineering / Technology awarded by any state board of Technical Education or Institutions under Govt. of India with at least 45% marks (42% in the case of candidates belonging to SEBC and OEC category and 40% in the case of candidates belonging to SC/ST category) are eligible for writing the entrance examination. All candidates should produce a certificate showing the duration of the course and the details of the certificate issuing authority properly authenticated by the head of institution concerned, in the space provided in the body of the application form.

4.7  Candidates who have passed B Sc degree with Mathematics as their main or subsidiary subject from a recognized university as defined by the UGC  and with at least 45% marks (42% in the case of candidates belonging to SEBC and OEC category and 40% in the case of candidates belonging to  SC/ST category) and passed 10+2 examination with Mathematics as a subject are also eligible for writing the entrance examination All candidates should produce a certificate showing the duration of the course and the details

of the certificate issuing authority properly authenticated by the head of institution concerned, in the space provided in the body of the application form.

4.8 Those who are appearing for the Final year of Diploma stream/D.Voc stream/B.Sc stream Examination and satisfying the above criteria are also eligible to apply, subject to the condition that they will produce the Qualifying Certificate (original or Provisional) at the time of admission.

4.9 The students belonging to B.Sc stream shall clear the subject i) Engineering Graphics/ Engineering Drawing and ii) Engineering Mechanics of the First year Engineering programme along with the Second year Subjects.

4.10 The students belonging to B.Sc stream shall be considered only after filling the supernumerary and   the unfilled vacancies of the first year B.tech/BE in this Category with students belonging to the Diploma stream and D.Voc stream.

4.11 All admission to Govt/ aided/ Govt controlled/ self financing engineering colleges will be as per the rank list prepared based on Entrance Examination conducted by The Joint Controller of Technical Examinations, Thiruvananthapuram vide Clause 9 of the prospectus.

4.12 Candidate who have acquired/are acquiring the eligibility for qualifying from Board/University outside Kerala state should produce equivalency certificate from Directorate Technical Education/ Universities in Kerala. For diploma /D.Voc eligibility shall be from Directorate Technical Education and for Degree it shall be from any of the Universities in Kerala.

4.13 **Certificates to prove Nativity**

**Keralites:** In order to prove that candidate is an Indian Citizen of Kerala origin for the limited purpose of eligibility for admission, he/she has to produce one of the following certificates along with the print out of the application itself.

i) The true copy of the relevant page of Secondary School Leaving Certificate of the candidate showing the place of birth in Kerala.                          OR

ii) The true copy of the relevant page of the Secondary School Leaving Certificate of either of the parents of the candidate showing Place of Birth in Kerala with corroborative certificate to establish the relationship between the parent and the candidate.                          OR

iii) The true copy of the relevant page of the Passport of the candidate, issued by Government of India, showing Place of Birth in Kerala or of either of the parents of the candidate showing Place of Birth in Kerala with corroborative certificate to establish the relationship between the parent and the candidate.

OR

iv) A certificate of birth from the authority competent to register birth (Panchayat/ Municipality/ Corporation) showing the candidate's or either parent's (in which case corroborative certificate to establish the relationship between the parent and the candidate is necessary) place of birth in Kerala, to be issued by a competent registering authority.                          OR

v) A certificate from the Village Officer/ Tahsildar to show that the candidate or his/her father/mother was born in Kerala (This is to be obtained in the prescribed format along with the printout of the application).      OR

vi) A Certificate from the competent authority showing that the parent of the candidate is an All India Service officer allotted to Kerala cadre.

5. **Reservation of seats:**

5.1 All seats under Lateral Entry scheme will be filled from the common rank list prepared by the Directorate of Technical Education for the LET Admission 2019.

5.2 In Government Engineering Colleges all seats under Lateral Entry scheme will be allotted as Government seats

5.3 15% of seats under Lateral Entry are reserved as Management seats in Aided Engineering Colleges and remaining 85% will be allotted as Government seats.

5.4 The availability of Government seats in Government controlled and other Private Self-Financing Engineering Colleges will be announced before the ensuing online admission.

5.5 Communal reservation for candidate belonging to Socially and Educationally Backward Classes (SEBC) and SC/ST category will be followed as per Govt. norms. Detailed list of communities under these categories are included in Annexure D, E, F, F (a) and G.

5.6 5% Seats are reserved for physically disabled candidates. Candidates claiming reservation under physically disabled quota shall have a minimum of 40% disability. A disability Certificate from the District Medical Board has to be attached along with the application. Such candidates are also directed to produce a certificate obtained from a Medical officer not below the rank of Assistant surgeon to ensure the fitness of candidates to undergo the course at the time of admission.

5.7 One seat each is reserved for Electronics and Communication Engineering, Electrical & Electronics Engineering, Civil Engineering, Mechanical Engineering, Computer Science & Engineering, and Information Technology branch for defense quota. For claiming reservation in this quota, the certificate obtained from the concerned authority in the prescribed format (Annexure H) provided in the body of the application form is to be produced.

6. **Claim for Communal Reservation:**

6.1 Candidates belonging to SEBC but do not belong to the category of creamy layer are eligible for reservation under this category.

6.2 Candidates claiming reservation under SEBC category should produce non creamy layer certificates obtained from the concerned village officer/ Thahsildar in the space provided in the body of the application form.

6.3 The candidates claiming reservation under SC/ST quota should produce community certificate from the concerned Thahsildar in the space provided in the body of the application form.

6.4 In the absence of SC/ST candidates, their seats will be filled from OEC category as per the Annexure-F of the prospectus and they have to furnish community and Non creamy layer certificates from the Village Officer in the space provided in the body of the application form.

6.5 Candidates belonging to the communities listed in Annexure- F(a) of the prospectus whose annual family income is up to Rs.8 lakhs or as decided by Govt. from time to time are exempted from payment of fee. These candidates should provide community and income certificates from the Village Officer in the prescribed format along with the printout of the application at the time of admission.

*Note: The Certificate issued by the e-District portal of the Government of Kerala will be preferred in lieu of the respective certificates.*

## 7. TUITION FEE WAIVER SCHEME (TFW)

There are a maximum of 5% seats supernumerary in nature under Tuition Fee Waiver (TFW) scheme. It is provided to women, physically handicapped and Other Eligible (Economically weak) students from any of the background (GEN/OBC/SC/ST) to be admitted in Degree program of the institute.

 Following are main features of the Scheme:

7.1 Sons and daughters of parents (Father and Mother both) whose annual income is upto Rs.8.00 lakhs from all sources shall only be eligible.

7.2 The waiver is limited to the Tuition Fee only. All other Fee except Tuition Fee will have to be paid by the beneficiary student.

7.3 Application are invited during registration but shall be taken into consideration after completion of second phase of document verification. The beneficiary student admitted under this scheme shall not be allowed to change the course (Branch/Discipline) under any circumstances.

7.4 The scheme shall come into effect once 30% seats of sanctioned seats are filled and the institute is able to fill Supernumerary seats as per scheme. Students who want to avail the scheme must get the income certificate from the competent authority issued on or after 31.03.2019.

8. **Application Forms:**
Application forms and prospectus are available in the websites **www.admissions.dtekerala.gov.in and www.tekerala.org. Application fee is Rs.750/- for general candidates and Rs.375/- for SC/ST candidates, which can be paid in 'SHAKTI ACCOUNT' of THE JOINT CONTROLLER OF TECHNICAL EXAMINATION at any branch of State Bank of India**.

9. **Submission of Application**:
Applications are to be submitted online and the downloaded application form duly filled up along with the relevant certificates and Shakti Chalan form should reach The Joint Controller of Technical Examinations, Kaimanam, Thiruvananthapuram- 695040 by Registered Post or Speed post or in Person. The last date for the receipt of application is as per the schedule given in Annexure B.

10. **Entrance Examination**:
10.1 A State level OMR based objective type Entrance Examination for a duration of two hours will be conducted by The Joint Controller of Technical Examinations, Kaimanam, Thiruvananthapuram for the selection.
10.2 Examination centers will be at Thiruvananthapuram, Kollam, Alappuzha, Pathanamthitta, Kottayam, Thodupuzha, Ernakulam, Thrissur, Palakkad, Tirur, Malappuram, Sulthan Bathery, Kozhikode, Kannur & Kasaragod. Admit Cards for the Examination can be downloaded from websites:
<div align="center">www.admissions.dtekerala.gov.in<br>www.tekerala.org</div>
10.3 The Entrance Examination will be on selected subjects of first year B.Tech course and English language as per the scheme and syllabus of APJKTU refer( Annexure C). The rank list will be published by The Joint Controller of Technical Examinations, Kaimanam, Thiruvananthapuram- 40.
10.4 The Rank List shall be prepared with all the candidates in the order of marks secured in the entrance Examination, except those who secure Zero and Negative marks. Candidates should secure a minimum of 15% marks ( general candidates), 10% marks (SC/ST candidates) and 12% marks (SEBC (OBC) candidates) in the entrance examination alone will be eligible for allotment to seats in various Engineering Colleges for which allotment is made by Director of Technical Education, Kerala. If seats still remain vacant in this category even after spot allotment, Management shall be given permission to admit students from the common rank list themselves.

11. **Valuation and Declaration of Results:**
11.1 A fully computerized system has been adopted for the valuation of the answer scripts using Optical Mark Reader (OMR) system and for the results.
11.2 The Rank list shall be prepared as per the criteria given in Annexure C. The marks secured by the Candidates will not be disclosed under any circumstances and any such enquiries will not be entertained.
11.3 There will be no provision for revaluation or rechecking of the answer scripts or recounting of the marks

12. **Allotment:**
12.1 The allotment of seats will be made by the Director of Technical Education, Kerala on the basis of the rank list published and availability of seats in the various categories through the website www.admissions.dtekerala.gov.in, according to the options given by the Candidates.
12.2 Allotment Memo will be published in the website for download. No duplicate Memo will be issued in any case after allotment.

12.3 Candidates who are eligible for allotment on the basis of the Rank List will have to enter their options online. After each allotment there will be provision for rearranging the options.

12.4 Once the candidate gets an allotment, he/ she will have to join the particular institution and then only he/ she will be considered for further allotments. Otherwise his/ her candidature will be cancelled.

12.5 Once the candidate gets an allotment, all the lower options will automatically be cancelled and re-allotment will only be done for higher options. The candidate who got the higher option in subsequent allotment, the previous institution must issue TC and report of vacancy to the Directorate of Technical Education.

12.6 If the candidate is satisfied with the allotment he/she gets in a particular allotment and if he/she does not want to be considered for further allotments, he/ she will have to cancel all the remaining options.

12.7 The selection for admission will be provisional and subject to the verification of the original documents by the concerned Principals at the time of admission.

12.8 Any other details not specifically covered by the clauses given in the prospectus will be decided by the undersigned and his/her decision will be final. He/ She is also empowered to cancel any admission found to be illegal subsequent to the admission.

12.9 All disputes pertaining to the Examination or admission shall fall within the jurisdiction of the Honorable High Court of Kerala.


**13.No Liquidated damages**
As per G.O(Rt)No.77/2019/H.Edn dated 18.01.2019,the liquidated damages are fully exempted and stated that the clause of chapter 7.13 of AICTE approval process Hand Book2019-20 stated as follows:

13.1 In the event of a student withdrawing before the start of the course, the entire fee collected from the student, after a deduction of the processing fee of not more than Rs .1000/ (Rupees One thousand only) shall be refunded by the Institution. It would not be permissible for institutions to retain the school/Institution leaving Certificates in original.

13.2 In case, if a student leaves after joining the course and if the vacated seat is consequently filled by another student by the last date of admission, the institution must refund the fee collected after a deductions of processing fee of not more than Rs.1000/-(Rupees One thousand only) and proportionate deductions of monthly fees and hostel rent, where applicable.

13.3 In case the vacated seat is not filled, the Institution should refund the Security Deposit and return the original documents.

13.4 The Institution should not demand fee for the subsequent years from the students cancelling their admission at any point of time. Fee refund along with the return of certificates should be completed within 7 days.

13.5 Institutions not following guidelines issued by the Counsil regarding refund of fee for cancellation of admission or delaying refunds shall be liable to any one or more of the following punitive actions by the Council.

　* Fine for non-compliance of refund rules of the fee levied against each case shall be five times the total fee collected per student.

　* Suspension of approval for NRI and Supernumerary seats, if any, for one Academic Year.

　* Reduction in "Approved Intake"

　* No admission in one /more course(s) for on e academic Year/ Withdrawal of approval for program(s) / course(s)


**Thiruvananthapuram**                                               **Director of Technical Education**
**Date: 20.03.2019**

## ANNEXURE A - EQUIVALENCY OF BRANCHES

| NO | Specialization in Diploma Course | Branch Equated to B.Tech Course |
|----|----------------------------------|--------------------------------|
| 1 | Applied Electronics/Instrument Technology/ Electronics and Instrumentation/ Medical Electronics /Instrumentation Technology/ Instrumentation Engineering | Electronics and Communication Engg./ Applied Electronics and Instrumentation Engg/ Instrumentation and Control Engg./ Electronics and Instrumentation Engineering |
| 2 | Architecture | Civil Engineering |
| 3 | Civil | |
| 4 | Quantity Survey & Construction Management | |
| 5 | Biomedical Engineering/ Medical Electronics/ Medical Instrumentation | Bio Medical Engineering/ Electronics and Communication Engineering/ Applied Electronics and Instrumentation Engg |
| 6 | Biotechnology/Chemical/Polymer Technology | Chemical Engineering/ Polymer Technology/ Biotechnology /Biotechnology and Bio chemical Engineering |
| 7 | Computer Application and Business Management | Computer Science and Engineering /Information Technology |
| 8 | Computer Engineering, Computer Science | |
| 9 | Computer Hardware Maintenance/ Computer Hardware Engineering. | |
| 10 | Information Technology | |
| 11 | Electrical /Electrical & Electronics Engineering | Electrical and Electronics Engineering |
| 12 | Electronics Engineering/ Computer Engineering Computer Hardware Maintenance | Electronics and Communication Engineering |
| 13 | Electronics and Communication Engineering | |
| 14 | Electronics Production Technology | |
| 15 | Telecommunication Technology | |
| 16 | Electronics and Avionics Engineering | Electronics and Communication Engineering/ Aeronautical Engineering |
| 17 | Automobile Engineering | Mechanical engineering/ Automobile Engineering Mechanical (Automobile) Engineering |
| 18 | Tool and Die | Mechanical Engineering/ Industrial Engineering/ Production Engineering/ Mechanical(Production) Engineering |
| 19 | Wood and Paper Technology | |
| 20 | Plastic Moulding Technology from CIPET | |
| 21 | Manufacturing technology | |
| 22 | Printing Technology | Printing Technology (In the Absence of Printing Technology , other branches will be considered) |

| 23 | Mechanical Engineering | Automobile Engineering/ Mechanical Engineering/ Industrial Engineering/ Production Engineering/ Mechanical (Production)/ Mechanical (Automobile)/ Mechatronix/ Aeronautical Engineering |
|----|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 24 | Mechatronix Engineering | Electronics and communication Engineering/ Mechanical Engineering/ Mechatronix |
| 25 | Petrochemical Engineering | Chemical Engineering/ Biotechnology/ Biotechnology and Bio chemical Engineering |
| 26 | Electronics & Robotics Engineering | Electronics and Communication Engineering/ Computer Science & Engineering |
| 27 | Aeronautical Engineering | Mechanical Engineering/ Aeronautical Engineering |

**TIME SCHEDULE FOR LATERAL ENTRY B.TECH ADMISSION**

| Activity | |
|---|---|
| | |
| Online Registration | 6/04/2019 to 24/04/2019, 5 pm |
| | |
| Last date of receipt of downloaded application in the Joint Controller of Technical Examinations Office, Thiruvananthapuram | 30/04/2019, 5 pm |
| | |
| Downloading of Hall Tickets from the website | 10/06/2019 to 14/06/2019 |
| Date of Examination | 15/06/2019 |
| Publication of Result | 26/06/2019 |
| Downloading Score Cards from the website | 27/06/2019 to 5/07/2019 |
| | |
| Online filling of options | 27/06/2019 to 3/07/2019, 5 pm |
| 1st Allotment | 08/07/2019 |
| Admission (1st allotment) | 10/07/2019,11/07/2019 |
| | |
| Rearranging higher options | 17/07/2019, 18/07/2019, 5 pm |
| | |
| 2nd Allotment | 22/07/2019 |
| | |
| Admission (2nd allotment) | 24/07/2019, 25/07/2019 |

After the completion of the 2nd allotment, if any seats are still lying vacant, a spot admission will be conducted on a suitable date as fixed later for the vacant seats in the courses specified in Annexure A. All students above the cut off rank are eligible to appear for spot admission. Head of the institution should issue No Objection Certificate to the admitted candidate who desires to appear for spot admission. Candidates selected for admission through spot admission will have to join the respective institutions on the date specified, by remitting the required fees at the respective institution. If seats are still lying vacant, Colleges can fill the seats by giving wide publicity in local dailies and based on the seniority and eligibility of the students in the common rank list for LET admission-2019. Institutions can fill seats up to the last date of closing admission which will be decided by the Director of Technical Education.

**ANNEXURE C**
## CRITERIA FOR RANK LIST PREPARATION

1) LET Admission will be based on a rank list prepared based on an entrance test
2) The Entrance Test have two parts ie, part A for Diploma students and D Voc stream candidates and Part B for B.Sc stream students.
3) **Part A of the Entrance Test for Diploma and D.Voc stream candidates is for 120 marks and will be on following selected subjects of First year B.Tech course and English language.**
    i. Mathematics-20 marks  (Annexure I(i))
    ii. Engineering Mechanics -15 marks (Annexure I(ii))
    iii. IT and Computer Science -15 marks   (Annexure I(iii))
    iv. Civil Engineering-15marks (Annexure I(iv))
    v. Mechanical Engineering -15 marks   (Annexure I(v))
    vi. Electrical Engineering-15 marks (Annexure I(vi))
    vii. Electronics and communication Engineering -15 marks (Annexure I(vii))
    viii. English -10 marks (Annexure I(viii))

    **Part B of the Entrance Test for B.Sc stream candidates is for 120 marks and will be on following selected subjects of first year B.Tech course and English language.**

    i. Mathematics-40 marks   (Annexure I(ix))
    i. Physics -30 marks (Annexure I(x))
    ii. Chemistry -  20 marks    (Annexure I(xi))
    iii. IT and Computer Science- 15 marks      (Annexure I(xii))
    iv. English -15 marks (Annexure I(xiii))

4) The detailed syllabus of the above selected subjects is shown in Annexure I(i) to I(xiii)
5) 3 marks for each correct answers &1marks will be deducted for every wrong answer.
6) Marking for more than one bubble against a question will be considered as wrong answer.
7) Erasing, overwriting, partial marking etc may also be treated as wrong answer.
8) No deduction of mark will be made for unanswered questions.
9) If the candidate does not answer any single question, his candidature will be cancelled.

10) **Resolution of tie for preparing the rank list for the Diploma/D.Voc stream**
    a) If there is any tie exists for same rank, candidates with higher score in Mathematics will be placed in higher rank.
    b) If tie still exists, candidates with higher score in English will be placed in higher rank.
    c) If the tie further exists, age of the candidate will be taken into account and the older will be placed in higher rank than the younger one.

11) **Resolution of tie for preparing the rank list for B.Sc stream**
    a. If there is any tie exists for same rank, candidates with higher score in Mathematics will be placed in higher rank.
    b. If tie still exists, candidates with higher score in Physics will be placed in higher rank.
    c. If the tie further exists, age of the candidate will be taken into account and the older will be placed in higher rank than the younger one.

# ANNEXURE -D
## LIST OF SCHEDULED CASTES (SC)

[As Amended by The Constitution (Scheduled Castes) Orders (Second Amendment) Act, 2002 (Act 61 of 2002) Vide Part VIII – Kerala - Schedule 1 Notified in the Gazette of India dated 18.12.2002, The Constitution (Scheduled Castes) Order (Amendment) Act 2007, The Constitution (Scheduled Castes) Order (Amendment) Act 2016, No. 24 of 2016]

[See Clause 5.4.3 (a)]

| | | | |
|---|---|---|---|
| 1 | Adi Andhra | 37 | Mannan (മണ്ണാൻ), Pathiyan, Perumannan, Peruvannan, Vannan, Velan |
| 2 | Adi Dravida | 38 | xxx |
| 3 | Adi Karnataka | 39 | Moger (other than Mogeyar) |
| 4 | Ajila | 40 | Mundala |
| 5 | Arunthathiyar | 41 | Nalakeyava |
| 6 | Ayyanavar | 42 | Nalkadaya |
| 7 | Baira | 43 | Nayadi |
| 8 | Bakuda | 44 | xxx |
| 9 | xxx | 45 | Pallan |
| 10 | Bathada | 46 | Palluvan, Pulluvan |
| 11 | xxx | 47 | Pambada |
| 12 | Bharathar (Other than Parathar), Paravan | 48 | Panan |
| 13 | xxx | 49 | xxx |
| 14 | Chakkiliyan | 50 | Paraiyan, Parayan, Sambavar, Sambavan, Sambava, Paraya, Paraiya, Parayar |
| 15 | Chamar, Muchi | 51 | xxx |
| 16 | Chandala | 52 | xxx |
| 17 | Cheruman | 53 | xxx |
| 18 | Domban | 54 | Pulayan, Cheramar, Pulaya, Pulayar, Cherama, Cheraman, Wayanad Pulayan, Wayanadan Pulayan, Matha, Matha Pulayan |
| 19 | xxx | 55 | xxx |
| 20 | xxx | 56 | Puthirai Vannan |
| 21 | xxx | 57 | Raneyar |
| 22 | Gosangi | 58 | Samagara |
| 23 | Hasla | 59 | Samban |
| 24 | Holeya | 60 | Semman, Chemman, Chemmar |
| 25 | Kadaiyan | 61 | Thandan (excluding Ezhuvas and Thiyyas who are known as Thandan, in the erstwhile Cochin and Malabar areas) and (Carpenters who are known as Thachan, in the erstwhile Cochin and Travancore State) Thachar (Other than carpenters) |
| 26 | Kakkalan, Kakkan | | |
| 27 | Kalladi | | |
| 28 | Kanakkan, Padanna, Padannan | | |
| 29 | xxx | 62 | Thoti |
| 30 | Kavara (other than Telugu speaking or Tamil speaking Balija Kavarai, Gavara, Gavarai, Gavarai Naidu, Balija Naidu, Gajalu Balija or Valai Chetty) | 63 | Vallon |
| | | 64 | Valluvan |
| | | 65 | xxx |
| 31 | Koosa | 66 | xxx |
| 32 | Kootan, Koodan | 67 | Vetan |
| 33 | Kudumban | 68 | Vettuvan, Pulaya Vettuvan (in the areas of erstwhile Cochin State only). |
| 34 | Kuravan, Sidhanar, Kuravar, Kurava, Sidhana | | |
| 35 | Maila | 69 | Nerian |
| 36 | Malayan [In the areas comprising the Kannur, Kasaragode, Kozhikode and Wayanad Districts]. | | |

## ANNEXURE – E
## LIST OF SCHEDULED TRIBES (ST)

[As Amended by The Scheduled Castes and Scheduled Tribes Orders (Amendment) Act, 2002 (Act 10 of 2003) Vide Part - VII - Kerala - Second Schedule Notified in the Gazette of India dated 8.1.2003, G.O. (Ms) No. 06/2014/SCSTDD dated 29.01.2014]

[See Clause 5.4.3 (a)]

| | | | |
|---|---|---|---|
| 1 | Adiyan | 24 | Malasar |
| 2 | Arandan [Arandanan] | 25 | [Malayan, Nattu Malayan, Konga Malayan (excluding the areas comprising the Kasaragod, Kannur, Wayanad and Kozhikode Districts) |
| 3 | Eravallan | 26 | Malayarayar |
| 4 | Hill Pulaya, Mala Pulayan, Kurumba Pulayan, Kuravazhi Pulayan, Pamba Pulayan | 27 | Mannan (മന്നാൻ) |
| 5 | Irular, Irulan | 28 | xxx |
| 6 | Kadar [Wayanad Kadar] | 29 | Muthuvan, Mudugar, Muduvan |
| 7 | xxx | 30 | Palleyan, Palliyan, Palliyar, Paliyan |
| 8 | Kanikkaran, Kanikkar | 31 | xxx |
| 9 | Kattunayakan | 32 | xxx |
| 10 | [Kochuvelan] | 33 | Paniyan |
| 11 | xxx | 34 | Ulladan, [Ullatan] |
| 12 | xxx | 35 | Uraly |
| 13 | Koraga | 36 | Mala Vettuvan(in Kasaragod & Kannur districts) |
| 14 | xxx | 37 | Ten Kurumban, Jenu Kurumban |
| 15 | Kudiya, Melakudi | 38 | Thachanadan, Thachanadan Moopan |
| 16 | Kurichchan [Kurichiyan] | 39 | Cholanaickan |
| 17 | Kurumans, Mullu Kuruman, Mulla Kuruman, Mala Kuruman | 40 | Mavilan |
| 18 | Kurumbas, [Kurumbar, Kurumban] | 41 | Karimpalan |
| 19 | Maha Malasar | 42 | Vetta Kuruman |
| 20 | Malai Arayan [Mala Arayan] | 43 | Mala Panikkar |
| 21 | Malai Pandaram | 44 | Maratis of Kasargod and Hosdurg Taluk |
| 22 | Malai Vedan [Malavedan] | | |
| 23 | Malakkuravan | | |

## ANNEXURE - F
## LIST OF OTHER ELIGIBLE COMMUNITIES (OEC)
[GO (Ms) No.14/2017/BCDD dated: 02.08.2017, GO (Ms) No.7/2013/BCDD dated: 19.07.2013, See Clause 5.4.3 (f)]

### OEC (ST)
1. Allar (Alan)
2. Chingathan
3. Irivavan
4. Kalanadi
5. Malayan, Konga-Malayan(Kasargod, Kannur, Wayanad and Kozhikode Districts)
6. Kundu-Vadiyan
7. Kunnuvarmannadi
8. Malamuthan
9. Malavettuvar (Except Kasargod and Kannur Districts)
10. Malayalar
11. Panimalayan
12. Pathiyan (other than Dhobies)
13. Hindu-Malayali

### OEC (SC)
1. Chakkamar
2. Madiga
3. Chemman/Chemmar
4. Kudumbi
5. Dheevara/Dheevaran (Arayan, Valan, Nulayan, Mukkuvan, Arayavathi, Valanchiyar, Paniyakal, Mokaya, Bovi, Mogayar, Mogaveerar)
6. Scheduled Caste converted to Christianity
7. Kusavan, Kulalan, Kumbharan, Velaan, Velaar, Odan, Andhra Nair, Andhuru Nair,
8. Pulaya Vettuvan (Except Kochi State)

## ANNEXURE – F(a)
## LIST OF COMMUNITIES ELIGIBLE FOR EDUCATIONAL CONCESSIONS AS IS GIVEN TO OEC
[G.O.(Ms) No. 10/2014/BCDD dated: 23.05.2014]   [See Clause 5.4.3 ( h)]

1   Vaniya (Vanika, Vanika Vaisya, Vanibha Chetty, Vaniya Chetty, Ayiravar, Nagarathar and Vaniyan

2   Veluthedathu Nair (Veluthedan and Vannathan)

3   Chetty/Chetties (Kottar Chetties, Parakka Chetties, Elur Chetties, Attingal Chetties, Pudukkada Chetties, Iraniel Chetties, Sri Pandara Cetties, Telugu Chetties, Udiyankulangara Chetties, Peroorkada Chetties, Sadhu Chetties, 24 Mana Chetties, Wayanadan Chetties, Kalavara Chetties and 24 Mana Telugu Chetties

4   Ezhavathi (Vathy)

5   Ganika

6   Kanisu or Kaniyar Panicker, Kani or Kaniyan (Ganaka) or Kanisan or Kamnan, Kalari Kurup/Kalari Panicker

7   Vilkurup, Perumkollan

8   Yadavas (Kolaya, Ayar, Mayar, Maniyani and Iruman), Erumakkar

9   Devanga

10   Pattariyas

11   Saliyas (Chaliya, Chaliyan)

12   Pandithar

13   Vaniar

14   Ezhuthachan

15   Chakkala/Chakkala Nair

16   Reddiars (throughout the State except in Malabar Area)

17   Kavuthiya

18   Veerasaiva (Yogi, Yogeeswara, Poopandram, Malapandaram, Jangam, Matapathi, Pandaram, Pandaran, Vairavi, Vairagi)

19   Vilakkithala Nair – Vilakkithalavan

20   Vaduka – Vadukan, Vadugar, Vaduka, Vaduvan

21   Chavalakkaran

22   Agasa

23   Kaikolan

24   Kannadiyans

25   Kerala Mudalis

26   Madivala

27   Naikkans

28   Tholkolans

29   Thottian

30   Mooppar or Kallan Moopan or Kallan Moopar

# ANNEXURE - G
## LIST OF SOCIALLY AND EDUCATIONALLY BACKWARD CLASSES (SEBC)

[Vide G.O. (P) 208/66/Edn. dated 02.05.1966, G.O. (Ms) No. 95/08/SCSTDD dated 06.10.2008 & G.O. (Ms) No. 58/2012/SCSTDD dated 16.04.2012, G.O.(Ms) No. 10/2014/BCDD dated: 23.05.2014, Lr No. 1538/A2/2014/BCDD dated 02.07.2014, G.O.(Ms) No. 03/2018/BCDD dated 09.04.2018]

[See Clause 5.4.2 (a)]

I.   **Ezhavas** including Ezhavas, Thiyyas, Ishuvan, Izhuvan, Illuvan and Billava

II.  **Muslims** (all sections following Islam)

III. **Latin Catholics and Anglo Indians**

IV.  **Dheevara** including Dheevaran, Araya,Arayas, Arayan, Valan, Nulayan, Mukkuvan, Arayavathi, Valinjiar, Paniakkal, Paniakel, Mukaya, Bovis-Mukayar, Mukaveeran, Mogaveera, Mogavirar,Mogayan

V.   **Viswakarmas** including Viswakarma, Asari, Chaptegra, Kallassari, Kalthachan, Kammala, Kamsala, Kannan, Karuvan, Kitaran, Kollan, Malayala Kammala, Moosari, Pandikammala, Pandithattan, Perumkollan, Thachan, Thattan, Vilkurup, Villasan, Viswabrahmanan or Viswabrahmanar, Viswakarmala and Palisa Perumkollan

VI.  **Kusavan** including Kulalan, Kulala Nair, Kumbaran, Velaan, Velaans, Velaar, Odan, Kulala, Andhra Nair, Anthuru Nair

VII. **Other Backward Christians**

   (a)  SIUC

   (b)  Converts from Scheduled Castes to Christianity

VIII. **Kudumbi**

IX.  **Other Backward Hindus**, i.e.

1.  Agasa

2.  Kharvi

3.  Aremahrati

4.  Arya, Atagara, Devanga, Kaikolan, (Sengunthar) Pattarya, Pattariyas, Saliyas (Padmasali, Pattusali, Thogatta, Karanibhakatula, Senapathula, Sali, Sale, Karikalabhakulu, Chaliya, Chaliyan) Sourashtra, Khatri, Patnukaran, Illathu Pillai, Illa Vellalar, Illathar

5.  Bestha

6.  Bhandari or Bhondari

7.  Boya

8.  Boyan

9.  Chavalakkaran

10. Chakkala (Chakkala Nair)

11. Devadiga

12. Ezhavathi (Vathi)

13. Ezhuthachan, Kadupattan

14. Gudigara

15. Galada Konkani

16. Ganjam Reddies

17. Gatti

18. Gowda

19. Ganika including Nagavamsom

20. Hegde

21. Hindu Nadar

22. Idiga including Settibalija

23. Jangam

24. Jogi

25. Jhetty

26. Kanisu or Kaniyar-Panicker, Kaniyan, Kanisan or Kamnan, Kannian or Kani, Ganaka

27. xxx

28. Kalarikurup or Kalari Panicker

29. Kerala Muthali, Kerala Mudalis

30. Oudan (Donga) Odda (Vodde or Vadde or Veddai)

31. Kalavanthula

32. Kallan including Isanattu Kallar

33. Kabera

34. Korachas

35. x x x

36. Kannadiyans

37. Kavuthiyan, Kavuthiya

38. Kavudiyaru

39. Kelasi or Kalasi Panicker

40. Koppala Velamas

41. Krishnanvaka

42. Kuruba

43. Kurumba

44. Maravan (Maravar)

45. Madivala

46. Maruthuvar

47. Mahratta (Non-Brahman)

48. Melakudi (Kudiyan)
49. x x x
50. Moili
51. Mukhari
52. Modibanda
53. Moovari
54. Moniagar
55. Naicken including Tholuva Naicker and Vettilakkara Naicker, Naikkans
56. Padyachi (Villayankuppam)
57. Palli
58. Panniyar or Pannayar
59. Parkavakulam (Surithiman, Malayaman, Nathaman, Moopanar and Nainar)
60. Rajapuri
61. Sakravar (Kavathi)
62. Senaithalaivar, Elavania, Senaikudayam
63. Chetty/Chetties including Kottar Chetties, Parakka Chetties, Elur Chetties, Attingal Chetties, Pudukkada Chetties, Iraniel Chetties, Sri Pandara Chetties, Telugu Chetties, Udiyankulangara Chetties, Peroorkada Chetties, Sadhu Chetties, 24 Mana Chetties, Wayanadan Chetties, Kalavara Chetties and 24 Mana Telugu Chetties
64. Tholkolan
65. Thottiyan, Thottian
66. Uppara (Sagara)
67. Ural Goundan
68. Valaiyan
69. Vada Balija
70. Vakkaliga
71. Vaduvan(Vadugan), Vaduka, Vadukan, Vadugar
72. Veera Saivas (Pandaram, Vairavi, Vairagi, Yogeeswar, Yogeeswara, Poopandaram, Malapandaram, Pandaran, Matapathi and Yogi)
73. Veluthedathu Nair including Vannathan, Veluthedan and Rajaka
74. Vilakkithala Nair including Vilakkathalavan, Ambattan Pranopakari, Pandithar and Nusuvan
75. Vaniya including Vanika, Vanika Vaisya, Vaisya Chetty, Vanibha Chetty, Ayiravar Nagarathar, Vaniyan, Vaniya Chetty, Vaniar
76. Yadava including Kolaya, Ayar, Mayar, Maniyani, Eruman, Iruman, Erumakkar, Golla and Kolaries
77. Chakkamar
78. Mogers of Kasaragod Taluk
79. x x x
80. x x x
81. x x x
82. Reddiars (throughout the State except in Malabar area)
83. Mooppar or Kallan Moopan or Kallan Moopar

**ANNEXURE H**

**CERTIFICATE FOR CLAIM OF SPECIAL RESERVATION UNDER QUOTA FOR CHILDREN OF SERVICING DEFENCE PERSONNEL (SD)/ PARA MILITARY FORCE PERSONNEL (RP)**

Certified that Master/Kum……………………………………………………………………………… ……………………………. an applicant for admission to the professional degree course, Kerala 2019 is the son/ daughter* of Shri/Smt ……………………….………………………………………………… (official address) who is serving defence/ paramilitary force* personnel presently working at ……………………………………………………………………….

Place:  **Signature of Commanding officer:**

Date:

**Name    :**

**(Office seal)**

**SYLLABUS FOR DIPLOMA AND D.VOC STUDENTS**

## MATHEMATICS (ANNEXURE I (i))
**Total 4 Modules : 20 questions – 5 questions from each module**

**Module I** : Matrices:
Inverse of Matrix-Linear dependence and independence Vectors-Consistency and inconsistency of a system of linear equations-Rank of a matrix. Eigen Values and Eigen Vectors-Properties-Caylay-Hamilton Theories Diagonalisation-Quadartic forms-Reduction to canonical forms.

**Module II** : Differential Calculas:
Successive Differentiation-Leibnitz Theorem-Indeterminate forms-L' Hospital's Rule-Radius of curvature-center of curvature-Evolutes  partial Differentiation-Homogeneous functions Euler's Theorem-Maxima and Minima of two variables.

**Module III**: Infinite Series:
Notions of Convergence and divergence-Comparison test-Ratio test-Cauchy's Root test-Test for alternating series-absolute convergence.

**Module IV**: Fourier Series:
Even functions, Odd functions, periodic functions-Dirichelet's condition-Euler's formula. Functions with period $2\pi$ and $2l$ . Half range sine and cosine series .Laplace transforms –properties-Inverse Transforms.

## ENGINEERING MECHANICS (ANNEXURE I (ii))
**Total 4 Modules : 15 questions – 3 questions from  Module II & 4 questions from module I,III & IV.**

**Module I** : Units-Dimensions-Vector & scalar quantities-laws of mechanics –Elements of vector algebra-Principals of statics –freebody diagram –composition & resolution of & equilibrant –concurrent forces –tringular forces –Lami's theorems – center of gravity – Moment  of inertia – Coplannar forces –Friction.

**Module II** : Plane trusses – Different types of support – Reaction at supports – Methods of sections – funicular polygen – Maxwells diagram – couples in space – equilibrium  of general system of force in space.

**Module III** : Kinematics of a particle – simple relative motion –definition of particle –velocity and acceleration – transaction and rotation – rectangular and cylindrical coordinates – particle dynamics –central force motion.

**Module IV**: Principles of dynamics – motion of a particle acted by a constant force as a function of time- Force proportional to displacement –free vibrations –D' Alemberts principle – Momentum and impulse – work and energy –Ideal system –Conservation of energy – impact – curvilinear motion – Projectiles –Rotation –Torsional vibration –Simple and compound pendulam –Collision of bodies.

## COMPUTER SCIENCE AND INFORMATION TECHNOLOGLY (ANNEXURE I (iii))
**Total 4 Modules : 15 questions – 4 questions from Module I, 3 questions each from Module II, III & IV & 2 questions from Module V.**

**Module I**
Computer Organization:- Central processing unit , input device , output device,  secondary storage device , machine language , assembly language and high level language
System Software:- Assembler , loader ,linker , operating system , editors, compilers , debuggers.

**Module II**
Computer programming ( in C language ):- Data types, type conversion ,simple and compound statements, usage of standard library, control structures ,functions , arrays. Pointers , structure, file handling.

**Module III**
Data base systems:- Relational Data Base Management System ,SQL.

**Module IV**
Computer networks:- ISO/OSI protocols ,TCP/IP, Inter connecting network devices , Ethernet cards, cables, Connectors, hubs, switches, routers
Internet:- Introduction to FTP,TELNET, Email , web browsers and web servers.

**Module V**
Multimedia:- Multimedia hardware, sound cards, CD ROMs, full motion digital video.


## BASIC CIVIL ENGINEERING (ANNEXURE I (iv))
### Total 4 Modules : 15 questions – 3 questions from  Module III  4 questions from module I,II  & IV

**Module 1:** Materials- cement-steel- aggregates- mortar preparation- concrete- grades of concrete-water-cement ratio-Workability-batching-Mixing-Compaction-Curing-Strengths in concrete-Timber-Defects of timber-Seasoning-Bricks-Varieties.
**Module II** : Selection of site of a building –Setting out- Excavation –Types of foundation-Bearing capacity masonry-Materials- Types –Stone Masonry-Brick masonry-Bond in Brick-Special bricks-Arches Cavity walls-Hollow block-Plastering-Painting.
**Module III** : Doors-Windows-Flooring-Preparation of bed- Laying floor finish-Various floor finish materials-Roofs –Different types- Roof covering materials- Precast and prestressed construction.
**Module IV** : Methods of surveying- Chain –Compass-Plane table –Theodolite- Areal – Hydrographic – Measurement of distance –elementary idea of total station –Errors in chaining –Tape correction- Setting out right angles –Leveing- Types of levels- Reduction of level- Computation of area and volume –Trapezodial and simpson's rule.


## MECHANICAL ENGINEERING ((ANNEXURE I (v))
### Total VII  Modules : 15 questions – 3 questions from Module I, 2 questions each from other modules.

**Module I** :Thermodynamics: Definitions and basic concepts- system, properties, state, process, cycle – heat and work –Thermodynamic equilibrium. Zeroth law of thermodynamics – concept  oftemperature – temperature scales. First law of thermodynamics – concepts of internal energy and enthalpy. Second law of thermodynamics-Clausius and Kelvin –Plank statements- concept reversibility, availability and entropy. Thermodynamic processes- constant volume, constant pressure, isothermal, adiabatic, polytropic processes, throttling and free expansion, p-v and T-s diagrams- work done, heat exchanged,change in entropy, and change in internal energy during the above processes. Air cycles- Carnot, Otto and Diesel cycles- air standard efficiency.
**Module II** : Working and comparison of two stroke and four stroke petrol and diesel engines- various systems- air systems, fuel system, ignition system, governing system.
**Module III** : Steam Boilers and turbines: Properties of steam- dryness fraction, enthalpy, entropy. Classification of boilers, Boiler mountings and accessories. Types of steam turbines- impulse and reaction type – parts of turbines, compounding of turbines.
**Module IV**: Pumps: Types – Centrifugal, reciprocating, gear and jet – applications- criteria for choice of pumps.
**Module V**: Refrigerations and Airconditioning: Simple vapour compression and vapour absorption refrigeration syatems – Refrigerants. Psychrometry- definitions of terms, Air conditioning – parts of an A/C unit
**Module VI**: Mechanical power transmission systems:
Belt drive-parts. Different types- rope drive, chain drive-types, gear drives – types – spur, helical, herring bone, bevel, spiral, skew, hypoid, worm and wheel, rack and pinion. Velocity ratio, comparison and fields of application. Gear trains- simple, compound and epicyclic.
**Module VII** : Manufacturing processes:Primary, secondary and tertiary production processes- moulding, sand casting, die casting, forging, punching, blanking, stanping, coining, rolling, extrusion, wire drawing, turning, boring, thread cutting, tapping, shaping, drilling, milling, reaming, grinding, broaching, honing, lapping, welding, soldering and brazing.


## BASIC ELECTRICAL ENGINEERING (ANNEXURE I (vi))
### Total VII  Modules : 15 questions – 3 questions from Module I, 2 questions each from other modules.

**Module I**: SI unit of current, voltage, power and energy – Ohm's law- temperature coefficient of resistance-Kirchoff's law- solution of series, parallel circuits- Star Delta transformation-magnetic circuits-flux-flux density-mmf-magnetizing force Reluctance- permeability- comparison  of Electric and  Magnetic circuits – Magnetic leakage-B.H. characteristics- solutions of series and parallel magnetic  circuits- force  experienced by a current carrying conductor in a magnetic field- Electromagnetic induction- Faraday;s laws- Lenz's Law- statically induced emf- Dynamically induced emf self and mutual induction- coefficient of coupling.

**Module II**: Alternating current fundamentals- Generation of alternating currents- wave forms- frequency- period- average value and form factor . Phasor representation of alternating quantities rectangular and polar form- Analysis of simple ac circuits with resistance inductance and capacitance- concept of impedance and admittance- power and power factor in ac circuits- active and reactive components- solution of RL, RC, and RLC circuits- series, parallel and series parallel circuits- Resonance-Q factor- selectivity and bandwidth.

**Module III**: Electrical Drives- Principles of operation of ac and dc motors –mechanical characteristics and application of dc series, shunt and compound motors-single phase and three phase induction motors – synchronous motors-Transformer-Principle of operation-emf equation- Ideal transformer- constructional detals- losser and efficiency- Use of power, distribution and instrument transformers.

**Module IV**: Different methods of wiring for LT installations. Schematic layout of LT switch boards- Earthing of installation – necessity of earthing- plate and pipe earthing – Protective fuses, MCBs, ELCB- Tariffs- Types of LT and HT consumers.

**Module V**: Characteristics of different types of lamps- vapour lamps- incandescent lamps- energy efficient lamps- control accessories of vapour lamps.
Storage batteries- Lead acid and Nickel Cadmium batteries – construction- characteristics- charging and discharging- specification – maintenance.

**Module VI**: Methods of bulk generation of electric power , Block schematic layout of generating station – hydro electric, thermal, nuclear, stations- Non conventional energy sources- solar, tidal, wind- Economics of generation- load factor- diversity factor –diversity factor – plant factor.

**Module VII**: Bulk transmission of electric power –typical power transmission scheme-need for high transmission voltage- substation- substation equipment, primary and secondary transmission and distribution systems- effect of power factor, transmission voltages in Kerala.


### ELECTRONICS AND COMMUNICATION (ANNEXURE I (vii))
### Total 3 Modules : 15 questions – 5 questions from each Module


**Module I**
Passive components: Resistors – types, color coding, power rating ,Capacitors – types , color coding, Voltage rating, Inductor and Transformers: types
Semiconductors: Crystalline structure – Intrinsic And Extrinsic semiconductors , PN junctions , Electrical characteristics.
Diodes: Biasing , Rectifier Circuits.
**Module II**
Transistors: NPN and PNP transistors , current flow in a transistor – transistor configuration , FET, Zener diods, SCR . photodiods , phototransistors, LED.
Amplifiers: The CE, CB and CC amplifiers, Frequency response, and power amplifier – single ended power amplifier , push pull amplifier.
Oscillactor: Feedback principles, RC and LC Oscillators
**Module III**
Digital circuits: Logical states, Number codes, Gates and truth tables. TTl and
CMOS logic identifiers, Function minimization, Muliplexer, Demultiplexer, Decoders ,Flip-Flops, RS, Jk, Master slave JK,D and T, Counters, Shift registers, AdCS.
Electronic communication: Modulation- AM, FM, Demodulation, Radio- receviers, Transmitters , Television Radar.
Elctrinic Instrumentation: Measurement of current ,voltage and power, cathode ray oscilloscope, Transducers – strain gauges, Thermocouples, thermistors, RTDS, LVDTs.


### ENGLISH (ANNEXURE I (viii))


**For English, out of the 10 marks to be awarded, 5 marks will be for questions based on a given passage and remaining 5 marks for basic Grammar and General English of +2 Standards.**

# SYLLABUS FOR B.SC STUDENTS

## MATHEMATICS (ANNEXURE I (ix))
### Total 4 Modules : 40 questions – 10 questions from each module

**Module I** : Matrices:
Inverse of Matrix-Linear dependence and independence Vectors-Consistency and inconsistency of a system of linear equations-Rank of a matrix. Eigen Values and Eigen Vectors-Properties-Caylay-Hamilton Theories Diagonalisation-Quadartic forms-Reduction to canonical forms.

**Module II** : Differential Calculas:
Successive Differentiation-Leibnitz Theorem-Indeterminate forms-L' Hospital's Rule-Radius of curvature-center of curvature-Evolutes partial Differentiation-Homogeneous functions Euler's Theorem-Maxima and Minima of two variables.

**Module III**: Infinite Series:
Notions of Convergence and divergence-Comparison test-Ratio test-Cauchy's Root test-Test for alternating series-absolute convergence.

**Module IV**: Fourier Series:
Even functions, Odd functions, periodic functions-Dirichelet's condition-Euler's formula. Functions with period $2\pi$ and 2l . Half range sine and cosine series .Laplace transforms –properties-Inverse Transforms.

## PHYSICS (ANNEXURE I (x))

### Total 4 Modules: 30 questions-9 questions from Module I, 6 questions from Module II, 8 questions from module II1 & 7questions from module IV

**Module I:** Harmonic Oscillations

Harmonic Oscillations: Differential equation of damped harmonic oscillation, forced harmonic oscillation and their solutions- Resonance, Q factor, Sharpness of resonance- LCR circuit as an electrical analogue of Mechanical Oscillator .Waves: One dimensional wave - differential equation and solution. Three dimensional waves - Differential equation & its solution. Transverse vibrations of a stretched string.Interference: Coherence. Interference in thin films and wedge shaped films (Reflected system) Newton's rings-measurement of wavelength andrefractive index of liquid Interference filters. Antireflection coating.Diffraction Fresnel and Fraunhofer diffraction. Fraunhofer diffraction at a single slit. Plane transmission grating. Grating equation - measurment of wavelength. Rayleigh'S criterion for resolution of grating- Resolving power and dispersive power of grating.

**Module II :** Diffraction Fresnel and Fraunhofer diffraction.

Diffraction Fresnel and Fraunhofer diffraction. Fraunhofer diffraction at a single slit. Plane transmission grating. Grating equation - measurment of wavelength. Rayleigh's criterion for resolution of grating- Resolving power and dispersive power of grating.Polarization of Light: Types of polarized light. Double refraction. Nicol Prism. Quarter wave plate and half wave plate. Production and detection of circularly and elliptically polarized light. Induced birefringence- Kerr Cell- Polaroid & applications.

**Module III:** Superconductivity

Superconducting phenomena. Meissner effect. Type-I and Type-II superconductors. BCS theory . High temperature superconductors - Josephson Junction - SQUID- Applications of superconductors.Quantum Mechanics: Uncertainty principle and its applications- formulation of Time dependent and Time independent Schrödinger equations- physical meaning of wave function- Energy and momentum Operators-Eigen values and functions- One dimensional infinite square well potential .Quantum mechanical Tunnelling Statistical Mechanics: Macrostates and Microstates. Phase space. Basic postulates of Maxwell- Boltzmann, Bose-Einstein and Fermi Dirac statistics. Distribution equations in the three cases . Fermi Level and its significance.Acoustics: Intensity of sound- Loudness-Absorption coefficient - Reverberation and reverberation time- Significance of reverberation

time-Sabine's formula -Factors affecting acoustics of a building.Ultrasonics: Production of ultrasonic waves - Magnetostriction effect and Piezoelectric effect - Magnetostriction oscillator and Piezoelectric oscillator - Detection of ultrasonics - Thermal and piezoelectric methods-Applications of ultrasonics - NDT and medical.

**Module IV:** Laser:

Laser: Properties of Lasers, absorption, spontaneous and stimulated emissions, Population inversion, Einstein's coefficients, Working principle of laser,Optial resonant cavity. Ruby Laser, Helium-Neon Laser, Semiconductor Laser. Applications of laser, holography

Photonics: Basics of solid state lighting - LED – Photodetectors - photo voltaic cell, junction & avalanche photo diodes, photo transistors, thermal detectors, Solar cells- I-V characteristics - Optic fibre-Principle of propagation-numerical aperture-optic communication system (block diagram) - Industrial, medical and technological applications of optical fibre. Fibre optic sensors - Basics of Intensity modulated and phase modulated sensors.

# CHEMISTRY (ANNEXURE I (xi))

## Total 4 Modules:    20 questions- 5 questions from each module

**Module I:** Spectroscopy
Spectroscopy: Introduction, Beer Lamberts Law UV-visible spectroscopy - Principle, Instrumentation and applications IR spectroscopy - Principle and applications $^1$H NMR spectroscopy - Principle, chemical shift - spin - spin splitting and applications including MRI Electrochemistry: Different types of electrodes (general) – SHE, Calomel electrode, Glass electrode and determination of $E^0$ using SHE & Calomel electrode. Electrochemical series and its applications. Nernst equation for an electrode- Derivation, application & numerical Potentiometric titration - Acid-base and redox titrationLithium ion cell and Fuel cell.

**Module II:** Instrumental Methods
Instrumental Methods: Thermal analysis - Principle, instrumentation and applications of TGA and DTA. Chromatographic methods - Basic principles, column, TLC. Instrumentation and principles of GC and HPLC. Conductivity - Measurement of conductivity Chemistry of Engineering Materials: Copolymers - BS, ABS - Structure and Properties. Conducting Polymers - Polyaniline, Polypyrrole - Preparation, Structure and Properties. OLED – An introduction Advanced Polymers – Kevlar, Polybutadiene rubber and silicone rubber: Preparation, Structure and Properties. Nanomaterials – Definition, Classification, chemical methods of preparation - hydrolysis and reductionProperties and Applications – Carbon Nano Tubes and fullerenes.

**Module III:** Fuels and Lubricants
Fuels and Lubricants: Fuels - Calorific Value, HCV and LCV - Determination of calorific value of a solid and liquid fuel by Bomb calorimeter - Dulongs formula and Numericals. Liquid fuel - Petrol and Diesel - Octane number & Cetane number Biodiesel - Natural gas. Lubricant - Introduction, solid, semisolid and liquid lubricants. Properties of lubricants - Viscosity Index, Flash point, Fire point, Cloud point, Pour point and Aniline point.

**Module iv:** Water Technology:
Water Technology: Types of hardness, Units of hardness, Estimation of Hardness – EDTA method. Numericals based on the above Water softening methods - Ion exchange process - Principle. Polymer ion exchange. Reverse Osmosis - Disinfection method by chlorination and UV Dissolved oxygen, BOD and COD. Sewage water Treatment - Trickling Filter and UASB process.

COMPUTER SCIENCE AND INFORMATION TECHNOLOGLY (**ANNEXURE I (xii)**)

**Total 4 Modules : 15 questions – 4 questions from Module I, 3 questions each from Module II, III & IV & 2 questions from Module V.**

**Module I**
Computer Organization:- Central processing unit , input device , output device,   secondary storage device , machine language , assembly language and high level language
System Software:- Assembler , loader ,linker , operating system , editors, compilers , debuggers.
**Module II**
Computer programming ( in C language ):- Data types, type conversion ,simple and compound statements, usage of standard library, control structures ,functions , arrays. Pointers , structure, file handling.
**Module III**
Data base systems:- Relational Data Base Management System ,SQL.
**Module IV**
Computer networks:- ISO/OSI protocols ,TCP/IP, Inter connecting network devices , Ethernet cards, cables, Connectors, hubs, switches, routers
Internet:- Introduction to FTP,TELNET, Email , web browsers and web servers.
**Module V**
Multimedia:-  Multimedia hardware, sound cards, CD ROMs, full motion digital video.

ENGLISH (ANNEXURE I (xiii))
**For English, questions for 15 marks (15 questions) will be based on the following topics**

Vocabulary Building , The concept of Word Formation,  Root words from foreign languages and their use in English,   Acquaintance with prefixes and suffixes from foreign languages in English to form derivatives. Synonyms, antonyms, and standard abbreviations. Basic Writing Skills,  Sentence Structures,  Use of phrases and clauses in sentences,  Importance of proper punctuation, Creating coherence, Organizing principles of paragraphs in documents,  Techniques for writing precisely  Identifying Common Errors in Writing,  Subject-verb agreement, Noun-pronoun agreement, Misplaced modifiers, Articles Prepositions, Redundancies, Clichés, Nature and Style of sensible Writing, Describing , Defining, Classifying, Providing examples or evidence, Writing introduction and conclusion.

**ANNEXURE J**

**FEES FOR THE VARIOUS COURSES IN GOVERNMENT/AIDED COLLEGES**

| Fee component | Amount | Remittance |
|---|---|---|
| Admission Fee | Rs.225/- | At the time of admission |
| Tuition Fee | Rs. 3000/-<br>per semester | Beginning of each semester |
| Special Fee<br>(Revenue Rs.1650 + P.D Rs.350) | Rs.2000/ - | Beginning of odd semester |
| University Fee<br>(Administration fee - Rs.1000/- at the time of admission.<br>Exam fee    -    Rs.  500/-<br>Subject  fee    -    Rs.1200/- | Rs.2700/- | At the time of admission and Rs.1700/- at the beginning of each semester. |
| Caution deposit | Rs.1000/- | At the time of admission |
| Miscellaneous | Rs.25/- | At the time of admission |
| **Total** | **Rs. 8950/-** | |

# GUIDELINES FOR FILLING LET (B.Tech)-2019 APPLICATION FORM

1. Read the prospectus (available in the website: www.admissions.dtekerala.gov.in) with almost care before submitting the application through online. **The online registration closes on 16.04.2019 at 5 pm**

2. **First complete the registration and obtain login id (application no) and password. Do not forget to take the copy of the registration details. For resetting the password, the date of birth, mobile no and email id given at the time of registration are compulsory.**

3. The application forms shall be filled up strictly in accordance with the direction contained in the prospectus. No Colum shall leave blank.

4. Upload a passport size photo of the candidate in **jpg/jpeg** format of size between15 to 30 kb for online registration and **affix the same photograph duly attested by Gazetted Officer in the space provided in the hard copy of the application form.**

5. Candidates are requested to remit the required fee as per Para 8 of the prospectus after online registration.

6. The certificates required for supporting the claims are listed in the checklist. Candidates are requested to forward the copies of the certificates, duly attested by a Gazetted Officer, along with the application form. **Do not send original certificates along with the application** and same can be produced before the Principal of the Engineering colleges at the time of admission.

7. **No Editing or Modification is allowed after confirming the online submission of the application form.**

8. Hard copy of the application form,SBI chalan & the Performa for certificates will be obtained only after completing the online submission.

9. Defective or incomplete application will be rejected. **Documents/Certificates furnished after the submission of the application will not be entertained under any circumstances.**

10. Candidates are also advised to keep a photocopy of the duly filled application Form and the application number furnished may be used as the identification code for future reference.

11. **It is mandatory to submit the downloaded hard copy of the application form along with original Chelan and copies of the certificates duly attested by a Gazetted Officer to "The Joint Controller of Technical Examinations, Kaimanam P.O, and Thiruvananthapuram-695040"** in the envelope super scribed with "**LET (B.Tech) 2019**" by **Registered/Speed post or in person** on or before **26/04/2019 at 5 pm. Online registration alone is not a claim for appearing for the examination**.

12. Late applications will also be summarily rejected. The office of the JCTE will not be responsible for any postal delay/loss of applications.

13. Fee once remitted will not be refunded under any circumstances.

14. The computer printout of the e-certificates (for community) issued by Village Officers & Tahasildar is also acceptable.

15. For more information and identification on general doubts regarding LET(B.Tech)2019 admission, candidates can call at:**0471-2561313(10 am to 5 pm on all working days**).