

श्री चित्रा तिरुनाल आयुर्विज्ञान और प्रौद्योगिकी संस्थान, त्रिवेंद्रम

केरल- 695 011, भारत

(एक राष्ट्रीय महत्व का संस्थान, विज्ञान एवं प्रौद्योगिकी विभाग, भारत सरकार)

SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES AND TECHNOLOGY, TRIVANDRUM

KERALA - 695011, INDIA

(An Institution of National Importance, Department of Science and Technology, Govt. of India)

Integrated MD-PhD, DM-PhD & MCh-PhD Program

विवरण पत्रिका PROSPECTUS

SESSION - 2023

www.sctimst.ac.in

Contents

Integrated MD-PhD, DM-PhD & MCh-PhD Program

1. Introduction

Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST), Trivandrum is an Institute of National Importance under the Department of Science and Technology, Government of India. The joint culture of medicine and technology, pioneered by its founders more than four decades ago, has come of age and gained unprecedented acceptance in India. The institute has the status of a university and offers excellent research and training facilities. The Institute has three wings:

- Tertiary Referral Super Specialty Hospital
- The Biomedical Technology Wing
- The Achutha Menon Centre for Health Science Studies

The purpose of starting the Integrated MD-PhD, DM-PhD and MCh-PhD program is to create a new generation of medical specialists called 'Physician-Scientists' in the country. The concept of Physician-Scientists, a well-established program in the western world is aimed to bridge the chasm between patient care and research, define problems in patient care, and through research help in improving patient care. The curriculum of the above-mentioned course integrates clinical skill training of the MD/DM/MCh courses with high-quality research skills of the PhD program. This will enable the residents to be better academicians in clinical work and research and help them to become PhD guides of the future.

The scope of the present document is to provide details such as the eligibility, method of selection, conduct, and syllabus for the MD-PhD, DM-PhD and MCh-PhD programs offered by the institute. The course is a continuous five-year program. The program is divided into two phases. The first phase, i.e., the initial three years, follows the syllabus of MD/DM/MCh program, including clinics, and is a mandatory requirement. The second phase, i.e., 4th and 5th year are devoted to research leading to PhD.

2. Objectives of the Program

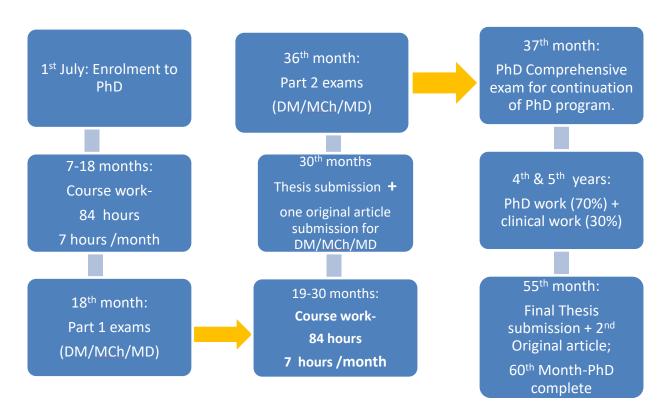
The proposed objectives of this new program are:

- To train those eligible doctors pursuing the highest clinical training to do advanced research.
- To enable the doctors to gain research exposure in the wide range of specialties offered at our institute such as medical science, public health, biomedical engineering, and technology.

- To integrate the clinical and research fields, allowing an effective utilization of training and resources, thereby reducing the duration of the course when separately done.
- To increase the research output of the country.
- To fulfill the Institute's stated objectives, namely,
 - o Promote biomedical engineering and technology.
 - Provide and demonstrate high standards of patient care in advanced medical specialties.
 - Develop innovative postgraduate training programs of the highest quality in advanced medical specialties and biomedical engineering and technology.
 - o Participate in public health reforms through research, training, and interventions.

3. Program Flowchart

A flow chart showing the design of the program is given below:



4. Eligibility for Admission

For admission to the integrated MD-PhD, DM-PhD and MCh-PhD programs, the candidates must fulfill the following requirements:

4.1. Be a Resident of SCTIMST

Admission to the integrated programs is restricted to first-year residents admitted to regular MD/DM/MCh program of SCTIMST. To get admitted to the integrated PhD program, the resident must get enrolled within 6 months of joining the MD/DM/MCh program of SCTIMST.

4.2. Educational Qualifications

Various integrated programs available and the educational qualifications required for admission to these programs are listed in the table below:

Name of the	Eligibility criteria			
program				
Integrated MD-PhD	(Medical Council of Mala) National Medical Commission recognized of			
Integrated DM-PhD	 First-year resident of DM (Cardiology/Neurology). MD in General Medicine or Paediatrics from an Indian university recognized by the erstwhile Medical Council of India (MCI) / National Medical Commission (NMC) or Diplomate of the National Board (DNB) in General Medicine/Paediatrics or any equivalent degree recognized by NMC/erstwhile MCI/ an Institute of National Importance. 			
	 First-year resident of DM (Cardiothoracic and Vascular Anaesthesia/Neuroanaesthesia). MD in Anaesthesia or equivalent from an Indian university recognized by erstwhile MCI/National Medical Commission (NMC) or Diplomate of the National Board (DNB) in Anaesthesia or any equivalent degree recognized by National Medical Council (NMC)/erstwhile MCI/or any equivalent degree recognized by NMC/erstwhile MCI/an Institute of National Importance. 			
	 First-year resident of DM (Neuroimaging and Interventional Neuroradiology/Cardiac Radiology). MD in Radiodiagnosis from an Indian university recognized by erstwhile MCI/ National Medical Commission (NMC) or Diplomate of the National Board (DNB) in Radiology/Radiodiagnosis or any equivalent degree recognized by NMC/erstwhile MCI/an Institute of National Importance. 			
Integrated MCh-PhD	• First-year resident of MCh (Neurosurgery/Cardiothoracic and Vascular surgery (CVTS)/Vascular surgery).			

 MS in General Surgery from an Indian university recognized by erstwhile MCI/National Medical Commission (NMC) or Diplomate of the National Board in General Surgery or any equivalent degree recognized by NMC/ erstwhile MCI/an Institute of National Importance.

4.3. TCMC Registration

The candidate should have applied for registration with Travancore Cochin Medical Council (TCMC) at the time of admission at SCTIMST and must submit the registration certificate within two months of joining the program. TCMC registration is mandatory for admission.

4.4. Upper Age Limit

The upper age limit is forty years (as of 1st January 2023). Age relaxation of five years is applicable for SC/ST candidates, sponsored candidates, and qualified ex-service personnel with a service of not less than five years.

5. Duration of the Programs

The total duration of the integrated MD-PhD, DM-PhD & MCh-PhD programs will be five years, of which the initial three years will be spent by the candidate undertaking the MD/DM/MCh program. The final two years will spend pursuing the PhD through research work. During the 4th and 5th years, the time spent on research and patient care services would be in the ratio of 70:30. The residents pursuing the integrated programs shall submit their PhD thesis for evaluation, two years after the completion of their MD/DM/MCh program. The maximum duration to submit the thesis is six years after MD/DM/MCh program. No further extension will be provided for thesis submission after 6 years. The fellowship for doing PhD will be provided only for two successive years consecutively after the completion of the MD/DM/MCh program. The candidate will also not be permitted to pursue the 30% clinical work within his/her parent department after the two-year term following enrolling in the PhD program is over.

In the integrated program, the residents are expected to complete their PhD coursework during their MD/DM/MCh tenure and undertake the comprehensive viva-voce examination for securing admission, soon after completion of MD/DM/MCh program. They will not be required to further undertake the comprehensive written institute test to secure a placement into the PhD program.

It may be noted that during the first three years of the integrated PhD program, the rules and regulations pertaining to the MD/DM/MCh programs (i.e., fee structure, curriculum, postings, clinical work, resident evaluation, examinations, etc.) will be followed as per the institute rules and guidelines of the respective programs.

6. Number of Seats

The approved number of seats for the Integrated MD-PhD, DM-PhD & MCh-PhD program is one per specialty per year. If any of the integrated program seats remain vacant in the January session in a particular specialty, an opportunity will be given to those candidates for joining in the July session of that specialty where the seat had remained unfilled. However, there will not be a carry-over of the unfilled seats from a particular year to the next year.

7. Method of Selection

7.1. Selection for MD/DM/MCH courses

The admission of the candidates to the MD/DM/MCh programs is based on the selection criteria laid down in the entrance examination of the INI-CET (Institutes of National Importance-Common Entrance Test) and the INI-SS (Institutes of National Importance-Super Specialty) conducted by the All India Institute of Medical Sciences (AIIMS), New Delhi, and following further verification of certificates and other credentials/documents by SCTIMST. For further details on the entrance exam, admission, and selection process, please visit the following website: http://www.aiimsexams.ac.in

7.2. Selection to Integrated MD-PhD/DM-PhD/MCh-PhD programs

Only the first-year residents who have joined the MD/DM/MCh program at SCTIMST are eligible for pursuing the integrated program. For pursuing the integrated program, they must get enrolled within 6 months of joining the MD/DM/MCh program via the institute's PhD admission process.

The eligible candidates who wish to join the integrated program shall fill in the application form for the integrated course through the online mode. Candidates shall upload a *Research Proposal* (about 1000 words) and a *Statement of Purpose* for undertaking a research career (about 300 to 500 words) while submitting their applications.

The topic for the research area for PhD should be different from the dissertation topic of the MD/DM/MCh program. The guides for the two programs (MD/DM/MCh and the PhD) shall mandatorily be different. Both of them, however, will be assigned to the candidate during the first year itself of his/her pursuing the MD/DM/MCh program. Collaborative research proposals related to biomedical technology, public health, or interdisciplinary clinical areas of the institute would be given priority for the integrated PhD selection.

The selection for the integrated PhD program will be done through a comprehensive viva-voce examination for securing admission, soon after completion of MD/DM/MCh program.

A rank list consisting of selected and waitlist candidates will be published based on the performance in the interview for each department. From those departments that conduct two different DM/MCh courses like Anesthesia, Radiology, and CVTS, only one candidate per

specialty will be permitted to register for the integrated program. Once short-listed for integrated PhD, the cut-off date for joining the program shall not exceed thirty days.

The DM/MCh candidates admitted in the January batch have to appear for the selection of PhD in the July session of the same year. In departments where the seat of the integrated PhD program was not filled by the January batch of residents, and if the DM/MCh candidates are admitted to the department in July session of INI-SS/INI-CET, the candidates can be allowed to appear in the interview in the next year's January session. However, if the integrated PhD seat is already filled in the June PhD interview by the candidate who joined the department in January that year and the candidate has joined the integrated course, then the department will not be allowed to recruit another candidate from that year's batch in the next January session selection until an increase in seats is approved by statutory bodies of the institute.

The Institute reserves its right to shortlist candidates based on the applicant's academic merit and scientific records and the availability of research guides during that year.

The list of recognized guides and their areas of research interest is available at: [https://www.sctimst.ac.in/Academic%20and%20Research/Academic/Guidelines,%20Man uals,%20Forms/resources/PhD_Guides_list_Dec_2021.pdf]

7.3. Important Dates

Admission notification	15 th March 2023	
Availability of online application	15.03.2023 to 14.04.2023 (up to 5.00 pm)	
Hall ticket download	Ten days prior to the entrance examination	
Date of interview	03 rd June 2023	
Commencement of the program	1 st July 2023	

8. Fee Structure

For the first three years, the yearly prescribed institute fees need to be paid by the residents for the MD/DM/MCh program. The fee details for PhD program are as follows,

Particulars	Fee, INR
Application fee (to be paid at the time of submitting the application)	1,500 (1200*)
Admission fee (to be paid at the time of registration to PhD program)	2,000
Tuition Fee (to be paid after MD/DM/MCh program - payable on the 4 th and 5 th years of the program)	20,000 (peryear)
Comprehensive Examination (to be paid at the time of submitting the application for comprehensive examination)	6,000
Thesis Evaluation Fee (to be paid at the time of submitting the thesis)	15,000

^{*}for SC/ST candidates

The fee may be revised by the Institute periodically. The fee once paid will not be refunded. The fee for the fourth year needs to be paid immediately after completion of the MD/DM/ MCh program.

9. Salary Payable

The integrated MD/DM/MCh-PhD candidates will be paid the salary of the third-year senior resident of the institute for the 4th and 5th Year. No private practice or other employment will be allowed during the entire program. PhD fellowship will be provided for two years after the completion of MD/DM/MCh program (provided the candidate has successfully cleared the comprehensive viva voce examination for entry into the integrated PhD program) and no fellowship will be provided after completion of the 5th year tenure of the integrated program.

10. Bond

The candidate may have to undertake a mandatory bond for the MD/DM/MCh programs based on government rules and regulations. The period of PhD program will not overlap with the mandatory bond period (if relevant) applicable for the MD/DM/MCh programs. However, the bond will not be required for PhD program. The candidate may be allowed to opt out of the integrated PhD immediately after completion of the MD/DM/MCh programs if he/she wishes to do so, with appropriate reason.

11. Work Distribution

The integrated PhD is a full-time program and those enrolled will not be allowed to pursue other employments or engage in private practice. During the first three years the candidate will complete the MD/DM/MCh course along with PhD course work. It is permissible for the candidate to spend at least 30% of time in clinical work in the 4th and 5th year in the department of their specialty; and, 70% of the time during the 4th and 5th years will be exclusively reserved for the PhD research work.

12. Registration for the Integrated PhD Program

Candidates who have qualified for admission to the integrated PhD program are encouraged to meet the recognized guides and decide to join with one of them based on their areas of interest and the available facilities. The list of research guides along with their areas of specialization is available on the Institute website. A topic of research that falls in line with the interests of the Institute may be submitted to the Division of Academic Affairs along with the 'Acceptance Letter' of the research guide for the process of registration.

(Format of the Registration form is available on the website under the link:

 $\frac{https://www.sctimst.ac.in/Academic\%20 and\%20 Research/Academic/Guidelines,\%20 Manuals,}{\%20 Forms/}.$

13. Structure of the Integrated PhD Program

13.1. Coursework, seminars, credit distribution, and examinations

Coursework is an integral part of the PhD program. The minimum required credits for the PhD coursework are fourteen. This includes 2 credits acquired through seminars. Each credit requires 15 hours of classroom teaching or 30 hours of practical (clinical/wet lab) work.

The required courses are divided into two types:

- a) Mandatory courses: A scholar shall acquire 8 credits from the mandatory courses. The course in *'Research Methodology'* offered by the Institute will be mandatory.
- b) Optional courses: In addition to the 'Research Methodology' course, students will be expected to attend courses related to their field of research. They shall acquire 4 credits by clearing optional courses. During the first three years, the scholar may complete all the mandatory (8 credits) and optional (4 credits) courses.

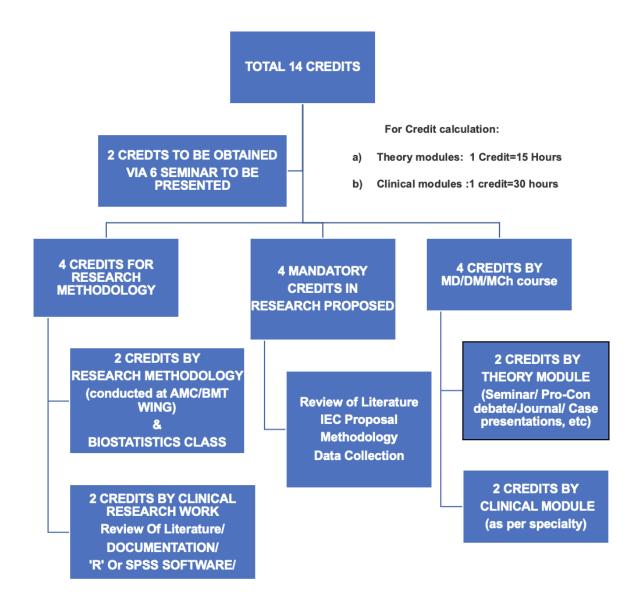
Six seminars related to the topic of research shall be presented by the scholar and the candidate shall acquire 2 credits through them. The schedule and the topics for the seminars will be decided by the Doctoral Advisory Committee (DAC). These seminars may be completed during the first 3 years.

During the fourth and fifth years, 70% of their time shall be dedicated to the research, participating in wet laboratory activities, presenting seminars, etc. They shall spend 30% of their time for engaging in clinical work.

The scholar shall complete the PhD coursework in two phases, as shown in the table and flow chart below:

Phase	Coursework and	Examinations to clear	Other research
	credits		related work
Phase 1	The candidate is	(1) Examination for 12	The candidate is
(1st, 2nd and	expected to acquire	credits of PhD course	expected to finalize the
3 rd years)	14 credits:	work.	PhD guide, co-guide,
	8 credits from	(2) Internal assessment	Doctoral Advisory
	mandatory courses	(theory) of MD/DM/MCh.	Committee and the
	and 4 credits from	Some of the internal	topic; and,
	optional courses	examinations will be	obtain Internal Ethical
	related to research	considered valid for	Committee (IEC) and
	topic.	clearing of optional	other clearances (if
	(Work distribution:	courses of the PhD	required).
	40% from theory &	program.	
	60% from clinical	(3) Objective Structured	
	skill training).	Clinical Examination	
	Acquire 2 credits:		

	Six seminars related to the topic of PhD-related work.	(OSCE) for clinical skills(for DM/MCh).(4) Part 1 and Part 2exams to continue forMD/DM/MCh.	
Phase 2 (4 th and 5 th years		Comprehensive examination	The candidate is expected to spend 30% of the time in clinical work in the parent department and the remaining 70% of the time to conduct PhD research work; and, complete the research objectives, fulfill the mandatory requirements of the PhD degree, conduct the colloquium, and submit the thesis.



13.2. Doctoral Advisory Committee and progress evaluation

Doctoral Advisory Committee (DAC) will be formed for the student within one month from the date of registration to the PhD program. The DAC shall monitor the progress made by the scholar in his/her PhD research work. DAC may review the following:

- 1. Log book Details of the courses attended, seminars presented and examinations passed will be recorded.
- 2. Course work The student has to score a minimum of 50% marks for each module to qualify for the credits of that module.
- 3. Seminars Objective evaluation system will be used for evaluation of seminars, and the evaluation will be done by the faculty/guide.

The Guide and DAC may encourage the student to attend more courses as per the requirement of the specific research area. Semi-annual reports have to be submitted by the student to the Division of Academic Affairs through the DAC. The details of the courses completed and a soft copy of the seminars may be submitted to the Division of Academic Affairs prior to the comprehensive examination.

13.3. Comprehensive examination

The student shall appear for the comprehensive viva voce examination to continue with the PhD program soon after the completion of the MD/DM/MCh degree. The comprehensive examination may be cleared preferably by the 37th or 38th month from the date of registration for the MD/DM/MCh program. For the evaluation, an oral test (to assess his/her basic knowledge of the subject and research methodology) will be conducted. The assigned PhD Guide may initiate the process for the conduct of the comprehensive examination. A minimum score of 60% is required to pass the comprehensive viva voce test for admission to the PhD course after clearing the MD/DM/MCh examination.

In the event of failure in the comprehensive viva voce examination, a second chance will be allowed within one year to clear the examination. The candidate will not be eligible to receive senior resident's pay in case he/she does not clear this examination. In case the candidate fails in the second attempt also, he/she will be deregistered from the PhD program.

13.4. Change of title of PhD thesis

Change of title of the thesis may be effected on the recommendations of the research guide and the DAC members with the approval of the Academic Committee and the Director any time before the presentation of the colloquium.

Change of research area will not be allowed under normal circumstances. However, under exceptional circumstances, it may be allowed with the approval of the Academic Committee.

13.5. Change of research guide

Change of research guide is not encouraged. In extraordinary cases, change of research guide may be permitted with the approval of the academic committee on the recommendation of the Head of the Department and the Director.

13.6. Thesis Submission

The thesis should reflect the substantial work carried out for the advancement of scientific knowledge; or, for product design and development; or, for applied work of an innovative nature. It should show competence in critical analysis of scientific data as well as a thorough familiarity with background literature. When the research work is completed, the scholar may submit the PhD thesis. The procedure to be followed is listed below:

- (i) There shall be an open colloquium where the student shall present his/her work before an audience consisting of the DAC, PhD guide, staff and students of the Institute. Relevant suggestions received during the presentation may be incorporated into the thesis by the student.
- (ii) A synopsis may be submitted three months before the submission of thesis. The synopsis of the work done shall be approved by the DAC before submission to the Division of Academic Affairs (DAA).
- (iii) A scholar is expected to have, as first author, either one original research publication with an impact factor ≥3 or 2 publications in indexed journals. This is a mandatory requirement to be fulfilled for the award of PhD. Review articles will not be counted for this purpose. The publications shall be from the research work done during the period of registration of the PhD. The articles may be published/accepted for publication before the viva-voce examination. Scholars are also expected to present their work in an international conference and a national conference.
- (iv) Thesis should be prepared as per the "style manual" published in the Institute website.
- (v) Soft bound copy of thesis may be submitted to the DAA along with the hard copy of the application for thesis evaluation.
- (vi) It is the responsibility of the student and research guide to subject the thesis for plagiarism check. Support in this may be obtained from the SCTIMST library. On plagiarism check, the similarity should be minimum and shall not exceed 10%. The thesis shall be submitted to the division of academic affairs along with the plagiarism check report certified by the guide.
- (vii) The DAA will send the thesis to the examiners. Based on the evaluation reports and favourable recommendation of the examiners, the candidate will be asked to appear for the final viva voce examination prior to be granted the PhD degree.
- (viii) Within two weeks of successful completion of the viva voce examination, two hardbound copies and a corrected soft copy of the thesis shall be submitted to the DAA. The student may handover all raw data and soft and hard copies of the thesis to the research guide.
- (ix) Soft copy of the corrected thesis may be submitted to the Division of Academic Affairs.

13.6. Panel of Thesis Examiners

The Guide, in consultation with the DAC members, shall submit a panel of 6-8 external examiners to the DAA, six months prior to the proposed date of submission of thesis. It is advisable to select the thesis examiners who are experts in the subject area from prestigious academic institutions/national institutes across India (rather than having local experts) to avoid conflict of interest. The thesis will be sent to two external examiners listed in the panel approved by the academic committee. The guide also will be asked to submit an evaluation report of the thesis.

13.7. Thesis Evaluation

On the submission of PhD thesis at the DAA, it will send the thesis to the examiners. The PhD thesis will be evaluated by two external examiners and the research guide. The evaluation report submitted by the external examiners should highlight the salient features of the thesis and make a clear recommendation regarding its acceptance or rejection for the award of the PhD Degree. In case any of the three evaluators (2 external examiners and research guide) gives a recommendation against the award of the degree, the thesis will be sent to a fourth examiner for evaluation. If the report from the fourth examiner is positive, the viva-voce examination will be held. If the fourth examiner's report is also negative, the thesis will be rejected.

If the first two external examiners recommend against award of the degree, the thesis will be rejected. If a thesis is rejected, the candidate will be allowed to re-submit the thesis within one year, after addressing the issues raised by the examiners.

Evaluation Report from Examiners

Each examiner will be requested to send his/her report to the Registrar/Deputy Registrar with a copy to the Dean within one month of receipt of the thesis. The research guide may also send the report within this period. The report must contain a critical evaluation of the thesis and a clear recommendation.

In case the examiners are unable to make a definite recommendation, they may indicate one of the following alternatives: (a) Minor revision/clarifications not involving retyping of the thesis. This may be carried out and the approval of the examiner may be obtained at the time of the viva voce; or, (b) Major revision involving rewriting of one or more sections, but not involving additional research. In this case, the thesis will be sent back to the examiner.

Thesis Defence and Viva-voce Examination

There shall be a viva voce of the scholar in the presence of the examiners, the faculty and the students of the Institute. In instances where the thesis involves instrumentation/devices, the candidate will be expected to demonstrate them and explain their features.

The viva-voce examination will be conducted at the Institute after the thesis has been adjudged to be satisfactory. This examination, in which a 'pass' criterion is obligatory, shall be conducted by a Board that consists of: (a) The Head of the Department as the Chairman, (b) At least one of the external examiners who evaluated the thesis. (If both the examiners cannot be present for the viva-voce, the Director will appoint substitutes), and (c) Research guide.

Members of the board for viva voce should report to the Registrar /Deputy Registrar regarding whether or not the candidate's performance in the examination was satisfactory. No marks will be allotted in the viva voce examination. If the scholar fails in the viva voce examination, he/she may be permitted to appear again within 3 to 12 months (second attempt). If he/she fails in the second attempt, he/she will not be permitted to continue with the PhD program.

The members of the viva voce examination board shall forward to the Registrar/Deputy Registrar a consolidated recommendation consisting of the reports of the examiners who evaluated the thesis and the reports on the candidate's performance in the viva voce examination. Before submitting the consolidated recommendation, they must ensure that the thesis is corrected and ready for placement in its final form in the library.

14. Further information

For further information on the PhD program, PhD manual, coursework, approved PhD guides, standard operating procedures for the students and guides, various forms related to the PhD program may be available on accessing the following link:

https://www.sctimst.ac.in/Academic%20and%20Research/Academic/Guidelines,%20Manuals,%20 Forms/

Further information may also be obtained from:

The Registrar, Division of Academic Affairs, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram - 695011, Kerala, India. Contact telephone Nos.: (0471) 2524269, 2524289, and 2524649.

Email: regoffice@sctimst.ac.in

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