



# **SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES AND TECHNOLOGY**

**TRIVANDRUM – 695011, KERALA, INDIA**

**An Institute of National Importance under Government of India with the status of  
University established by an Act of Parliament (No.52 of 1980)**

## **THE PhD MANUAL**

## INTRODUCTION

Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST) was established by an act of Parliament of India in 1980 as an Institution of National Importance with the status of a University.

The beginning of the Institution can be traced back to the gift of a hospital by the Royal Family of Travancore. Conversion of the Royal gift to an Autonomous Center for specialized health care of cardiovascular and neurological diseases was made by the then Chief Minister of Kerala, Shri C. Achutha Menon in 1973. The medical Center had already established its credibility as a Center of Excellence for hospital-based services by the time it was elevated to the status of an Institution of National Importance.

The SCTIMST is a unique institution with a *Biomedical Technology Wing, a Hospital Wing, and Public Health Sciences Wing*. The main purpose of setting up this institution was to bring about a convergence of medical sciences, health care and technology which was expected to provide the engine of growth for development of indigenous technology and medical devices. This was felt necessary as there was hardly any attention paid to the development of technology for health care in this country and the industry was unwilling or unable to invest in research and development (R&D) in health care technology. During the last three decades, the Institute has surged ahead in the fields of technology development, compassionate medical care and academic excellence, which have been summed-up in an Institute publication "*Silver Lines*" (available for purchase from the Academic Office).

The Institute is a member of the Association of Commonwealth Universities and the Association of Indian Universities. The Institute harnesses the academic and technological expertise of its multidisciplinary research faculty to conduct high quality, patient focused translational research, which involves taking research from the laboratory to the patient's bedside. The Institute's work culture with each of its three wings working independently and at the same time interdependently, extending the benefits of scientific and technological advances to the poor and disadvantaged, can be best summed up through the following words written by Claude Bernard more than a century ago: "*I tell people whose pathways will lead them to theoretical or pure science never to lose sight of the main purpose of medicine, which is to preserve health and cure diseases. I tell the people whose careers will lead them to practice medicine never to forget that, just as theory is destined to enlighten practice, practice must in its turn be of profit to science*".

## **The Biomedical Technology Wing**

The Biomedical Technology (BMT) Wing was set up with a mandate to develop technologies to meet the health care needs of India through research in biomedical technology. The *material research group* has a proven record of research towards synthesis and characterization of biomedical polymers, and testing for biocompatibility to qualify the material for medical applications. *The engineering and device development group* has successfully developed and commercialized several products, which include blood bag, artificial heart valve, oxygenator, ventriculo-peritoneal shunt and electromyography needle.

Major programs include development of materials for orthopedic and dental applications, cardiovascular device fabrication, drug delivery systems, nanomedicine, sensors and tissue engineering scaffolds. *Biological research* focuses on culture and differentiation of adult stem cells for regenerative medicine, in vitro tissue engineering, neuronal regeneration, development of bio therapeutics and diagnostic reagents and tissue response to materials at the cellular and molecular level.

*Sophisticated analytical equipments* are available in this Institute for characterization of materials which include scanning and transmission electron microscopes, Raman and Fourier transform (FT)-Raman spectroscopy, atomic force microscope, inductively coupled plasma (ICP), X-ray diffraction, micro computerized tomography, chromatography systems such as high performance liquid chromatography (HPLC), gas chromatography and liquid chromatography- mass spectrometry (LCMS). Other routinely used and well maintained equipments and facilities are available in all labs.

Important *biological research equipments* available are confocal microscope, transmission and scanning electron microscope, fluorescent activated cell sorter (FACS), Real Time polymerase chain reaction (PCR), ultra centrifuge and continuous flow centrifuge, Imaging systems for fluorescence/luminescence/ radioisotope detection, live cell imaging and facilities for proteomic and genomic analysis etc., apart from routinely used equipments that are available in almost all cell biology research labs.

The well maintained small and large *animal experimental facility* with excellent animal operating rooms facilitates the *in vivo* evaluation of materials, and all biocompatibility studies of materials are carried out under Quality Management System conforming to ISO/IEC 17025 accredited by Le Comite Francais d'Accreditation (COFRAC) of France. Tissue analysis is done to evaluate the results of experimental research using state-of-art histological/immunochemical/imaging techniques facilitated with sophisticated sample processing and analysis tools.

## **The Hospital Wing**

Started as a small medical center, the hospital with 240 beds is currently well recognized both in India and abroad as a leading center for the treatment of cardiovascular and neurological disorders. All the departments and divisions of the hospital have kept up with the advances in their respective fields and have also initiated several innovative programs for the first time in the country.

*The Department of Neurology* extends diagnostic and therapeutic services on a subspecialty basis in stroke, neuromuscular disorders, epilepsy, movement disorder, dementia and clinical neurophysiology. India's first Comprehensive Care Centers for Epilepsy and Movement Disorders were established in the department. More than 1100 successful operations have been completed for patients with intractable epilepsy and it is now using the latest advances in the presurgical evaluation and surgical treatment of epilepsies. The Center for Movement Disorders likewise offers all modalities of treatment for Parkinson's disease including state-of-the-art of deep brain stimulation. The Centers for Stroke and Sleep Disorders have recently been started. The department also runs two outreach epilepsy clinics in North Kerala, and maintains registries for stroke and epilepsy with pregnancy in women.

The *Department of Neurosurgery* is one of the foremost centers of India in the field of microvascular neurosurgery. In addition to all common surgeries for intracranial and spinal lesions, the department also specializes in stereotactic surgery, ultrasound and image guided surgeries, awake craniotomies, all of them treated with the aid of latest diagnostic and monitoring techniques. The department is one of the first to start neuro-endoscopic surgery. The faculty of the department interacted with the scientists and technologists of BMT Wing to pioneer the development of hydrocephalus shunt, burr hole buttons and fibrin glue.

In keeping up with the times, the practice in the *Department of Cardiology* has become more intervention oriented with several congenital heart diseases being corrected through less invasive catheter based interventional procedures instead of major surgery. Similarly electro-anatomic mapping of various conduction abnormalities of the heart and magnetic resonance angiography are being undertaken on a regular basis. The diagnosis of ischemic coronary artery diseases will also soon be based on non-invasive coronary CT angiogram.

The *Department of Cardiovascular and Thoracic Surgery* in addition to providing advanced treatment for congenital, valvular and ischemic heart diseases, and diseases of the lungs, oesophagus and blood vessel, also assisted in the successful development of heart valves, blood oxygenators and vascular grafts.

One of the first to introduce interventional radiology in the country, the *Department of Imaging Sciences and Interventional Radiology* has the latest MRI and CT scanners. A large number of interventional procedures including aneurysm coiling, embolization of arterio-venous malformations, carotid stenting, arterial thrombolysis, vertebroplasty and laser discectomy are routinely undertaken in the department.

The hospital is supported by laboratory facilities provided by *Departments of Biochemistry, Microbiology and Pathology*.

### **The Public Health Wing: The Achutha Menon Center for Health Science Studies:**

The Achutha Menon Centre for Health Science Studies (AMCHSS) was started when public health was not given any importance at the national or state level health planning and policy making in India. Recognizing this need, the Institute decided in

the early 1990s to set up a center to address the issues of quality training and research in public health. In 1997, a school of public health, the AMCHSS was set up for research, training and consultation in public health and the country's first masters' program in public health was started. The center also conducts several short courses in subjects which have growing significance on healthcare, such as research and professional ethics, gender sensitization, maternal and child health, etc., in addition to research and providing consultancy services to national and international agencies. Within a decade, this model received wide national acceptance and set the trend for public health education in the country.

As a part of its mandate for training, AMCHSS conducts two-year Master of Public Health (MPH) program, one-year Diploma in Public Health (DPH) program (exclusively meant for medical officers from government services) and Ph.D. in addition to short courses in Ethics, Gender Reproduction, Child Health and Research Methodology. Ph.D. Programs are being offered in wide variety of topics in public health including Epidemiology, Health Economics, Health Policy, Issues in Health System and Gender Issues in Health. These training programs are well accepted throughout the country and abroad. In fact, the curriculum for the new MPH programs being started by the Indian Council for Medical Research's (ICMR) School of Public Health and Public Health Foundation of India are based on the one that was developed at AMCHSS. The Institute has undertaken major research programs in Epidemiology, Health Economics, Tobacco Cessation, and Gender issues in Health etc., many of them with international collaboration. The AMCHSS has also extended consultancy services to Ministry of Health and Family Welfare Government of India, World Health Organization (WHO), World Bank, UNICEF and other national and international agencies. All these courses have attracted students not only from India, but also from South Asian and South African countries. The AMCHSS also helped in setting up schools of public health in Nepal, Myanmar and South Africa. In the ten years of its existence, AMCHSS has proved its significance to public health in the country so much so that it is proved to be trial blazer and trendsetter in the field of public health in India.

## **THE MAJOR RESEARCH AREAS**

### **Biological Sciences**

- Biochemistry
- Cell Biology
- Microbiology
- Pathology
- Toxicology
- Thrombosis

### **Bioengineering and Biomaterial Sciences**

- Artificial Organs
- Bioceramics
- Dental Materials
- Implant Biology

- Material Tissue Interactions
- Polymer Sciences and Technology
- Nanomaterials
- Tissue Engineering and Regenerative Medicine

### **Health Science Studies**

- Epidemiology
- Gender Issues in Health
- Health Economics
- Health Policy
- Health Systems

### **Medical Sciences**

- Cardiac sciences
- Imaging Sciences and Interventional Radiology
- Neurosciences

### **ADMISSION**

The selection for Ph.D will be carried out twice in a calendar year, in November and June.

#### **November**

The announcement will be made in the Institute website (<http://www.sctimst.ac.in>) and in leading newspapers in the month of August. The selection of Research Fellows will be based on performance in a written test and interview held in the first week of November.

- Those who hold UGC/CSIR/ICMR Junior Research Fellowships JRF need to appear only for the interview.
- Candidates awarded Senior Research Fellowships from other sources (KSCSTE, UGC,CSIR, ICMR etc.) have to qualify in the written test and interview conducted by the Institute.

#### **June** (*only for Fellowship holders*)

The announcement will be made on the Institute website only (<http://www.sctimst.ac.in>) soon after publication of NET results.

- Individual JRF fellowship holders (UGC, CSIR, ICMR) will be selected on the basis of interview.
- For any area of research under Health Science Studies, candidates will be selected on the basis of a written test and interview as carried out in the November admission.

- Candidates awarded Senior Research Fellowships from other sources (KSCSTE, UGC, CSIR, ICMR etc.) have to qualify in the written test and interview conducted by the Institute.
- The notification will be made based on the availability of seats and availability of research guides at this Institute.

**There is no External or Part Time Registration for the Ph.D program for those who are in full time job, temporary or permanent.**

### **Educational qualifications for admission**

- Post-graduate degree in Physics, Chemistry, Materials Science, polymer chemistry/ polymer sciences, Biochemistry, Biotechnology, Physiology, Zoology or any other branch of life sciences (excluding plant sciences) and Bioinformatics. M.Tech in Polymer Engineering/Technology. M.Tech in Materials science/Biomedical Engineering/Instrumentation/Biotechnology or Post graduate degree in Public Health, Cardiovascular Sciences, Neurosciences and Imaging & Interventional Radiology, Dentistry, Nursing, Veterinary Sciences, Social Sciences, and Statistics.
- *Minimum marks required to apply:* Consistently GOOD academic record with 60% (GPA 6.5/10) marks in undergraduate and post graduate examinations. However, for postgraduates from Sciences stream, the minimum mark is 70% (GPA 7.5/10). For applying for Ph.D. in medical specialties, the candidate must have minimum 60% marks (First Class) in MBBS.
- Two letters of reference are required to be enclosed along with the duly filled in application form for PhD admission.
- Second year MPH students of the Institute can also apply for the Ph.D. program for the November admission provided their admission will be subject to the outcome of their MPH result and obtaining the minimum percentage of marks.
- For information regarding projects/studies/research that requires Ethics Committee clearance/approval, refer the Institute Ethics Committee (IEC) guidelines published in the Institute website (<http://www.sctimst.ac.in>).

### **Method of selection**

- The selection of research scholars will be based on the performance in written test and interview.
- Those who have UGC/CSIR/ICMR individual JRF Fellowships need to appear only for the interview.
- The Institute reserves its right to short list candidates based on the number of seats available every year, academic merit and scientific records of the applicants, letters of reference, availability of research guide/s every year etc.

## **SCTIMST Fellowship**

Five Institute Fellowships at the DST approved rates are available each year for a maximum period of four years, of which one will be reserved for Health Science Studies.

## **REGISTRATION FOR THE Ph.D PROGRAMME:**

- All students who have qualified in the entrance examination for admission to Ph.D. are encouraged to meet the recognized guides and fix up with one of them based on area of interest and the available facilities. The list of Research Guides along with their areas of specialization are available in the Institute website. A topic of research that falls in line with the interest 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.
- Fellowship holders may select the guides with the recommendation of HOD because their research is going to be funded by the Institute.
- All others should join the externally funded projects matching with their area of interest.

## **Validity of the list**

The maximum period allowed to the provisionally selected candidates for Admission is until the next announcement for the entrance test to be held during November of each year (till September 1 of every year).

## **Duration of the Programme**

Minimum duration of the doctoral work shall be three years after joining and maximum duration is five years. In exceptional cases, it may be extended by six months. For those who have passed the M.Phil/MPH Degree course from this Institute and select the similar area of research for Ph.D program, the minimum period can be reduced to Two and a Half years.

## **STRUCTURE OF Ph.D PROGRAMME**

### **1. Course work:**

(a) Each Ph.D student shall take minimum 4 courses which includes 1 core course on Statistics and Research Methodology (4 credits) and 3 specialized courses (2 credits each) in consultation with his/her guide and DAC (total Credits:  $4 + 3 \times 2 = 10$ ) and secure a minimum satisfactory grade. The courses may be selected from the M.Phil/MPH programme of the Institute. The students have to complete the four above courses as well as have to present 6 seminars as

both are required for the comprehensive examination within two years from the date of admission covering the broad area of the subject and topics relevant to his/her research work. The student shall decide the seminar topics in consultation with the guide and the DAC may approve the topics. There should be at least one month preparation time in between two seminars. The details of the courses selected and a soft copy of the seminars may be submitted to the Division of Academic Affairs before the Comprehensive Examination. Based on the recommendations of the DAC and Dean, the Director can waive the course work if the student has good score in the M.Phil. or MPH courses offered at this Institute.

(b) Semi-annual reports have to be submitted by the student to the Academic Committee through the DAC.

## **2. Other examinations**

- Within 24 months after joining, the student shall take a Comprehensive examination which will be a written test and Oral examination to assess his/her grasps of the subject and research methodology. The Guide may initiate the process for the conduct of the comprehensive examination. A minimum score of 60% is required to pass the written test before the Oral examination is conducted. A pass in Comprehensive examination may entitle him/her to a senior research fellowship.
- On successful completion of the comprehensive examination, the student concentrates solely on his/her research work and moves toward preparation and submission of thesis. In the event of failure in the comprehensive examination, a second attempt will be allowed within one year.

### **Change of Title of Thesis:**

- Modification of the title of thesis may be effected on the recommendations of the research guide and the DAC members with the approval of the Director any time before the submission of Synopsis.
- Change of Research Area is not allowed. Under exceptional circumstances only it may be allowed as determined by the Academic Committee.

### **Change of Research Guide:**

The Academic Committee shall be competent to allow the change of a Research Guide in extraordinary cases at the request of the candidate on the recommendation of the Head of Department with the approval of the Director.

## **THESIS SUBMISSION:**

### **A) Procedure:**

- (i) There shall be a colloquium at which the student presents his work before the DAC, PhD Guide and interested Ph.D students and faculty from the Institute. Relevant suggestions may be incorporated into the thesis.
- (ii) Four copies of synopsis may be submitted three months before submission of thesis. The synopsis of the work done will have to receive recommendation of the Doctoral Advisory Committee before submission to the Division of Academic Affairs.
- (iii) It is mandatory that the student must have at least two paper publications (published or accepted) in any of the indexed journals before submission his/her thesis for evaluation. The copy of the papers published/accepted should also be submitted along with the thesis certified by his/her research guide.
- (iv) Four soft bound copies of thesis may be submitted to the Division of Academic Affairs and one copy to the Research Guide.
- (v) After receiving the evaluation results from the examiners on the thesis, the candidate takes viva voce examination.
- (vi) Two hardbound copies need to be submitted to the Division of Academic Affairs within two weeks after the final viva voce examination. The Research Guide and Co-guide may also be given the corrected copies. If any soft bound copies are available in the Division of Academic Affairs, they may be returned to the candidate.

## **BOARD OF THESIS EXAMINATION:**

To evaluate the thesis and submit the report, the Institute will appoint two external examiners from the panel proposed by the Doctoral Advisory Committee or from the panel modified by the Academic Committee. The Guide/Guides will also be asked to submit a report on the thesis.

## **THESIS EVALUATION:**

The thesis should reflect substantial work for the advancement of scientific knowledge or design and development or applied work of an innovative nature. It should show competence in critical analysis of scientific data as well as thorough familiarity with background literature.

- 1) The evaluation of the thesis will consist of:

- (a) Evaluation by the two external examiners and the Research Guide/s.
  - (b) The final viva-voce of the candidate on the thesis by one of the external examiners and the research guide/s.
  - (c) Consolidated recommendation based on the reports of the two external examiners and the viva-voce.
- 2) 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 Ph.D Degree. Out of the three evaluators (2 external examiners and Research Guide), if any one gives a definite recommendation against and two for the award of the degree, reference to a fourth examiner will be made. If the report from the fourth examiner is positive, the viva-voce will be held. If the fourth examiner's report is negative, the thesis will be rejected. Likewise, if the first two external examiners, in the first instant itself, recommend against the 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**

1. Each examiner will be requested to send his report to the Registrar/Deputy Registrar within two months of receipt of the thesis.

The Research Guide/s may also send the report within this period.

The reports must contain a critical evaluation of the thesis and clear recommendation.

2. In case the examiners are unable to make a definite recommendation, they should indicate one of the following alternatives:
  - a) Minor revision/clarifications not involving retyping of the thesis. This may be effected and the approval of the examiner may be obtained at the time of the viva voce.
  - 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 DEFENSE AND VIVA-VOCE EXAMINATION:**

There shall be an open defense of the thesis in the presence of the examiners, the faculty and the students of the Institute.

The viva-voce examination is closed and is designed to assess the general scientific background of the candidate and his/her own particular contribution embodied in the thesis. In instances where the thesis involves instrumentation/devices, the candidate will be expected to demonstrate them and explain their features.

1. Viva-voce examination will be conducted at the Institute after the thesis has been adjudged to be satisfactory. This examination in which a pass is obligatory shall be conducted by a Board, which will consist of:
  - a) One of the external examiners who evaluated the thesis.
  - b) Research Guide.  
If the examiner cannot be present for the viva-voce, the Academic Committee will appoint substitutes.
2. Members of the Board for viva voce should report to the Registrar /Deputy Registrar as to whether the candidate's performance in the examination was satisfactory or not. No marks are allotted in the viva voce examination.
3. If a candidate fails in the Viva voce examination, he/she may be permitted to appear again between 3 to 12 months. If he/she fails in the second attempt, he/she will not be permitted to continue with the PhD programme.
4. 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. Before submitting the consolidated recommendation they must ensure that the thesis is corrected and ready for placement in its final form in the library.

#### **ADMISSION AND EXAMINATION FEES:**

Admission Fee	: Rs.1000/-
Tuition Fee	: Rs. 5000/- per year
Caution Deposit	: Rs.2000/-
Library	: Rs.500/-
Identity Card	: Rs.220/-
Student Welfare Fund	: Rs.500/-
Certificates	: Rs.1000/-
Comprehensive Exam. Fee	: Rs.2000/-
Thesis Evaluation Fee	: Rs.5000/-
Hostel fee	: as per the rules of the Institute.

#### **Leave to attend Conference/Seminars/Workshops:**

Seven days per year. III class A/C train fare + Registration fee will be given only once in a year. Leave will be granted only if a paper is accepted for

presentation. The application for National Conferences has to be forwarded through the DAC. See the Institute web site for guidelines to attend International Conferences.

**Medical reimbursement:**

Ph.D. students (not their family members) may be permitted medical reimbursement as per the rules of the Institute.

**Contract Service:**

All selected candidates for the Ph.D. programme shall be required to give an undertaking/execute a bond to the effect that he/she would not leave the course midway and if he/she leaves the Institute, he/she has to pay the penalty to the Institute. This is compulsory for all candidates who pursue the course with Institute fellowship or fellowship from outside agencies.

**Candidates leaving their Academic Programme midway:**

In case of leaving/resignation by a Ph.D student in between the scholarship period, he/she shall be required to return the whole amount of scholarship received by him/her till the time of resignation OR a total scholarship/stipend/emoluments received by him/her of 6 months, whichever is higher.

**Advances:**

The Ph.D. scholars other than those who are receiving Institute Fellowship/ scholarship are not eligible for availing advances from the Institute. The Institute funded Ph.D. scholars should check the Institute rules regarding the advances with the Finance & Accounts Division or Institute Website before applying.

**Industry Sponsorship for Ph.D. students:**

Industry sponsorship for Ph.D. students will be entertained on a case-to-case basis. However, such industry sponsored candidates have to clear the entrance examination and fulfill all other conditions for admission.

**DESIGNATION OF THE DEGREE:**

The PhD Degree awarded by the Institute is designated as Doctor of Philosophy of the Sree Chitra Tirunal Institute for Medical Sciences & Technology. The Certificate shall not indicate the subject of speciality. The Title of the Thesis shall be indicated in the certificate.

### **Pre-publication from Thesis work.**

Pre-publication from thesis work is permitted subject to observance of normal rules of the Institute for publication.

Style Manuals for PhD Thesis Writing. (Will be prepared separately soon).

### **LEAVE RULES FOR Ph.D. CANDIDATES:**

Apart from the holidays of the Institute, 20 days personal leave and 10 days medical leave per year is allowed.

### **HOSTEL ACCOMMODATION:**

Hostel accommodation will be provided to the Ph.D. students subject to availability.

### **OBLIGATION OF THE RESEARCH GUIDE:**

The Guide is expected to supervise the progress of the student at every stage of the programme. He is expected to inculcate ethics in research. The other responsibilities include:

1. Constitution of the DAC.
2. Conducting courses and Seminars and the submission of the minutes of DAC meetings.
3. Submit Syllabus and Panel of Examiners (4 names with contact details) 6 months before the oral comprehensive examination with the approval of DAC
4. After the Oral comprehensive examination and 6 months before the submission of Thesis a panel of 4 external examiners may be submitted with the approval of DAC for Thesis Evaluation.

### **APPOINTMENT OF CO-GUIDE:**

In order to create better training to the students Co-guide can be appointed, if necessary, provided that he/she is involved in the project to the same extent as the Guide. However the appointment of Co-guide will not be a temporary arrangement or alternate to the Guide when the Guide is on leave for small/long duration.

### **CRITERIA FOR SELECTION OF DAC MEMBERS:**

- There should be a minimum of 2 DAC members excluding the Research Guide.

- All the members of the DAC need not be a recognized guide. But his experience and expertise should be in the area of research. There shall be at least one recognized guide in the DAC.
- One more external DAC member can be appointed, if necessary and he/she can also be the Co-guide.

### **OBLIGATION OF DAC:**

The members of the DAC have to be proactive in enhancing the quality of the thesis.

### **DUE DATES:**

Proposed from the date of admission of a candidate.

### **Basic steps are as follows:**

- 1) Registration form, details of the research topic with the acceptance letter of the research guide must be submitted within the stipulated time until the admission is valid.
- 2) Application form for the constitution of doctoral advisory committee (DAC) must be submitted by the guide within one month of the payment of tuition fees along with the request for confirming the registration for consideration to the academic committee.
- 3) Application form for comprehensive examination must be submitted by the Guide as soon as the student has completed his/her course work and six seminars satisfactorily preferably within one month with the approval of DAC for the consideration of academic committee. List of four Examiners and the syllabus to set question paper for comprehensive examination may also be submitted six months before the proposed examination.
- 4) Request for Colloquium and a list of 4 examiners for thesis evaluation may be submitted at least 3 months before the colloquium.
- 5) Submission of synopsis (4 copies), 3 months before the submission of thesis.
- 6) Submission of thesis: On the completion of the third year or any time before the end of 5<sup>th</sup> year from the date of admission.

## **GUIDELINES FOR GUIDES:**

- Must be continuously available.
- Availability of laboratory and other connected facilities without undue dependence on imported items or other institutions; and
- Established credibility in the scientific world as reflected by 5-6 scientific publications (not review articles) in indexed journals.
- He/She must have been the Principal Investigator of at least one major research project funded by external agencies after receiving the PhD/MD Degree in the concerned subject.
- Must have published at least five papers in standard indexed journals as a first or a corresponding author after obtaining the PhD/MD degree and the papers so published should not be from the thesis.
- Must have had five years of post-doctoral experience.
- The maximum number of students who could be registered at any given time under a guide will be four.
- A guide may be allowed to have another candidate as a co-guide of an external university with the approval of the Academic Committee of the Institute provided the area of research of the external candidate is similar to the area of work of the faculty at this Institute. He/she may also go through the formalities of the external University to be a co-guide on his own and the Institute will not take any liability, financial or otherwise.
- A guide cannot have more than one SCTIMST Fellow at a time under his/her supervision.
- The number of new students in a year may be restricted to 2 only for each guide.

## **QUALIFICATION FOR PH.D EXAMINERS**

### **Educational:**

- 1) Ph.D/MD Degree from a recognized University
- 2) A recognized expert in the subject matter of research or in an area closely related to it.

### **Experience:**

- 3) Minimum five years post doctoral experience in conducting and guiding research.
- 4) Active involvement in research activities at least 3 years prior to the examination.

## REGISTRATION OF INTERNAL CANDIDATES:

***There is no External or Part Time Registration for PhD programme for those who are in full time job, temporary or permanent. Permanent Faculty of SCTIMST can apply as Internal Candidates, and are exempted from this rule.***

1. Academic staff having MSc/MTech/MD/MPH degree with First Class and who have satisfactorily completed probation in the Institute can be considered eligible to apply.
2. Applications (prescribed format) could be considered once a year along with the admission to the full time Ph.D programme.
3. The applicant should write the Institute's Ph.D Entrance examination and score a minimum of 60% or qualify in any of the National examinations. They will not be ranked with other open candidates.
4. The same committee interviewing the regular Ph.D candidates will interview these applicants and convey the marks of the written part and their opinion / recommendations on the interview to the Academic Committee for final review and assessment.
5. The recognized guide who accepts responsibility to guide any internal candidate should not exceed the existing ceiling of 4 students under his/ her research guide ship.
6. It is expected that like in regular Ph.D registrations, the guide has the requisite experience / research work to supervise the student in the proposed area of research.
7. The guide has to certify that facilities and resources are available with him or her for the Ph.D work of the student.
8. The HOD has to certify and report at regular intervals during the Ph.D programme that, the Ph.D work is not affecting the regular work for which the staff member was originally recruited to the Institute.
9. The staff member (student) shall use only original data accumulated by him and not data he or she collected as part of the routine services rendered for some one else's project or commissioned by an outside agency to the Institute.
10. The criteria for assessing aptitude should be same as for other regular candidates and good academic staff should be encouraged to PhD at an early stage of their career.
11. There is no age limit for Ph.D. admission.

**DIRECTOR**

Date: 6 July 2010