# Ph.D Regulations 2019

**P.1.0 Introduction**

**P.1.1** The Regulations govern the conditions for imparting courses of instruction, conduct of the examinations and evaluation to research scholar's performance leading to a Ph.D. Degree.

**P.1.2** Doctoral Programme leading to Ph.D. is offered in the following Departments of the Institute:

| S. No. | Department | S. No. | Department |
|---|---|---|---|
| 1 | Architecture | 10 | Humanities and Social Science |
| 2 | Chemical Engineering | 11 | Instrumentation and Control Engineering |
| 3 | Chemistry | 12 | Management Studies |
| 4 | Civil Engineering | 13 | Mathematics |
| 5 | Computer Applications | 14 | Mechanical Engineering |
| 6 | Computer Science and Engineering | 15 | Metallurgical and Materials Engineering |
| 7 | Electrical and Electronics Engineering | 16 | Physics |
| 8 | Electronics and Communication Engineering | 17 | Production Engineering |
| 9 | Energy and Environment | | |

**P.1.3** The provisions of these Regulations shall be applicable to any new disciplines that are introduced from time to time and added to the above list.

**P.1.4** These regulations will include the left out batches of scholars admitted in 2012-2013 and onwards.

**P.2.0. Student Status**

There are two categories of Ph.D. registration.

**P.2.1** Full Time

Candidates with qualified GATE score (obtained in the last five years from the closing date of application form)/ UGC/ CSIR/ NBHM/ NET/ CAT/ ATMA/ XAT/ MAT score will be considered for admission under this category.

    i.    Candidates who are willing to pursue Research Studies with HTRA.

    ii.    Research scholars sponsored under the Quality Improvement Programme (QIP).

    iii.    Limited number of candidates can be admitted under self-supportive basis in the faculty of science and Humanities with prior approval from competent authority.

**P.2.2** Part Time

    i.    Faculty, Staff of NIT Tiruchirappalli, Staff of Sponsored Projects.

        Limited number of candidates can be admitted under this category approved by the competent authority. Candidates with qualified GATE score (obtained in the last five years from the closing date of application form)/ UGC/ CSIR/ NBHM/ NET/ CAT/ ATMA/ XAT/ MAT score will be considered for admission.

    ii.    Faculty working in Govt./Govt. aided/ Private Engineering/Technology colleges or Science and Arts Colleges/ Universities/ Industry/ Public sector organization with qualified GATE score (obtained in the last five years from

the closing date of application form)/ UGC/ CSIR/ NBHM/ NET/ CAT/ ATMA/ XAT/ MAT score will be considered for admission under this category. The candidate should have at least three years' experience in a regular/ permanent position. The college/ organization must have at least 5 years of its existence for patronizing candidates to part-time Ph.D. program.

iii. Working professionals from Govt. R&D Organizations/ Public sector/ Industries/ National Research laboratories approved by the Institute. The candidates must be officially sponsored by their employing organization. At the time of application, the employer must expressly undertake to pay full salary to the candidate and relieve him/her to complete his/her residential requirement.

**P.3.0 Educational Qualifications**

The minimum educational qualifications for admission to the Ph.D programme of the Institute are as follows:

**P.3.1** Faculty of Engineering

Bachelor's and Master's Degree in Engineering/ Technology in the appropriate branch of study with a qualified GATE score obtained in the last five years from the closing date of application form and with a minimum 60% aggregate marks or equivalent CGPA of 6.5/10 in UG and PG for admission under OC/ OC-EWS/ OBC category or a minimum 55% aggregate marks or equivalent CGPA of 6.0/10 in UG and PG for admission under SC/ ST/PwD category.

**P.3.2** Department of Metallurgical and Materials Engineering

Candidates with PG degree in Science (Physics/ Chemistry/ Material Science/ Applied Science/ Applied Physics/ Applied Chemistry) followed by M.Tech. Degree in Material Science and Engineering/ equivalent PG degree in related discipline with a qualified GATE score obtained in the last five years from the closing date of application form are eligible to apply.

**P.3.3** Department of Architecture

Bachelor's degree in Architecture/ Planning and Master's degree in Architecture/Design/Planning/Building Engineering and Management/ Building technology or its equivalent with a qualified GATE score obtained in the last five years from the closing date of application form and with a minimum of 60% aggregate marks or equivalent CGPA of 6.5/10 in UG and PG for admission under OC/ OC-EWS/ OBC-NCL category or a minimum of 55% aggregate marks or equivalent CGPA of 6.0/10 in UG and PG for admission under SC/ST/PwD category.

**P.3.4** Department of Management Studies

Two-year full time Master's degree in Business Administration/ 2 years Post Graduate Diploma in Management/ Master's Degree in Industrial Engineering/ Management or Industrial Engineering/ Management with Operations research/ Systems/ other relevant discipline with a  minimum of 60% aggregate marks or  equivalent CGPA of 6.5/10 in UG and PG  for admission under OC/ OC-EWS/ OBC-  NCL category or a minimum of 55%  aggregate marks or equivalent CGPA of  6.0/10 in UG and PG for admission under SC/ ST/PwD category with a CAT/ XAT/ MAT/ GMAT/GATE score obtained in the last five years from the closing date of application form OR UGC-NET qualified score

or doctoral research fellowships like JRF/ RGNF/ other equivalent research fellowships for management may apply.

**P.3.5** Department of Computer Applications

Master's degree in Computer Applications or M.Sc. (Computer Science/ OR&CA) with a qualified GATE score (obtained in the last five years from the closing date of application form)/ UGC/ CSIR/ NBHM/ NET score and a minimum of 60% aggregate marks or equivalent CGPA of 6.5/10 in UG and PG for admission under OC/ OC-EWS/ OBC- NCL category or a minimum of 55% aggregate marks or equivalent CGPA of 6.0/10 in UG and PG for admission under SC/ST/PwD category (or)

Master's degree (M.E./M.Tech.) in Computer Science and Engineering with a qualified GATE score obtained in the last five years from the closing date of application form and with a minimum of 60% aggregate marks or equivalent CGPA of 6.5/10 in UG and PG for admission under OC/ OC-EWS/ OBC-NCL category or a minimum of 55% aggregate marks or equivalent CGPA of 6.0/10 in UG and PG for admission under SC/ ST/ PwD category.

**P.3.6** Department of Mathematics and Chemistry

Master's degree in Science in the relevant discipline with a qualified GATE score (obtained in the last five years from the closing date of application form)/ NET/ UGC/ CSIR/ NBHM score and a minimum of 60% aggregate marks or equivalent CGPA of 6.5/10 in UG and PG for admission under OC/ OC-EWS/ OBC-NCL category or a minimum of 55% aggregate marks or equivalent CGPA of 6.0/10 in UG and PG for admission under SC/ ST/ PwD category.

**P.3.7** Department of Physics

Master's degree in Physics/ Applied Physics/ Material Science/ Applied Electronics with a qualified GATE score (obtained in the last five years from the closing date of application form)/ UGC/ CSIR/ NET score and a minimum of 60% aggregate marks or equivalent CGPA of 6.5/10 in UG and PG for admission under OC/ OC-EWS/ OBC-NCL category or a minimum of 55% aggregate marks or equivalent CGPA of 6.0/10 in UG and PG for admission under SC/ ST/ PwD category.

(or)

M.Tech. in Non-Destructive Testing with a qualified GATE score obtained in the last five years from the closing date of application form and with a minimum of 60% aggregate marks or equivalent CGPA of 6.5/10 for OC/ OC-EWS/ OBC-NCL category and 55% aggregate marks or equivalent CGPA of 6.0/10 for SC/ ST/ PwD Candidates.

**P.3.8** Humanities and Social Sciences

Master's degree in the relevant discipline of Humanities/ Social Science/ Economics/ Business Administration/ Statistics/ Commerce with a qualified UGC/ NET/ CAT/ AIMA/ XAT/ MAT score and a minimum of 60% aggregate marks or equivalent CGPA of 6.5/10 in UG and PG for admission under OC/ OC-EWS/ OBC-NCL category or a minimum of 55% aggregate marks or equivalent CGPA of 6.0/10 in UG and PG for admission under SC/ ST/ PwD category.

(or)

Master's degree (M.E./M.Tech.) in Engineering with a qualified GATE score obtained in the last five years from the closing date of application form and with a minimum of 60% aggregate marks or equivalent CGPA of 6.5/10 in UG and PG for admission under

OC/ OC-EWS/ OBC-NCL category or a minimum of 55% aggregate marks or equivalent CGPA of 6.0/10 in UG and PG for admission under SC/ ST/PwD category.

**P.4.0 Selection Procedure**

**P.4.1** Candidates recommended by the Departmental Scrutiny Committee will be called by HOD to appear for an entrance test.

**P.4.2** Candidates short listed based on the performance of written test need to appear for a personal interview by the Departmental Selection Committee comprising HOD and eligible guides in the department and a Senate nominee (observer). The merit list for all the candidates in each category is based on the cumulative score in the written test, interview, marks in UG/ PG, experience, and publications.

**P.5.0 Admission**

**P.5.1** Institute PhD admission committee constituted by the Chairperson, Senate will recommend Candidates for the admission.

**P.5.2** The research scholar should also pay fees every semester until the submission of thesis as prescribed by the Institute to keep the registration active.

**P.5.3** A research scholar is not eligible for re-registration for Ph.D. after cancellation of his/ her earlier registration.

**P.6.0 Duration of Programme**

**P.6.1** A full-time research scholar can submit the synopsis (after satisfying P.17.0) only after a minimum period of study of 24 months from the date of registration.

**P.6.2** Full-time research scholars are allowed to convert to part time mode for taking up jobs, only after the successful completion of

   a) Course work

   b) Comprehensive examination and

   c) Minimum residential period of two years

If the research scholar leaves the institute without satisfying any one of the above conditions, the registration shall be cancelled.

No objection certificate from the employer should be submitted along with DC recommendation with proper justification, within six months from the date of request for the conversion of registration from Full Time to Part Time. Else the registration shall be cancelled.

**P.6.3** A part-time research scholar can submit the synopsis (after satisfying P.17.0) only after a minimum period of study of 36 months from the date of registration.

**P.6.4** The maximum period to complete the programme is 6 years for Full-time research scholars and 7 years for Part-time. However, HTRA will be given up to 5 years or date of submission of thesis whichever is earlier for Full-time research scholars.

**P.7.0 Choice of Guide**

**P.7.1** Allotment of research scholars to guides will be made by the Head of the Department taking into consideration the areas of research of the eligible guides in the department and the preferences of the research scholars.

**P.7.2** The research scholars admitted under Part-time category (P.2.2 iii) will normally carry out part or all of his/her research work in their respective industry/ organization/ national laboratories/ employing the scholar. For these scholars, there will be one internal guide

from NIT Tiruchirappalli and one external guide/ research coordinator from their organization.

**P.7.3** For the research scholars admitted under Part-time (P.2.2 ii) category, place of work is NIT-Tiruchirappalli even though they may be carrying out a part of work in their College/ Institution. For these scholars, NIT-Tiruchirappalli faculty shall be the internal (principal) guide.

**P.7.4** There shall not be more than two guides for a research scholar.

**P.8.0 Guideship**

**P.8.1** All faculty members of the Institute holding doctorate degree and having a minimum of 2 papers published/ accepted in peer refereed journals are eligible to guide Ph.D. scholars. For Part-time category (P.2.2 iii), the external guide should have a Ph.D. degree and a minimum of 2 papers published/ accepted in peer refereed journals or the research coordinator should have a PG degree and ten years of experience. The internal guide shall be from among the faculty of NIT Tiruchirappalli from the department of the research scholar.

**P.8.2** A research supervisor will be allotted a maximum of four full-time Ph.D. Scholars. At any instance a research supervisor shall have a maximum of 10 Ph.D. scholars only. However, any specific request for additional Ph.D. scholar under sponsored research projects will be considered by a duly appointed committee.

**P.8.3** In a given academic year, a research supervisor shall not be assigned more than two research scholars.

**P.8.4** Eminent professionals working in reputed research Organizations/ Industrial units/ R&D Departments/ National laboratories/ Units of Government/ Quasi Government may be recognized as eligible guides and those external guides should be in service throughout the period of Ph.D. guidance period.

**P.8.5** The Emeritus Fellow/ Professor Emeritus will be allowed to continue their guidance of Ph.D. scholars till their tenure.

**P.8.6** Continuance of retired faculty members as guide

When a faculty member, who has guided a research scholar for 3 years, retires, he will be permitted to continue as guide on his written request, and will be invited for the DC meetings without any commitment to the Institute. But TA and DA limited to II class AC train fare, will be paid within India to attend the synopsis meeting and the Viva-voce examination. However, there will be a co-guide for taking care of administrative, and to some extent, the research responsibilities, of the scholar.

**P.8.7** The CSIR and other Emeritus Fellows/ Scientists who hold office at this Institute for a period of 3 years and more can take fresh students during their period of appointment as Emeritus Scientists only with financial support for the research scholar from other sources along with another Guide who has at least 3 years' service still left at the Institute.

**P.8.8** Any Guide-in-charge, who has acted for more than one year during the absence of the guide allotted to the research scholar, will be a special invitee/ co-opted member of the Doctoral Committee when the original Guide takes over.

**P.8.9** External guides will be invited to attend Doctoral Committee meetings, Synopsis meeting, and Viva- Voce examination, TA/ DA will be provided as per institute norms.

**P.9.0 Change of Guide/ Addition of Co-Guide**

Research scholars may request the Chairperson, Senate, for a change of guide or add a Co-Guide for valid reasons. The Chairperson of the Doctoral Committee (DC) or his nominee shall convene the Doctoral Committee and based on its recommendations, the request shall be considered by the Chairperson, Senate.

**P.10.0 Doctoral Committee**

**P.10.1** The HOD will intimate to the Dean (Academic) the area of research, name(s) of the Guide and a panel of names suggested by the guide for the DC for each research scholar, within one week of the date of joining of the research scholar.

**P.10.2** The following is the composition of the Doctoral Committee

| 1. | Chairperson | One Professor from the institute to be nominated by the Research Guide |
|---|---|---|
| 2. | Member | Research Guide |
| 3. | Member | Co-Guide (if any) |
| 4. | Member | One faculty member from the same department nominated by the Chairperson Senate or his/her nominee from the panel of names suggested by guide |
| 5. | Member | One faculty member from an allied department nominated by the Chairperson senate or his/ her nominee from the panel of names suggested by guide |
| 6. | Member | One external member from Industry/ Research establishment/ Academic institution (or) One faculty member from the same department to be nominated by the Chairperson senate or his/ her nominee from the panel of names suggested by guide |

**P.10.3** In case the Chairperson, DC or any member goes on long leave, resigns or retires from the Institute, the Chairperson, Senate or Dean (Academic) will nominate another member on the suggestion of the guide.

**P.10.4** In exigency, an external member may be permitted to participate in DC meeting Conduct of DC meetings through video conferencing.

**P.11.0 Registration**

The DC will meet normally within a week of its being constituted, consider the proposed research topic and prescribe the courses of study. The external member need not be present for the first DC meeting.

**P.12.0 Course Works**

**P.12.1** The full time research scholars should successfully complete four courses as prescribed by the Doctoral Committee within one year, preferably in one semester, from the date of admission into the programme.

**P.12.2** Ph.D. scholars will attend classes along with PG students and will be evaluated in the same relative grading scale.

**P.12.3** PG level theory courses are prescribed to Ph.D. scholars irrespective of the Department they belong to and credit may be given as per usual evaluation procedure. But such courses should not have been taken by the research scholar in their Post Graduate programme.

**P.12.4** Courses may also be prescribed from those offered by Departments other than that in which the research scholar is registered. No change in courses prescribed shall be made without the approval of the DC. It shall, however, be open to the DC to prescribe additional courses whenever found necessary.

**P.12.5** Courses completed after the date of registration will only count towards the requirements of award of Ph.D. degree.

**P.12.6** Research scholars admitted to the programme shall obtain at least an overall average B grade in their course work with a minimum of C grade in any individual course for successful completion of the courses prescribed.

**P.12.7** Research scholars, who fail to satisfy the grade requirement, may attempt other prescribed courses or rewrite (once) the examination in the course(s) where they had scored less than C. If they still fail, their registration will be cancelled.

**P.13.0 Progress Report**

**P.13.1** The attendance of Research scholars shall be maintained by the department. The scholars can avail leave as per MHRD/ GOI guidelines with the consent of guide and HoD.

**P.13.2** Progress assessment of Ph.D. scholar is mandatory every semester up to sixth semester and once in three months thereafter. HoD shall forward the progress report of the scholars to the academic office in time.

**P.14.0 Comprehensive Examination**

**P.14.1** On the successful completion of the prescribed course works, the research scholar shall undergo a qualifying Comprehensive Examination within two years from the date of registration.

**P.14.2** The composition of the Comprehensive Viva-Voce Board shall be as follows:

   i.   HoD/ HoD's nominee

   ii.  One External member - Professor/ Associate Professor from IIT/ IISc/ IIM/ NIT/ Anna University/ SPAs/ JNAFAU/ Central Universities or Scientists/ Scientific Officers holding Ph.D. degree and drawing the scale of Professor and above, working in National and Regional laboratories, Defense Research Organizations, Atomic and Space Research Organizations.

   iii. One senior faculty from the same Department

   iv.  One senior faculty from the allied Department

   v.   Guides of all the research scholars appearing for comprehensive viva-voce.

**P.14.3** The External Member for comprehensive Viva-Voce Board shall be nominated by the Chairperson, Senate or Dean (Academic) from a panel suggested by the Head of Department in consultation with the Guides.

**P.14.4** The Comprehensive Examination shall have a written examination (of at least one-hour duration) followed by an oral examination. The Comprehensive Examination for all eligible research scholars registered during a particular session will be held at a particular period. The HOD of the department is expected to give an indicative syllabus for the written test about one month prior to the Comprehensive Examination.

**P.14.5** Based on the result of the Comprehensive Examination, the comprehensive Viva-Voce Board shall report to the Dean (Academic) about the fitness of the research scholar to

proceed further with his/ her Ph.D. work within two weeks from the date of the examination.

**P.14.6** If, based on the results of the Comprehensive Examination, a research scholar is not approved by the Comprehensive Viva-Voce Board, then a grace period of up to a maximum of six months shall be given for re-examination. If found fit, the research scholar shall be permitted to proceed with doctoral work. Otherwise, the research scholar's provisional registration will be cancelled.

**P.15.0 HTRA Enhancement**

The research scholar is eligible for stipend enhancement only after fulfilling the following conditions:

    i.    The successful completion of Comprehensive examination.

    ii.    After fourth semester on recommendation of DC in terms of candidate's Publication.

**P.16.0 Temporary Break from Ph.D. Programme**

Full time Ph.D. scholars who completed their course work can be permitted to take a temporary break from the programme for up to one year for personal calamities and medical reasons, with the recommendation of the DC and the approval of the Dean (Academic).

**P.17.0 Synopsis of Thesis**

**P.17.1** On satisfactory completion of the prescribed courses, the Comprehensive Examination, and the required publications in his/ her research area, the research scholar shall be permitted to submit the synopsis of his/her research work. The Scholar should have completed two seminar presentations on his research field and published two paper journals (SCI, SCIE, ESCI, SSCI or Scopus). Publications in paid journals and conference proceedings shall not be considered.

**P.17.2** A DC meeting will be held in the office of the Dean (Academic) for Synopsis presentation. A panel of Indian and foreign examiners for thesis evaluation will be recommended.

**P.18.0 Submission of Thesis**

The research scholar shall submit two hard copies and one soft copy of thesis within three months of acceptance of the synopsis. The Research Scholar should submit Plagiarism Report attested by the Research Supervisor that the plagiarism is less than 20% excluding scholar's publication while submitting his thesis. The Doctoral Committee may grant additional time beyond three months on request from the scholar for valid reasons.

**P.19.0 Panel of Examiners**

**P.19.1** The thesis shall be referred to two examiners with five years of postdoctoral experience (one from overseas) chosen by the Chairperson, Senate or Dean (Academic) from among the panel of examiners submitted by the Guide and recommended by the DC at its synopsis meeting.

**P.19.2** Each panel (one for Indian examiner and another for overseas examiner) should have at least three experts each in the area of research. The following guidelines should be followed while recommending the panel of examiners.

    i.    Indian Examiner: At least two examiners from IIT/ IISc/ IISER/ IIM/ NIT.

Others may be from State & Central Government funded Universities/ Institutions and centrally funded research institutes. The examiner(s) should have at least 5 years of Post-Ph.D. experience.

ii.   Foreign Examiner: Should be from research institute/Universities. At least one should be from Universities in USA/ UK/ Canada/ Australia/ Germany/ Japan/ Singapore. The examiner(s) should have at least 5 years of Post-Ph.D. experience.

**P.19.3** The panel should not enlist examiner who had evaluated a thesis within six months in the same Department and Co-authors of the paper for the particular research scholar.

**P.20.0 Thesis Evaluation**

**P.20.1** In case of undue delay i.e., beyond 45 days for receiving the evaluation report, after a reminding the examiner the Chairperson, Senate/Dean (Academic) shall appoint another examiner from the panel, for evaluating the thesis.

**P.20.2** If an examiner suggests resubmission of the thesis, the research scholar will be allowed to submit the revised thesis within the time stipulated by the DC failing which lead to cancellation of his/her Ph.D registration.

**P.20.3** If one of the two thesis examiners declares the thesis as not acceptable, the thesis shall be referred to a third examiner from the panel for evaluation. After referral to a third examiner, declaring the thesis as 'accepted', the DC will consider the reports and recommend for conduct of oral examination which will be conducted normally not earlier than two weeks from the date of the constitution of the Oral Examination Board. If the third examiner reports the thesis as not acceptable, the registration of the scholar shall stand cancelled.

**P.21.0 Viva-Voce Examination**

A Viva Voce Examination Board will examine the scholar on oral presentation of his/ her thesis work and will ensure that the scholar answers satisfactorily the clarifications and questions raised by the thesis examiner(s).

**P.21.1** The following is the composition of the Viva-Voce Examination Board:

i.    Chairperson - Chairperson of Doctoral Committee

ii.   Member - Research Guide

iii.  The Indian examiner of the thesis/ a specialist in the subject nominated by the Chairperson, Senate or Dean (Academic) from the panel of examiners approved by the DC.

**P.21.2** If the Viva-Voce Examination Board declares that the questions raised by the examiners are not clarified by the research scholar, he/ she may be asked to reappear for Viva-Voce examination at a later date, not earlier than a month and not later than six months from the date of the first oral examination. For the reappearance, the Viva-Voce Examination Board will include the members of the DC.

**P.21.3** The Chairperson shall forward the report of the Viva-Voce Examination Board along with the thesis incorporating the suggested corrections from examiners to the Dean (Academic).

**P.21.4** In Exigency, an examiner may be permitted by the Chairperson, Senate to participate in Viva Voce proceedings through video conferencing mode.

**P.22.0 Award of Ph.D. Degree**

On recommendation of the Viva-Voce Examination board the research scholar will be awarded Ph.D. degree in the ensuing convocation.

**P.23.0 Power to Modify**

Notwithstanding all that has been stated above, the Senate has the right to modify any of the above Regulations from time to time.