

Ph.D. REGULATIONS

(Effective from 2019 onwards)

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**NATIONAL INSTITUTE OF TECHNOLOGY PUDUCHERRY
KARAIKAL – 609609**

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Ph.D. PROGRAMME
RULES AND REGULATIONS

D.1 INTRODUCTION

National Institute of Technology Puducherry (NITPy) offers research programmes leading to the award of Ph.D. degree. The Ph.D. programme is broad based and involves course credits requirement and a research Thesis. The institute also encourages research in interdisciplinary areas through a system of joint supervision and provides excellent opportunities for such programs. The institute undertakes sponsored research and development projects from industries and other organizations of the public as well as private sectors. The degree of Doctor of Philosophy shall be abbreviated as Ph.D. The degree of Ph.D. is granted for research work in the areas recognized by the academic departments of the institute subject to satisfying the conditions given in this regulations.

The research work shall be an original work characterized either by the discovery of facts, or by a fresh approach towards the interpretation and application of facts, or development of equipment making a distinct advancement in science & technology. It shall evince the scholar's capacity for critical examination and sound judgment and shall represent original contribution to the existing knowledge.

The degree of Ph.D. of the National Institute of Technology Puducherry shall be conferred on a scholar who fulfills all the requirements specified in the regulations. The degree of Ph.D. will be awarded in the topic of his/her work.

Ph.D. degree programme is offered in various academic centers as follows:

- i) Civil Engineering
- ii) Computer Science Engineering
- iii) Electrical and Electronics Engineering
- iv) Electronics and Communication Engineering
- v) Mechanical Engineering
- vi) Chemistry
- vii) Physics
- viii) Mathematics
- ix) English
- x) Physical Education

D.2 CATEGORIES

2.1 Full Time

- a) Regular Full-Time scholars with institute fellowship.
- b) JRF (Fellowship from funding agencies viz. CSIR)
- c) Sponsored scholars being employee of a Public sector undertaking, Government department, Defense organization, Research and Development organization, a private industry/institution having MoU with NIT Puducherry(or) educational institutions.
- d) Sponsored from industries under bilateral agreement with the institute.
- e) Institute Project Staff: Working on sponsored projects undertaken by the institute can be admitted to Ph.D. programme of NIT Puducherry if they are selected through institute Ph.D., advertisement.
- f) Self-supported (Indian / Foreign)
 - o **Indian:** This category refers to the persons with experience and good academic record to join the doctoral program in their personal capacity.

- **Foreign:** These candidates are admitted through embassy of the foreign government after the approval from the ministry of external affairs and No Objection Certificate (NOC) from the Ministry of Human Resource Development (or) Department of Education, Government of India (or) admitted under MoU with NIT Puducherry.

Note:

- i. The number of institute fellowships will be limited and shall be available on merit and following reservation norms.
- ii. In case of full-time sponsored category, the scholar should be sponsored with salary and allowances and are relieved for a period of not less than two years for pursuing Ph.D. Programme.
- iii. In case the sponsorship is withdrawn, the scholar can continue his/her Ph.D. Programme in Self-financed category. Under self-financed category, he/she may apply for the fellowship from other funding agency.

2.2 Part Time(On Campus)

- a) Regular / Full-time teachers/faculties / employees working in Govt. / Govt. aided / Private Engineering / Technology colleges or Science and Arts Colleges / Universities / Industry / Public sector organization are considered under this category. At the time of application, the candidate must submit a 'No Objection Certificate from the Parent College / Organization to relieve him / her to complete his / her course-work requirement. The candidate should have at least two years of experience in a regular / permanent position at the organization at the time of application. The college / organization must have at least 5 years of its existence for patronizing candidates to part-time Ph.D. program. This category is limited to the institutions which are within the radius of 300 km from NIT Puducherry.
- b) Regular employee of National Institute of Technology Puducherry may apply through proper channel.

2.3 Part Time (External)

Candidates working in reputed industry / organization having R & D facilities, Govt. R&D Departments / National Research Laboratories / Units of Government / Quasi Government / Public sector / Organization having MoU with NIT Puducherry are considered under this category. The candidates must be officially sponsored by their employing organization. A candidate working in an establishment which is equipped with the necessary research and library facilities shall be considered for admission under this category.

A candidate applying for admission to the external registration programme must provide detailed information about the research facilities available to him / her for carrying out research. He/She should also provide the bio-data of the prospective guide (External guide) or Research Coordinator who would supervise/ co-ordinate the candidate's work at his/her organization. Internal guide is allotted from the institute. The candidate should be relieved to undergo course-work mandated for the programme.

D.3 ELIGIBILITY

3.1 Ph.D. in Engineering

(i) Candidates with Master's degree in Engineering/Technology or a Master's degree by Research (M.S. By Research) in Engineering/Technology disciplines with a minimum of 60% aggregate marks (or) CGPA of 6.5/10 in UG or PG for admission under OC/OBC category and 55% aggregate marks or equivalent CGPA of 6.0 for SC/ST candidates. (OR)

(ii) Candidates with Bachelor's degree in Engineering/Technology from CFTI with valid GATE Score with a minimum of 90% aggregate marks (or) CGPA of 9.5/10 in UG for admission under OC/OBC category and

85% aggregate marks or equivalent CGPA of 9.0 for SC/ST candidates.

3.2 Ph.D. degree in Mathematics/Physics/Chemistry/English/Physical Education

Candidates having Masters degree with First class in Bachelor's or Master's degree in Mathematics/Physics/Chemistry/ English/Physical Education in the relevant discipline with minimum 60% aggregate marks (CGPA 6.5/10) in UG or in PG for OC/OBC category and 55% aggregate marks or equivalent CGPA of 6.0 for SC/ST candidates. A valid UGC/CSIR/NET/GATE score is mandatory for Institute fellowship.

D.4 SELECTION PROCEDURE

Candidates recommended by the Departmental Selection Committee from the received applications will be screened through an entrance test and interview by the Departmental Selection Committee with the Chairman, Senate (or) a Senate nominee as observer. Both Full Time and Part Time candidates will have a common written test.

D.5 ADMISSION PROCEDURE

- a) Candidates whose selection is approved by the Director will be admitted to the Ph.D. programme by paying the prescribed fees. The candidate should also pay fees every semester as prescribed by the institute failing which registration will be cancelled.
- b) Ordinarily, a candidate is not eligible for re-registration for Ph.D. after cancellation of his/her earlier registration for any reason. However, depending on the merits and considering any special circumstance of the individual case, a candidate may be considered for re-registration after the approval of the Senate.

D.6 DURATION OF THE PROGRAMME

- a) A Ph.D. scholar should undergo qualifying examination after a minimum period of 18 Months as per the recommendation of DC.
- b) A Full-Time scholar can submit the Synopsis and Thesis only after a minimum period of study of 24 months from the date of registration.
- c) A Part Time scholar can submit the Synopsis and Thesis only after a minimum period of study of 36 months from the date of registration.
- d) The maximum period to complete the programme is 6 years for Full Time scholars and 7 years for Part Time scholars. However, Fellowship will be given up to maximum of 4 years and an additional 1 year based on the recommendation of the DC or date of Submission of Thesis whichever is earlier for Full Time scholars.

D.7 CHOICE OF GUIDE

- a) Allotment of research scholars to guides will be made by the Head of the Department taking into consideration the area of research of the scholar and the preferences of the research scholars and guides.
- b) The scholars admitted under Part-time (External) category will normally carry out part or all of his/her research work in their respective industry or Institution having MoU with NIT Puducherry / national laboratories. For these scholars, there will be one internal guide from NIT Puducherry and one external guide / research coordinator from his/her organization who holds a doctoral degree or Masters degree with minimum 10 years of experience.
- c) There shall not be more than two guides for a research scholar.

D.8 RESEARCH GUIDE(S)

- a) **Eligibility for Ph.D. guidance:**
Regular faculty members of NIT Puducherry are eligible to guide.
- b) No guide shall have more than four full-time Ph.D. Scholars selected under Institute fellowship category. Notwithstanding the above, eligible guides can take Ph.D. scholars with sponsorship from various funding agencies and Ph.D. part time (External) from the Industries and Ph.D. part time (On Campus). The guides taking Ph.D. scholars for the first time, may take only one scholar at the first instant (In subsequent years, they can guide additional scholars within the mentioned limit).
- c) External guides: In addition to NIT Puducherry faculty, eminent professionals working in reputed research Organizations / Industrial units / R&D Departments / National laboratories / Units of Government / Quasi Government may be recognized and empanelled as eligible guides (external) in specific areas of specialization for interdisciplinary research. These external guides should have Ph.D. degree or Masters degree with more than 10 years of experience.
- d) A faculty member appointed as a Ph.D. guide is normally expected to be available to a research scholar in the institute till the degree is awarded.
- e) However, under unavoidable circumstances, such as resignation, retirement, or death; a guide may not be available to the scholar, and then the Chairman of the Doctoral Committee (DC) may appoint a new guide, in consultation with the Chairperson, Senate.

D.9 CHANGE OF GUIDE / ADDITION OF CO-GUIDE

The Research scholar may request the Chairman, Senate, for a change of guide or add a Co-Guide for valid reasons. The Chairman 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 Chairman, Senate.

D.10 DOCTORAL COMMITTEE

- a) The HoD will intimate to the Dean (Academic) the area of research, name(s) of the Guide(s) and a panel of names suggested by the guide for the DC for each research scholar, within one week from the date of joining of the research scholar.
- b) The following is the composition of the Doctoral Committee (DC):

One senior faculty member preferably from the same department to be nominated by the Research Guide	Chairman
Research Guide(s)	Member(s)
One faculty member from the same department nominated by the Chairman, Senate or his nominee from the panel of names suggested by the Guide	Member
One faculty member from the allied department nominated by the Chairman, Senate or his nominee from the panel of names suggested by the Guide	Member
One external member from Industry / Research establishment / academia or one more faculty member from the same department to be nominated by the Chairman Senate or his nominee from the panel of names suggested by the Guide	Member

- c) **Functions:**
- To formulate the course work for the scholar.
 - To scrutinize syllabi of courses of directed-study (if any) prepared by the Research Guide(s).
 - To review the progress of the scholar every six months and send the progress report to the Dean (Academic). To conduct open seminar.
 - To assess and approve the research proposal of the scholar.

- v. DC has to assess and recommend for SRF from JRF for Full-Time scholars with institute fellowship.
- vi. To assess and approve the adequacy of the work in the Synopsis seminar and communicate the same to Dean(Academic).
- vii. To recommend the Panel of Thesis examiners consisting of 6 (3 National and 3 International) and send to the Dean (Academic) after the Synopsis presentation.

D.11 REGISTRATION

- a) Every scholar will be required to register each semester till the submission of the Thesis. The registration in a semester shall be subjected to the completion of the specified number of credits / courses and the satisfactory progress of his / her research work certified by the guide and as recommended by the DC.
- b) The first DC will meet normally within two weeks of being constituted, where the Research Scholar will make a presentation on the proposed area of research. The DC will fix / approve the date of registration for the Ph.D. programme, considering the proposed research topic and prescribing/approving the courses of study in this meeting.

D.12 PROGRAM STRUCTURE

12.1 COURSE WORK

- a) The research scholar with Post Graduate Degree in Engineering should successfully complete four courses of 3 credits each (or a total of 12 credits minimum), those with Master's Degree in Science/Humanities/Management/life science shall complete five courses (or a total of 15 credits minimum) / those with M.Phil. degree shall complete four courses (or a total of 12 credits minimum) prescribed by DC within one year from the date of admission into the programme.
- b) A scholar with advance standing may be granted exemption upto 6 credits or two courses of 3 credits each from the minimum course credit requirements as indicated above, by the DC, provided he/she has taken a relevant Post Graduate degree from NITs/IITs/IISc and the year of post-graduation being not earlier than 3 years from the year of admission.
- c) The minimum number of course works for Direct Ph.D. after B.Tech. should be 6 (18 credits).
- d) For the scholars under Part-time (On Campus) or Part-time (External) category, relevant theory courses recommended by the DC shall be taken by the scholar (minimum 4 courses for Engineering scholar and five courses for Science/Humanities/Management/life science scholar). The requirements relating to course work will be as per norms of full- time scholars. Subsequently, the scholars shall continue their research work on a part-time basis, through regular interaction with the guide.
- e) In the case of directed study subjects, the details of contact classes shall be maintained in the attendance book by the course teacher as allotted by the Head of the Department.
- f) The evaluation pattern for the course work will be similar to that of post graduate subjects. However, for awarding grades, the absolute grading scale shall be followed if the class strength is less than 5.

The absolute grading is given by

Marks	Grade	Points
>95	S	10
85-94	A	9
71-84	B	8
61-70	C	7
51-60	D	6
41-50	E	5
<40	F	0

- f) Courses completed after the date of registration will only count towards the mandatory requirements of the award of Ph.D. degree.
- g) Research Scholars should obtain minimum CGPA of 7.5 in the courses taken by them and minimum grade permitted for any of the courses taken is “C”.
- h) Scholars, who fail to satisfy the grade requirement, may attempt other prescribed courses or rewrite (once) the examination in the subject(s) where they had scored less than C. If they still fail, their registration will be cancelled.

12.2 PROGRESS REPORT

- a) A Full Time scholar shall sign the attendance register on all working days.
- b) A research scholar shall submit a written report of work done by him / her in the prescribed format to the Guide who shall forward it to the DC within two weeks before the end of each 6 months period from the date of registration.
- c) A research scholar shall be present before the DC once in a year for the first 2 years and once in a semester there after for progress evaluation.

12.3 QUALIFYING EXAMINATION

The Qualifying Examination is scheduled whenever the research student feels that he/she is ready to be examined between 18 months to 24 months after registration in the Ph.D. program. The Qualifying Examination Board consists of the Doctoral Committee members of the Ph.D. student, HoD, and a Chairperson. The Chairperson will be nominated by the Chairperson, Senate.

The Ph.D. student should inform the supervisor and the HoD of his/her intention to take the Qualifying Examination and the approximate date. The student must prepare a thesis proposal, with an introduction, work already completed, and a plan of research to be carried out. The proposal should normally be 15-20 pages long (but not longer than 30 pages) and should have a short bibliography and it has to be submitted to the Qualifying Examination Board in one-month advance.

The procedures of the Qualifying Examination will be an informal variation of a Thesis Examination. The student will present a brief (20 minutes maximum) account of the research already carried out, work in progress and a timeline towards completion. After the presentation, the student will be asked questions by members of the Qualifying Examination Board, on the core subjects as well as peripheral areas relevant to the thesis topic, approximately 15 minutes each on the first round.

The Chairperson may ask his/her own questions, as well as ask for elucidation or clarification of answers to questions from other members of the Qualifying Examination Board. Subsequent question rounds are allowed until the Qualifying Examination Board is satisfied. At the conclusion of the questions, the student is requested to leave the room. The Board will discuss the performance of the student and a decision will be taken.

The decision of the Qualifying Examination Board can be:

1. The student is declared passed and officially becomes a Doctoral Candidate (see PASSED EXAM below);
2. The student is declared as having failed the Qualifying Examination (see FAILED EXAM below).

PASSED EXAM

A student may be declared:

- a) passed without recommendations, or
- b) passed with recommendations for further study in weak areas identified during the exam.

In the latter case, the Chairperson will provide in writing to the student what remedial action is recommended and it will be the supervisor's responsibility to ensure that these actions are carried out prior to the submission of final thesis.

FAILED EXAM

The Chairperson must provide a failed student with the reasons for failure and recommended remedial actions, which may include a list of courses to be taken, and/or a list of texts/research papers to be studied.

A failed student is allowed a second opportunity to appear for the Qualifying Examination within six months of the initial Qualifying Exam. A grace period may be allowed if additional courses are recommended.

A student who fails the Qualifying Examination a second time will be required to withdraw from the Ph.D. program.

12.4 SYNOPSIS OF THESIS

- a) Two seminar presentations, prior to submission of synopsis should be given by the research scholar. Two publications should be in Journals enlisted by the Department/SCI/SCIE/SCOPUS Journals with impact factor or one publication in Journals enlisted by the Department/SCI/SCIE/SCOPUS Journals and one patent filed.
- b) On satisfactory completion of the qualifying examination, and the required publications in his/her research area, the research scholar shall submit four copies of the synopsis and a soft copy of his / her research work to the DC. The guide should certify that the scholar has submitted the first draft of the thesis for correction to him/her. Synopsis presentation and subsequent DC meeting to approve the panel of the examiners will be held in the presence of the Dean (Academic) or his/her nominee.
- c) The research scholar should present the synopsis before the DC. The DC will, if it approves the work reported in the synopsis will permit the research scholar to submit the Thesis and recommend a panel of at least six Thesis examiners (three from India and three from Foreign) with at least five years of Research Experience after Ph.D., to the Dean (Academic).

12.5 SUBMISSION OF THESIS

- a) The Thesis submitted for the Ph.D. degree shall contain an account of the research work carried out by the scholar leading to the discovery of new facts or techniques or new correlation of facts already known (analytical and/or experimental and/or hardware oriented in nature), the work being of such quality that it makes a definite contribution to the advancement of knowledge in the field of his/her research.
- b) The research scholar shall, within three months of approval of the synopsis, submit four copies of Thesis and a soft copy embodying the results of investigation. On the recommendation of the Guide and the Chairman, Doctoral Committee, an additional three months may be granted.
- c) The Thesis can be printed front and back and 1½ line spacing in 10 font size format.
- d) If the research scholar is unable to submit the Thesis within the prescribed time, then the DC and Chairperson, Senate have to take the decision on his/her continuation.

D.13 PANEL OF EXAMINERS

- a) The Thesis shall be referred to two examiners (one from Foreign) chosen by the Chairman, Senate from the panel of examiners submitted by the Guide and recommended by the DC at its synopsis meeting.
- b) Each panel (one for Indian examiner and another for foreign examiner) should have at least three experts in the area of research. The following guidelines to be followed while deciding the panel of examiners.
 1. Indian: At least one examiner from any IITs./IISc./NITs. Others may be from Institutions viz. CFIs, Scientists from reputed research institutes/industries or Institutions of high repute.
 2. Foreign Examiner: Should be from reputed research institutes/universities outside India. In the panel of examiners given by the Guide, at least one should be from universities in USA/UK / Canada / Australia / Germany / Japan / Singapore / Malaysia / Korea / South Africa / China / Swedan / Isrel.
- c) Co-authors of the paper for the particular scholar should not be nominated as an examiner.
- d) Relatives of the Scholar (or) DC members should not be nominated as an Examiner.

D.14 EVALUATION OF THESIS

- a) The examiner is expected to send the Thesis evaluation form and detailed report(if any)within two months from the date of receipt of the Thesis.
- b) In case of undue delay in receiving the evaluation report, the Chairman, Senate shall appoint another examiner from the panel, for evaluating the Thesis or call for another panel of examiners for appointment.
- c) If an examiner suggests resubmission of the Thesis, after revision, the research scholar will be allowed to resubmit the Thesis within the time stipulated by the DC, failing which the revised Thesis will not be accepted and his/her registration will be cancelled.
- d) *If one of the two Thesis examiners declares the Thesis as not commended, the Thesis shall be referred to a third examiner from the panel for evaluation. After the evaluation, he/she must report the necessary corrections required to be done by the scholar and resubmit the Thesis to the third examiner. If the third examiner still reports the Thesis is not commended, the registration of the scholar shall stand cancelled.*
- e) If reports of two examiners declare the Thesis as ‘commended’, the DC will consider the reports and recommend for the conduct of Oral examination/Viva-Voce which will be conducted normally not earlier than two weeks from the date of the constitution of the Oral Examination Board. The guide in consultation with DC will suggest a panel of three subject experts for nominating one member for Oral Examination Board.
- f) In all other cases, not covered by the above Regulations, the matter will be referred to the DC and the minutes be forwarded to Chairman Senate for approval.

D.15 VIVA-VOCE EXAMINATION

- a) The following is the composition of the Thesis Oral Examination Board:

1. Chairman of Doctoral Committee	Chairman
2. Guide(s)	Member
3. Thesis examiner (Indian)	Member
4. An external examiner – An expert nominated by the Chairman, Senate from a panel suggested by the DC.	
- b) The Thesis Viva-Voce Examination Board will examine the scholar on his/her Thesis work and evaluate his / her performance as satisfactory or otherwise.
- c) If the report of the Viva-Voce Examination Board declares the performance of the research scholar as not

satisfactory, 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). On the second occasion, the Viva-Voce Examination Board will also include the members of the DC.

- d) If the Thesis Viva-Voce Examination Board on the second occasion also evaluates the performance of the research scholar as not satisfactory, the matter will be referred to the Senate for a decision.
- e) The Viva-Voce Examination Board may also ensure the revisions made in the final version of the Thesis after taking into consideration suggestions of the examiners who evaluated the Thesis. The Chairman of the Viva-Voce Examination Board shall forward the Thesis (Size: A5) to the Dean (Academic) along with the report of the Viva-Voce Examination Board.

D.16 AWARD OF Ph.D. DEGREE

If the performance of the research scholar in the Viva-Voce Examination is satisfactory, he/she will be awarded Ph.D. degree on the recommendation of the Senate and with the approval of the Board of Governors of the Institute.

D.17 TEMPORARY BREAK FROM Ph.D. PROGRAMME

Ph.D. scholars may be permitted to take a temporary break from the programme for maximum of one year for valid reasons, with the recommendation of the DC and the approval of the Chairperson, Senate.

D.18 LEAVE RULES

- a) An Institute Research Scholar is required to carry out his/her research work regularly under the guidance of the Guide(s), without any interruption during the period he/she receives the fellowship.
- b) A Full-Time scholar may be entitled to i) casual leave of 08 days and (ii) medical leave of 10 days, in a calendar year. Any leave not availed shall lapse.
- c) A Research scholar is allowed for 15 days vacation leave in an academic year.
- d) Married Research scholars admitted to the research program of the institute shall, in addition to casual leave and medical leave, be entitled to maternity leave as per rules of the Government of India, if the request for the leave is supported by a medical certificate from a registered medical practitioner and endorsed by Medical Officer, NIT Puducherry.
- e) Any absence with permission over and above the admissible leave as prescribed above shall be without fellowship which shall be, deducted on pro-rata basis for the days of such absence. The absence without permission will be viewed seriously.
- f) Attending Conferences/Workshops/etc., will be treated as "On Duty" Leave. Scholars may take maximum of 10 days in a year for such purpose.

D.19 CHANGE OF REGISTRATION – FULL TIME TO PART TIME

A scholar admitted to a full-time Ph.D. programme may be permitted to change to a part-time Ph.D. programme on a request from him/her on valid reasons along with a detailed plan of his/her completion of the work, provided:

- a) (i)He/she has completed the qualifying examination, completed sufficient quantity of research work that is adjudged as satisfactory by DC based on the presentation given and detailed report submitted by the scholar.

(ii) DC recommended his/her application.

- b) Produce a No Objection Certificate from the Head of the Institution/Organization, where he/she is joining or the DC has to certify he/she has completed the research work and only thesis writing is pending.

D.20 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.