

REGULATIONS FOR THE Ph.D. PROGRAM

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REGULATIONS FOR THE DEGREE OF Ph.D.

National Institute of Technology (NIT) Puducherry offers research programs leading to the award of Ph.D. degree. The award of Ph.D. degree is in recognition of high academic achievements, independent research and application of knowledge to the solution of technical and scientific problems in science and technology. Promotion to creativity and productivity is the basic concept underlying the research work.

The academic program leading to the Ph.D. degree is broad based and involves a minimum course credit 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 the conditions and regulations contained hereinafter.

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 instrument technology. It shall evince the candidate'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 candidate who fulfills all the requirements specified in the regulations. The degree of Ph.D will be awarded in the topic of his/her work along with the discipline concerned as decided by the supervisor.

REGULATIONS

1. CATEGORIES

a) Full time

- Regular full time scholars with institute fellowship / JRF. The fellowships will be limited and shall be available on merit.
- Sponsored scholars being employee of a public sector undertaking, government department, Defense organization, Research and development organization, a private industry / institution or an educational institutions.

- Sponsored by their normal salary and allowances and are relieved for a period of not less than three years for pursuing Ph.D Program
- In case, the sponsorship is withdrawn, the candidates can continue his Ph.D. Program provided he / she has passed the comprehensive examination. He can continue with self-financial supporting programme.
- Minimum working experience of two years in the relevant field.
- Sponsored from industries under bilateral agreement with the institute.
- Self-financed (Indian / Foreign) / Study leave / college teacher.
- Indian: This category refers to the persons with experience and good academic record to join the doctoral program in their personal capacity.
- Foreign: These students are admitted through embassy of the foreign government after getting approval form the ministry of external affairs and NOC from Ministry of Human Resource Development or Department of Education, Government of India or admitted under MoU with NIT Puducherry.

b) Part time

- Regular institute faculty who are employees of the institute can register at NIT, Puducherry.
- Research Scholar of other government institution / organization which have MoU with the NIT Puducherry can register at NIT, Puducherry under the supervision of a guide at their institution / organization and a supervisor at NIT Puducherry. The feasibility of doing this with sufficient intensity will be an important consideration in admitting the scholar in this category.
- Project Staff : Working on various projects undertaken by the institute where Ph.D. registration is not a requirement but can be admitted to Ph.D. program of NIT, Puducherry.
- External Candidates: Working in other public / private sector organizations or research laboratories having R&D facilities and will normally carry out part or all of one's research work there only under supervision of a guide employed in the same organization and a Supervisor at NIT Puducherry with the registration at NIT, Puducherry.

2. EDUCATIONAL QUALIFICATIONS

a) Ph.D. in Engineering

Bachelor's and Master's Degree in Engineering/Technology or Bachelor's in Engineering, and M.S (by Research) in engineering/Technology in the appropriate branch of study with a minimum of 60% aggregate marks (CGPA 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/PH candidates.

b) Ph.D degree in Science (Mathematics / Physics / Chemistry and English)

Candidates with first class Master's degree in Sciences in the relevant discipline/closely related a minimum 60% aggregate marks (CGPA 6.5/10) for OC / OBC category and 55% aggregate marks or equivalent CGPA of 6.0 is the eligibility requirement for SC/ST candidates. A valid GATE / UGC / CSIR / NET score is required for full-time candidates.

c)The award of scholarship / fellowship / assistantship shall be governed by circular notification issued by Central Government / MHRD from time to time. Candidates applying for part-time and external modes of registration do not require GATE scores or NET Scores or UGC / CSIR fellowship.

3. SELECTION PROCEDURE

Candidates recommended by the Departmental Selection Committee will be screened by an entrance test and / or interview by the Departmental selection Committee with a senate nominee as observer. Both full time and part time candidates will have a common written test.

4. ADMISSION

- a) Candidates whose selection is approved by 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.

5. **MINIMUM AND MAXIMUM DURATION OF Ph.D. PROGRAM**

- a) A full time candidate can submit the synopsis and thesis only after a minimum period of study of 21 and 24 months respectively from the date of registration.
- b) Full time candidates can leave the Institute for taking up jobs, only after submission of synopsis of the thesis.
- c) A part time candidate can submit the synopsis and thesis only after a minimum period of study of 33 and 36 months respectively from the date of registration.
- d) The maximum period to complete the programme is 5 years for full time candidates and 7 years for part time. However, Scholarship will be given up to 4 years for full time candidates
- e) The minimum residential requirement Ph.D. scholar under external registration and research scholars working on a part time basis not employed in the institute is one semester (first / second semester).
- f) All part time candidates / students have to spend minimum 30 contact days per semester till thesis submission in the institute with the supervisor. Such candidates have to obtain permission to this effect from their parent organization.

6. **APPOINTMENT OF GUIDE(S) / SUPERVISOR(S)**

- a) Allotment of research scholars to guides will be made by department selection committee taking into consideration the areas of research of the department and the preferences of the research scholars and guides.
- b) Supervisor(s) can be any regular faculty member of the institute having a minimum of 2 papers in refereed SCI / SCIE journals.
- c) There shall be not more than two guides from the institute for a research scholar.
- d) Additional guide from outside the institute can be allowed (professor from IIT / NIT / Central Universities/ Govt. Engineering College and any other persons with Ph.D degree working in reputed R and D institute of Central Government and Public sector organizations with established research credentials in the form of publications in research journals or patents) with the approval of Chairman, Senate on case to case basis only.
- e) Appointment of any additional supervisor(s) would NOT be made after 6 months from the date of student/candidate apply for candidature.
- f) A faculty member appointed as a Ph.D supervisor is normally expected to be available to

a research student / candidate in the institute till the thesis is submitted. If the candidate has worked with the supervisor(s) for a period of one year, the supervisor cannot be replaced unless he / she is not willing to supervise.

- g) Under no circumstance other than the death of the Ph.D. Supervisor he/she should be changed after one year of the supervision unless the supervisor express his/her unwillingness in writing to the Head of the institution/Dean Academics.

7. 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 doctoral committee for each research scholar, within one week of the date of joining of the research scholar.

- b) The following is the composition of the Doctoral Committee:

| | |
|--|----------|
| One senior faculty member from the institute to be nominated by the Research guide | Chairman |
| Supervisor 1 | Member |
| Supervisor 2 | Member |
| One faculty member from same or an allied department nominated by the Chairman, Senate or his nominee from the panel of names suggested by guide | Member |
| One external member from Industry / Research establishment / academia to be nominated by the Chairman Senate or his nominee from the panel of names suggested by guide | Member |

- c) In case the Chairman, doctoral committee or any member goes on long leave, resigns or retires from the Institute, the Chairman, Senate or Dean (Academic) will nominate another member on the suggestion of the guide.

8. NUMBER OF Ph.D. RESEARCH SCHOLARS UNDER A FACULTY MEMBER

The maximum of scholars supervised by a faculty member at any time shall not be more than five.

9. REGISTRATION

- a) The Doctoral Committee will meet normally within a two weeks of being constituted, where the Research Scholar will make a presentation. The Doctoral Committee will fix / approve the date of registration for the Ph.D programme, consider the proposed research topic and prescribe / approve the courses of study in this meeting.
- b) Every student / candidate will be required to renew his / her registration every semester till the submission of the thesis. The renewal of registration every 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 supervisor and as recommended by the doctoral committee.

10. COURSE WORK

- a) The full time research scholars should successfully complete four courses prescribed by the doctoral committee within one year (preferably in first semester for regular scholars) from the date of admission into the Programme.
- b) In addition, a candidate shall be required to audit a course on "Communication Skills". However, a student, on recommendations of his / her supervisor, can be exempted by the doctoral committee from the requirement of auditing the communication skills course if it is convinced that the student already has adequate knowledge / exposure of communication skills.
- c) Out of four courses, one will be research methodology and another will be a mathematics course. Other two courses can be directed study.
- d) In the case of directed study subjects, the details of contact classes shall be maintained in the attendance book. The evaluation pattern will be similar to that of post graduate subjects – cycle tests and assignment evaluated in the department and end semester examination conducted. The directed study course will be evaluated by the supervisor / examiner. However, for awarding grades, the absolute grading scale shall be followed.

e) The absolute grading is given by

| Marks | Grade | Points |
|-------|-------|--------|
| >90 | S | 10 |
| 81-90 | A | 9 |
| 71-80 | 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 requirements of award of Ph.D degree.
- g) Research Scholars shall obtain a average minimum CGPA of 7.5 in the courses taken by them subject to a minimum of “C” grade in the prescribed courses
- h) Candidates, 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.
- i) If the doctoral committee desires that the scholar should take more than 4 courses, then the credits of the extra courses need not be taken for calculating the average grade.

11. PROGRESS REPORT

- a) Research scholars shall sign the attendance register on all working days. They are eligible for a total of 15 days leave every semester and subject to a total maximum of 30 days in a year, which they can avail after obtaining the guide and HOD’s permission.
- 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 doctoral committee within two weeks before the end of each 12 months period from the date of registration up to first 2 years and before the end of each 6 months period beyond 2 years.
- c) A research scholar shall appear before the doctoral committee once a year for the first 3 years and once a semester thereafter for progress evaluation.

12. COMPREHENSIVE EXAMINATION

- a) On the successful completion of the prescribed course work, about one year from the date of registration, the candidate shall undergo a qualifying comprehensive examination to test his / her background knowledge in the broad area of specialization.
- b) The comprehensive examination will cover the topics in the discipline and all the allied areas. The Comprehensive Viva – Voice Board shall be common for all candidates of a given department. The composition of the Comprehensive Viva Voce Board shall be as follows:
 1. All internal members of the doctoral committee in the given department
 2. One External member – Professor from IITs/ IISc / IIM /NITs/ Central Universities or scientists/ Scientific officers holding Ph.D. degree and drawing the scale of Professor and above, working in National/ Regional Research Laboratories, Defense Research Organizations, Atomic and Space Research Organizations etc.
 3. Two senior members of the faculty from same or allied department/s.
 4. The External member for Comprehensive Viva Voce Board shall be nominated by the Chairman, Senate or Dean (Academic) from a panel suggested by the Head of the Department in consultation with the guides.
- c) 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 candidates 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.
- d) Based on the result of the comprehensive examination, the comprehensive viva voce board shall report to the Dean (Academic) about the fitness of the candidate to proceed further with his Ph.D work, within two weeks of the date of the examination held.
- e) Research Scholars shall obtain a minimum CGPA of 7 in the comprehensive examination.

- f) If, based on the results of the comprehensive examination, a candidate 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 candidate shall be permitted to proceed with doctoral work. Otherwise, the candidate's provisional registration will be cancelled.

13.TEMPORARY BREAK FROM Ph. D PROGRAMME

Ph.D scholars can be permitted to take a temporary break from the programme for up to one year for valid reasons, with the recommendation of the doctoral committee and the approval of the Dean (Academic).

14.SYNOPSIS OF THESIS

- a) On satisfactory completion of the prescribed courses, the comprehensive examination, and the required publications in his/her research area, the research scholar shall submit four copies of the synopsis of his / her research work to the doctoral committee. Synopsis presentation and subsequent doctoral committee meeting to approve the panel of the examiners will be held in the presence of the Dean (Academic).
- b) Two seminar presentations, one seminar at the end of the second year and another one prior to submission of synopsis should be given by the research scholar. Publications should be in two journals [SCI, SCIE journals] with impact factor.
- c) The research scholar should present the synopsis before the doctoral committee. The doctoral committee will, if it approves the work reported in the synopsis, permit the research scholar to submit the thesis and recommend a panel of at least six thesis examiners (six from India and six from Abroad) and Chairman, Senate or Dean (Academic) will select the examiners from the panel suggested by the guide or he / she may give the any other names of the examiners in the area of specialization.

15.SUBMISSION OF THESIS

- a) The research scholar shall, within three months of submission of the synopsis, submit four copies of thesis embodying the results of investigation, and also three copies of the Abstract of the thesis of about 400 words. On the recommendation

of the Guide and Chairman, doctoral committee, an additional three months may be granted.

- b) If the research scholar is unable to submit the thesis within the prescribed time, then the candidate should resubmit the synopsis.
- c) 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.

16. PANEL OF EXAMINERS

- a) The thesis shall be referred to two examiners with at least five years of research experience after Ph.D (one from overseas) chosen by the Chairman, Senate or Dean (Academic) from among the panel of examiners submitted by the Guide and recommended by the doctoral committee at its synopsis meeting.
- b) Each panel (one for Indian examiner and another for overseas examiner) should have at least six experts in the area of research. The following guide lines should be followed while deciding the panel of examiners.
 - 1.Indian: At least one examiner from IITs./IISc./IIMs at the level of and above. Others may be from Institutions like NITs./ Central Universities or Scientists holding Ph.D. degree and drawing the scale of professor working in National /Regional research laboratories, Defence research Organizations, Atomic &space research Organizations or any other Government Organization of repute.
 - 2.Foreign Examiner: Should be from research institutes /universities. In the panel of examiners given by the guide, at least one should be from universities in U.S.A/U.K. The examiner(s) should have at least with five years of research experience after Ph.D.
- c) Co-authors of the paper for the particular candidate should not be nominated as an examiner.

17. THESIS EVALUATION

- a) The examiner is expected to send the report on the thesis 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 or Dean (Academic) shall appoint another examiner from the panel, for evaluating the thesis.
- 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 doctoral committee 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 his evaluation. After the evaluation he must report the necessary corrections required to be done by the candidate and to resubmit the thesis to the third examiner. If the third examiner still reports the thesis as not commended the registration of the scholar shall stand cancelled.
- e) If reports of two examiners, (if necessary after referral to a third examiner) declare the thesis as 'commended', the doctoral committee 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. The doctoral committee will suggest a panel for nomination of one member for Oral Examination Board.
- f) In all other cases, not covered by the above Regulations, the matter will be referred to the doctoral committee for consideration.

18. VIVA VOCE EXAMINATION

- a) The following is the composition of the Thesis Viva Voce Examination Board:
 1. Chairman of Doctoral committee Chairman
 2. Supervisor 1 Member
 3. Supervisor 2 Member
 4. The examiner of the thesis from Member within the country, or a specialist in the subject nominated by the Chairman, Senate or Dean (Academic) from the panel of

examiners approved by the doctoral committee.

5. An external examiner - A Specialist nominated by the Chairman, Senate or Dean (Academic) from a panel outside approved by the doctoral committee.
6. The doctoral committee members of the Research Scholar concerned will be invitees to the Viva voce Examination
 - 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 thesis 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 doctoral committee.
 - 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 recommend revision to be made in the final version of the thesis after taking into consideration suggestions of the examiners who evaluated the thesis and the discussion at the oral examination. The Chairman of the viva voce Examination Board shall forward the thesis to the Dean (Academic) along with the report of the viva voce Examination Board.

19. 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.