

REGULATIONS
FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY (Ph.D)
(Revised as on August 2018)



SATHYABAMA
INSTITUTE OF SCIENCE AND TECHNOLOGY
(Established under section 3 of UGC Act, 1956)
(A Christian Minority Institution)
Jeppiaar Nagar, Rajiv Gandhi Salai
Chennai - 600119

**REGULATIONS
FOR DEGREE OF DOCTOR OF PHILOSOPHY (Ph.D)**

FOREWORD

The Regulations for the Degree of Doctor of Philosophy (Ph.D) provide information to prospective scholars about the Ph.D. programmes offered in different branches of Engineering, Technology, Science & Humanities at Sathyabama Institute of Science and Technology (Deemed to be University), Chennai. In addition to the departments covering the above mentioned areas, we also have a number of Centers of Research. Course work tends to sharpen logical skills while research work emphasize on intuitive skills. Indeed, it is the confirmation of intuition by logic that is a reliable route to research and understanding.

Sathyabama Institute of Science and Technology activities are aimed at developing excellence in Science & Technology through competitive academic and research environment, linkages with the industry, academic and research institutions. It aims to become a world class Institute to contribute towards teaching, research, and extension. Consistent with the high standard of excellence aimed by the Institute, the faculty comprises of a team of highly qualified and dedicated persons, who have a proven record of meritorious accomplishments to their credit. Sathyabama Institute of Science and Technology invite prospective candidates to join and realize their dream of distinguishing themselves in their research career.

BOARD OF RESEARCH

- **Dr. T.Sasipraba**
Vice-Chancellor, Sathyabama Institute of Science and Technology
Chairman
- **Dr. B. Sheela Rani,**
Director (Research), Sathyabama Institute of Science and Technology
Convener & Member Secretary

MEMBERS

- **Dr. E. Logashanmugam**
Pro Vice Chancellor, Sathyabama Institute of Science and Technology
- **Dr. S.S.Rao**
Registrar, Sathyabama Institute of Science and Technology
- **Dr. G.Sundari**
Director (Administration), Sathyabama Institute of Science and Technology
- **Dr. S. Igni Sabasti Prabu**
Controller of Examinations, Sathyabama Institute of Science and Technology
- **Dr.T.Sasikala**
Dean (School of Computing), Sathyabama Institute of Science and Technology
- **Dr. N. M.Nandhitha**
Dean (School of Electrical & Electronics Engg.), Sathyabama Institute of Science and Technology

BOARD OF RESEARCH

- **Dr. S.Prakash**
Dean (School of Mechanical Engineering), Sathyabama Institute of Science and Technology
- **Dr.G.Bhuvaneshwari**
Dean (School of Management Studies), Sathyabama Institute of Science and Technology
- **Dr.Dilshad Shaik**
Dean (School of Law), Sathyabama Institute of Science and Technology
- **Dr.J.Karthikeyan**
HOD (Dept. of Chemistry), Sathyabama Institute of Science and Technology
- **Dr. V. Ramesh Kumar**
HOD (Dept. of Biotechnology), Sathyabama Institute of Science and Technology

BOARD OF RESEARCH

- **Dr. S.Bose**
Professor, Department of Computer Science & Engineering, CEG, Anna University, Chennai.
- **Dr. R.Govindaraj**
Chief Scientist & Honorary Professor (AcSIR), CEERI Centre, CSIR Madras Complex, Taramani, Chennai.
- **Dr. A.Velayudham**
Visiting Professor, Dept. of Manufacturing Engineering, CEG, Anna University, Chennai & Scientist – 'G', (Retd.), Additional Director (Mfg.), (CVRDE), DRDO Min. of Defence, Avadi, Chennai.
- **Dr. MukeshDoble**
Professor (Emeritus), Dept. of Biotechnology Bioengineering & Drug Design Lab, Bhupat & Jyoti Mehta School of BioSciences, Indian Institute of Technology Madras, Chennai.
- **Dr. M. Alagar**
Professor of Chemistry (Retd.), Anna University, Chennai.
- **Dr.M.Pradeep Kumar**
Professor, Director, AU-FRG Institute for CAD/CAM, Dept. of Mechanical Engg., College of Engineering, Guindy, Anna University, Chennai.
- **Dr. M.Mathirajan**
Chief Research Scientist, Department of Management Studies, Indian Institute of Science (IISc), Bangalore.

**FIELDS OF SPECIALISATION FOR
RESEARCH PROGRAMMES**

1. Faculty of Computer Science &Engineering

- ❖ Computer Science &Engineering
- ❖ Information Technology

2. Faculty of Electronics Engineering

- ❖ Electronics & Communication Engineering
- ❖ Electronics & Instrumentation Engineering
- ❖ Electronics & Control Engineering
- ❖ Electronics & Telecommunication Engineering

3. Faculty of Electrical Engineering

- ❖ Electrical & Electronics Engineering

4. Faculty of Mechanical Engineering

- ❖ Mechanical Engineering
- ❖ Mechanical & Production Engineering
- ❖ Aeronautical Engineering

5. Faculty of Bio-Engineering

- ❖ Bio-Technology
- ❖ Bio-Informatics
- ❖ Bio-Medical Engineering

**FIELDS OF SPECIALISATION FOR
RESEARCH PROGRAMMES**

6. Faculty of Civil Engineering

- ❖ Civil Engineering

7. Faculty of Architecture

- ❖ Architecture

8. Faculty of Chemical Engineering

- ❖ Chemical Engineering
- ❖ Environmental Engineering

9. Faculty of Management

- ❖ Business Administration
- ❖ Management Sciences

10. Faculty of Science

- ❖ Mathematics
- ❖ Physics
- ❖ Chemistry
- ❖ Computer Sciences
- ❖ Life Sciences

11. Faculty of Humanities

- ❖ English
- ❖ Visual Communication



CONTENTS

S. No	Contents	Page No.
1.	Definitions and Nomenclature	1
2.	Eligibility	2
3.	Ph.D. Programme and Place of Research	2
4.	Registration Procedure	3
5.	Research supervisors and number of candidates	4
6.	Duration of the Programme	6
7.	Doctoral Committee	7
8.	Course Work and Comprehensive Examination	8
9.	Monitoring the progress of the scholar	9
10.	Conversion of Mode / Discontinuation of the Programme	9
11.	Cancellation of Registration	10
12.	Synopsis of Thesis	10
13.	Submission of Thesis	11
14.	Thesis Evaluation	12
15.	Oral Examination	12
16.	Award of Ph.D. Degree	13
17.	Publication of Thesis	13
18.	The Act of Plagiarism	13
19.	Power to Modify	13

In exercise of the powers conferred by Memorandum of Association & Rules and Bye-laws of Sathyabama Institute of Science and Technology (Deemed to be University), Jeppiaar Nagar, Rajiv Gandhi Salai, Chennai - 600119, Tamil Nadu, the Board of Research hereby makes the following Regulations, in conformity with the University Grants Commission (Minimum Standards and Procedure for Award of Ph.D Degree) Regulations, 2016.

1. DEFINITIONS AND NOMENCLATURE

In these Regulations, unless the context otherwise requires,

- i) **“Programme”** means Doctoral Programme leading to award of Ph.D. in Engineering/ Technology/ Sciences & Humanities/ Management Studies both Full Time and Part Time mode.
- ii) **“Course”** means a theory subject that may be prescribed by the Doctoral Committee for the candidate to undergo as a part of the programme requirement.
- iii) **“Institution”** means Sathyabama Institute of Science and Technology, Chennai - 600 119.
- iv) **“Research Board”** means the Board duly constituted by the Vice Chancellor to oversee the research activities of the Institution.
- v) **“Faculty”** means the Faculty of Mechanical Engineering/ Electronics Engineering/ Electrical Engineering/ Computer Science & Engineering/ Bio-Engineering/ Civil Engineering/ Architecture/ Chemical Engineering/ Business Administration/ Science and Humanities that may be constituted by the Board of Management of the Institution from time to time.
- vi) **“Supervisor”** means any faculty member of this Institution who satisfies the requirement specified and recognized by the Institution as supervisor to guide the research scholars.
- vii) **“Scholar”** means any candidate admitted by the Institution either under Full Time mode or Part Time mode for pursuing Doctoral Programme for the award of Ph.D. degree of the Institution.
- viii) **“Doctoral Committee”** means a committee constituted by the Institute for each research scholar to monitor the progress of his / her research work.



2. ELIGIBILITY

A scholar possessing Master's Degree of this Institute or any other qualification recognized as equivalent thereto in the field of study notified from time to time by this Institute is eligible to register for the Ph.D Programme. A minimum of 55% marks or CGPA of 5.5 on a ten point scale in the qualifying examination (50% marks or CGPA of 5.0 on a ten point scale for SC / ST Candidates and for differently challenged candidates).

Candidates who have cleared the M.Phil. Coursework with at least 55% marks in aggregate or its equivalent Grade 'B' in the UGC 7-point scale (or an equivalent grade in a point scale wherever grading system is followed) and successfully completing the M.Phil. Degree shall be eligible to proceed to do research work leading to the Ph.D Degree.

Bachelor's Degree in Engineering/Technology of the institute or any other qualification recognized as equivalent thereto in the field of study with a minimum of 10 years of R&D experience in National Research Laboratories/ Public sector undertakings with minimum of three publications in refereed journals or two international patents in the last five years.

3. Ph. D PROGRAMME AND PLACE OF RESEARCH

There are three categories of Ph.D Programmes

- (a) Full -time
 - (b) Part-time(Internal)
 - (c) Part-time(External)
- (a) Full-time: All approved candidates who pursue full-time study and research in this Institute shall belong to this category.
- (b) Part-time (Internal): All approved candidates who are employed in this Institute and actively involved in the relevant area of teaching and research as part of their regular work shall belong to this category.
- (c) Part-time (External): Candidates working in Industry involved in R&D activities, Colleges or Research Organizations, approved by this Institute, and who are sponsored for pursuing Ph.D Programmes in this



institute while continuing in their job, shall belong to this category. While they shall pursue research in their place of employment and/or in this Institute, such candidates shall spend at least one semester in the first two years from the date of Registration in this Institute. There shall be a Research Supervisor recognized by this Institute and a Research Coordinator in their organization who is responsible to provide all necessary resources and guidance to help them to complete the research work in a time bound manner.

4. REGISTRATION PROCEDURE

Candidates desirous of registering for the Ph.D. Degree shall submit the application in the prescribed form (available in Research website). All such filled in application will be scrutinized and recommended for the entrance examination. The filled in application will be received till **October / April** for registration in **January / July** respectively. The applications received shall be first circulated to the Supervisors in the Departments as part of the modus operandi.

The candidates who were qualified in the entrance exam will be called for oral presentation before a screening committee in the subject area of research. Such presentation may be looked into as an academic exercise to evaluate his/ her aptitude for research and may not be taken as the problem for research itself. This Committee may orally examine them for their research aptitude based on their presentation and recommend prospective candidates for admission to Ph.D programme.

Candidates who have qualified the UGC-NET/JRF) / UGC-CSIR NET/JRF) / GATE / GRE (Subject based)/ ICMR/ ICAR fellowship are exempted from the entrance examination.

The Research Supervisor shall furnish in the application of every Candidate, a panel of six experts well versed in the field of proposed research, from the faculty of the Institute and other organizations from which two (or more) will be approved for the constitution of the Doctoral Committee. The Joint Research Supervisor, if any, shall also be a member of the Doctoral Committee.



The Board of Research shall approve the candidates recommended by the screening committee for provisional registration with intimation to the concerned Research Supervisor, the Candidate, and the sponsoring institution, if any.

For approved candidates the date of provisional registration shall be the date on which they are admitted to the program. Such dates shall be half- yearly viz., **1st January** and **1st July**, as the case may be, as per the Institute academic calendar. Every approved Candidate shall register by paying the prescribed fees.

5. RESEARCH SUPERVISORS AND NUMBER OF CANDIDATES

An approved panel of recognized Research Supervisors for the Ph.D. programme of the Institute shall be maintained by the research office.

(i) All Ph.D. registrants shall be required to work under a recognized Research Supervisor.

(ii) In the case of Part-Time candidates (External) there shall be a Research Coordinator from the organization where he/she is employed.

(iii) In the case of Part-Time candidates (Internal) there shall be a Joint-Supervisor wherever necessary.

(iv) When the Research Supervisor of a Scholar happens to be away from the Institute on other assignments for more than six months, he/she may continue to guide the Scholar, but a second Research Supervisor (Joint-Supervisor) belonging to the Institute faculty shall be officially nominated by the guide with the proof of consent. For scholar with joint supervisor, a second research supervisor is not required.

(v) Change of Supervisor for a research scholar shall be possible on valid reasons with the consent of both the present and proposed Supervisors. In case, the scholar requests for change of Supervisor without the consent of the Supervisor, the request shall be considered based on the recommendation of the Board of Research. If change of Supervisor is approved, the scholar has to work for a minimum of one year with the new Supervisor and Synopsis shall be accepted only when the Scholar has published at least one journal publication (as applicable) with new Supervisor.



(vi) When a Supervisor of a scholar happens to be away from the Institute for more than one year, an alternate Supervisor shall be nominated with the approval of the Vice Chancellor based on the request of the Supervisor and/ or the recommendation of the Head of the Department of the Supervisor.

Recognition:

Recognition of Research Supervisor for guiding research work will be accorded by submitting an application in the prescribed format and on the recommendations of the Board of Research, provided the applicant possess:

(i) A Ph.D. Degree in relevant or allied areas of research in which he/she propose to guide the Scholar.

(ii) A minimum of one research publications published in the relevant or allied areas of research in a refereed Journal within a period of one year preceding the date of application for recognition.

(iii) The Board of Research may recommend to the Board of Management relaxation of the above requirements in respect of any competent person to be recognized as Research Supervisor even if he / she does not have a Ph.D. Degree in his/her field of specialization, which is of such a nature where it is rare to find supervisors with prescribed qualifications.

Number of Candidates: The Professor who is an approved Supervisor of the Institute shall guide only a maximum of 8 scholars Ph.D./M.S. (By Research) as Supervisor/Joint Supervisor at any time. The Associate Professor who is an approved Supervisor of the Institute shall guide only a maximum of 6 scholars and an Assistant Professor approved Supervisor of the Institute shall guide only a maximum of 4 scholars as Supervisor/Joint Supervisor at any time.

Scientists working in recognized Nationalized Laboratories/ Research Organizations who entered MoU with the Institute/involved in collaborative sponsored research projects, for a minimum of 3 years shall function as Joint Supervisor for the particular research scholar working in such collaborative project, provided they fulfill the norms of Supervisor recognition of the Institute and the recommendation of the Doctoral Committee.



For interdisciplinary research that requires more than one expert, the Joint Supervisor shall be approved by the Director (Research) based on the request of the Supervisor and the recommendations of the Head of the Department.

6. DURATION OF THE Ph.D. PROGRAMME

The duration of the Ph.D. programme and the time limit for submission of thesis are counted from the date of provisional registration. The maximum duration of time for submission of thesis are given below:

Duration	Maximum
Full Time	Five Years
Part Time (Internal / External)	Six Years

Extension of time from the maximum duration:

(i) Under exceptional circumstances the recommendations of the Doctoral committee for extension of time will be considered by the Board of Research for a maximum period of two years in spells of six months at a time. In case the scholar has availed break of study during the Ph.D program, the extension period will be reduced accordingly. Any further extension will be only at the sole discretion of the Board of Research.

(ii) Request for such extension shall be applied to the Director (Research), with the recommendation of the Doctoral Committee, at least one month prior to the end of the maximum period or expiry of the previous extension.

Research outside the Institute:

During the course of the Ph.D. Programme, for reasons approved by the Doctoral Committee, a Scholar may be permitted by the Institute to spend up to one year in an Institution/Industry or on a project approved for the purpose, outside the Institute for carrying out research in areas related to the subject of investigation.



Every registered scholar shall continue to pay the prescribed fees every semester, in order to keep the Ph.D. Registration active until the thesis submission.

The Director (Research) shall permit, if deemed fit for reasons, break of study for the scholar under extraordinary circumstances such as medical grounds and other compelling reasons which warrants his/her absence to the programme. However, the break of study period shall not be counted for the minimum duration of the programme.

7. DOCTORAL COMMITTEE

The Doctoral Committee shall constitute as under:

- Research Supervisor, Joint Supervisor if any.
- Two or more experts approved by the Board of Research

The Research Supervisor from the Institute shall be the Convener of the Doctoral Committee.

The supervisor shall request for an alternate member for the doctoral committee from the panel of experts submitted if,

- I. In the case of change of Supervisor.
- II. Topic of research changed before confirmation of the Provisional Registration.
- III. Doctoral Committee member is away from the place of work for more than 2 years.
- IV. In the event of Demise of Doctoral Committee member.
- V. Member not responding to attend Doctoral Committee meetings regularly.

In all the above cases or any other compelling reasons, the Director (Research) shall nominate an alternate Doctoral Committee member from the panel furnished by the Supervisor.



8. COURSE WORK AND COMPREHENSIVE EXAMINATION

Course work:

- (i) The Doctoral Committee of the Scholar shall meet within a period of one month from the date of communication of the provisional registration and shall prescribe the course work for the Scholar.
- (ii) A Minimum of four courses at P.G level being offered under any approved programme of Sathyabama Institute of Science and Technology (if necessary from any other approved institution) shall be recommended by the Doctoral Committee from courses approved by the Board of Studies. Not more than one directed study course may be prescribed for the Scholar.
- (iii) Course work subjects may be taken from Core or Elective subjects offered at PG level/ Core or Elective subjects offered in other institutions at PG level/ IITs' NPTEL offered by reputed Universities with the recommendation of Doctoral Committee.
- (iv) Regularly offered courses shall not be taken as Special Elective and the scholar shall wait to undertake such course when it is offered in the Department. It is mandatory that the research scholars should successfully complete the courses prescribed by the Doctoral Committee within two semesters for full time and four semesters for part time from the date of registration of the programme.
- (v) No change in the courses prescribed shall be made without the prior approval of the Doctoral Committee.
- (vi) Candidates already holding M. Phil. degree and admitted to the Ph.D. programme will be exempted from the course work if done in the same field.
- (vii) Normally the courses taken after the date of provisional registration only shall count towards this requirement.



Confirmation of provisional registration

On the successful completion of the prescribed course work, as evidenced by the course completion certificate issued by the office of the Controller of Examinations, the Doctoral Committee shall conduct for every Scholar a meeting to assess the overall background knowledge of the Scholar in the broad area of specialization. Based on this, the Doctoral Committee shall recommend to the Director (Research) for the confirmation of the provisional registration.

9. MONITORING THE PROGRESS OF THE SCHOLAR

Every six months, commencing from the date of provisional registration, the Scholar shall submit progress reports and registration renewal in the prescribed format to the Research Supervisor who shall forward it to the Director (Research).

The Scholar shall be permitted to change the category if necessary, with prior approval from the Board of Research.

The scholar will be required to make a presentation of his/her work twice a year before an expert committee constituted for the same.

10. CONVERSION OF MODE / DISCONTINUATION OF THE PROGRAMME

In case, the Ph.D scholar wants to change from full time mode to part time mode or vice versa, the scholar has to submit a requisition letter to the Director (Research) through the supervisor for further approval by the Board of Research

In case, the scholar discontinues from his/her Ph.D programme with his/her own decision or not responding beyond one year continuously at any stage, his/her registration stands cancelled.



11. CANCELLATION OF REGISTRATION

The Scholar who has exceeded the maximum time period stipulated for the programme shall stand cancelled automatically.

The registration is liable for cancellation administratively if

- i. The scholar has not paid the semester fees within the stipulated time.
- ii. Six month progress reports has not been submitted or progress notsatisfactory.
- iii. If the scholar fails to complete the confirmation of provisional registration beyond three years after his/her registration for the Ph.D. programme.
- iv. The scholar wishes to withdraw the programme and requests to cancel his/her registration.
- v. Request for Extension of time (beyond six years) not obtained.
- vi. Submission of Thesis beyond six months from the date of approval of Synopsis by the Doctoral Committee.
- vii. Submission of revised thesis incorporating the suggestions of any examiner beyond six months.
- viii. The act of plagiarism involved in the journal publication/Thesis.
- ix. Contact of Thesis examiners by the scholar regarding Thesis evaluation.
- x. Any violation of the rules and regulations of Ph.D. Programme.

12. SYNOPSIS OF THESIS

The scholar shall be permitted to submit the Synopsis only after obtaining the confirmation of provisional registration and completion of the minimum duration of the programme and has published his/her work as research articles as per Institutions criteria.

The scholar shall not publish research articles with similar contents in full in more than one journal.



If the Doctoral Committee approves the research work reported in the synopsis, it shall forward one copy of the approved synopsis and a soft copy of it in CD to the Director (Research) along with a panel of 5 Indian and 5 foreign examiners in their relevant field of research.

13. SUBMISSION OF THESIS

The thesis shall report, in an organized and scholarly fashion, an account of the original research work of the Scholar leading to the discovery of new facts or techniques or correlation of facts already known (analytical, experimental, hardware oriented etc.) and demonstrating quality to make a definite contribution to the advancement of knowledge and the present the findings in an appropriate manner with actual accomplishments of the work, plainly stated and honestly appraised.

Before Submission, the candidate should submit the thesis for plagiarism check and scrutiny committee within three months after synopsis submission.

Thesis shall be prepared in accordance with the format and specification prescribed. Thesis shall be submitted within three months of the approval of the Synopsis by the Doctoral Committee. Under extraordinary circumstances, submission of thesis shall be permitted up to a maximum period of six months with the prior approval of Director (Research).

The thesis shall include a certificate from the concerned Research Supervisor (and Joint Research Supervisor if any) to the effect that the thesis is a record of the bonafide research work carried out by the Scholar under his/her supervision and guidance and that the work reported in the thesis has not been submitted elsewhere for any degree or diploma.

The Scholar shall submit three copies of the thesis and a soft copy in CD ROM duly certified by the Research Supervisor.



14. THESIS EVALUATION

The thesis shall be referred to two examiners (one from India and one from abroad) from the panel of names recommended by the Doctoral Committee. If necessary, examiners may also be nominated from outside the panel.

The Director (Research) shall take such steps as deemed necessary to enable the reports of the Examiners to be received as quickly as possible.

The examiners shall send his/her willingness to evaluate the thesis within one month from the date of receipt of the synopsis.

The examiners shall send their reports in the prescribed form within two months from the date of receipt of the thesis.

The examiner shall include in his/her report an overall assessment, placing the thesis in one of the following categories:

- (a) Recommended for the award of the degree
- (b) Recommended with comments incorporated
- (c) Recommendation deferred
 - i) Resubmission of revised thesis to the examiner
 - ii) Thesis rejected

The Examiner shall enclose a detailed report of about 200 or 300 words (or if necessary a longer report) on the thesis, along with the evaluation form, in dictating the standard of Thesis attained in terms of Originality of work and Publications quality; the nature and details of the revision to be made in the thesis, Suggestions/Queries from Examiners on the Thesis; Questions to be raised in the Final viva voce; critical points and basis for rejection of the thesis.

15. ORAL EXAMINATION

The Doctoral Committee shall recommend to the Institute a panel of three examiners from recognized institutions within India to enable constitution of a Board of viva-voce Examination.

The panel of examiners for viva-voce shall be constituted as under:

- (a) The Indian Examiner of the thesis.
- (b) An expert from a recognized institution from the panel of Members submitted by the Doctoral Committee.
- (c) Research Supervisor as the Convener.



(d) Joint Research Supervisor/Research co-ordinator, if any.

The viva-voce examination shall be conducted as "Open Defence Type" examination.

The decision of the Panel of Examiners shall be final.

16. AWARD OF Ph.D. DEGREE

Based on the recommendations by the panel members, the Scholar will be awarded the Ph.D. Degree. The faculty for the award of Ph.D is based on the PG qualification of the scholar.

17. PUBLICATION OF THESIS

Research articles arising out of the thesis may be published by the Scholar. However, the thesis as a whole shall be published by the Scholar subject to permission from Institute.

18. THE ACT OF PLAGIARISM

In the case of scholars who have committed the act of plagiarism, his/her Thesis/degree shall be forfeited and his/her research registration shall be cancelled and also he/she shall be debarred to register for any other programme. For the abatement of above such action, the recognition of his/her Supervisor as a research supervisor shall be withdrawn.

19. POWER TO MODIFY

Notwithstanding anything contained in the above said regulations, the Board of Research reserves the right to modify any of the above said regulations from time to time.