REGULATIONS

FOR DEGREE OF M.Tech (By Research)

FOREWORD

The Regulations for the Degree of M.Tech (By Research) provide information to prospective scholars about the M.Tech (By Research) programmes in different branches of Engineering, Technology at Sathyabama University, Chennai. In addition departments under Faculty of Science and Humanities, Faculty of Business Administration and Faculty of Education and number of centres of Research are functioning at Sathyabama University, Chennai. Course work tends to sharpen logical skills while research work emphasizes both intuitive and logical skills. Indeed, it is the confirmation of intuition by logic that is a reliable route to research and understanding.

Sathyabama University’s activities are aimed at developing excellence in Science & Technology through competitive academic and research environment, linkages with the industry and leading academic and research institutions. It aims and seeks to become a World Class University to contribute towards teaching, research, and extension and industry collaboration. Consistent with the high standard of excellence aimed by the University, the faculty comprises of a team of carefully selected and highly qualified and dedicated persons, who have a proven record of meritorious accomplishments to their credit. I take this opportunity to invite prospective candidates to join Sathyabama University and realize their dream.

Dr. JEPPIAAR
Chancellor
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  Institute of Remote Sensing (IRS), Anna University, Chennai – 600 025.

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  IGCAR, Kalpakkam-603 102.

- **Dr.Tamarai Chelvi** - Member
  Professor,
  Department of Information Technology, Anna University, Chennai.

- **Dr.P.E. Sankaranarayanan** - Member
  Dean (Academic Research),
  Sathyabama University
  Chennai – 600 119

- **Dr.S.S. Rau**, --Member
  Registrar,
  Sathyabama University
  Chennai – 600 119
• Dr. K.V. Narayanan, --Member
  Controller of Examination,
  Sathyabama University
  Chennai – 600 119.

• Dr. T. Sasiphraba, --Member
  Dean (Publications & Conferences),
  Sathyabama University,
  Chennai -600 119.

• Dr. C. Gomathy, --Member
  Prof & Head
  Department of Electronics & Control Engineering,
  Sathyabama University,
  Chennai -600 119.

• Dr. S. Ramachandran, --Member
  Prof & Head
  Department of Mechanical Engineering,
  Sathyabama University,
  Chennai -600 119.

• Dr. D. Joshua Amarnath, --Member
  Department of Chemical Engineering,
  Sathyabama University
  Chennai -600 119.

• Dr. Annimananda, --Member
  Department of Bio-Medical Engineering,
  Sathyabama University,
  Chennai -600 119.
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

6. Faculty of Civil Engineering
   - Civil Engineering

7. Faculty of Chemical Engineering
   - Chemical Engineering
   - Environmental Engineering
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1. **ELIGIBILITY**

1.1 A scholar possessing Bachelor’s Degree in Engineering / Technology or any other qualification recognized as equivalent thereto in the fields of study notified from time to time by the University is eligible to register and work for the M.Tech (By Research) Programme.

1.2 Eligibility 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).

2. **M.Tech (By Research) PROGRAMME AND PLACE OF RESEARCH**

2.1 There shall be two categories of M.Tech (By Research) Programmes as listed

   a) **Full-time**: Candidates who pursue full-time study and research in this University shall belong to this category.

   b) **Part-time**: Candidates sponsored for pursuing M.Tech (By Research) programme in this University while continuing in their job, shall belong to this category. They shall pursue research in their place of employment and/or in the University. There shall be a Research Supervisor recognized by this University and a Research Coordinator in their organization for candidates other than the staff of Sathyabama University as per clause 4.1(ii) who is responsible to provide all necessary resources and help to complete the research work in a time bound manner.

3. **REGISTRATION PROCEDURE**

3.1 Candidates desirous of registering for the M.Tech (By Research) Degree shall submit the application in the prescribed form through proper channel, wherever applicable. The filled in application along with supervisor's bio-data will be received till October / April for registration in January / July respectively. The applications received shall be first circulated to all the eligible Research Supervisors in the concerned Departments as part of the modus operandi.

3.2 All such filled applications, shall then be scrutinized by the Research Co-ordination Committee. This Committee is responsible for the screening of the candidates and recommends the eligible candidates to the M.Tech (By Research) programme and shall also help in fixing a Research Supervisor taking into account the mutual preferences of the Scholar and supervisor.

3.3 The candidates may be required to appear for a written test and/or oral presentation before a screening committee which may comprise three senior faculty members knowledgeable in the subject area of research and approved research guides of the University. 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 M.Tech (By Research) programme.

3.4 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 University and other organizations from which two (or more) will be approved by the Board of Research for the constitution of the Monitoring Committee. The Joint Research Supervisor, if any, shall also be a member of the Monitoring Committee.
3.5 The Board of Research shall approve the candidates recommended by the screening committee for admission to the M.Tech (By Research) Programme under intimation to the concerned Research Supervisor, the Candidate, and the sponsoring institution, if any.

3.6 For approved candidates the date of provisional registration shall be the date on which the Board of Research has recommended admission. Such dates shall be half-yearly viz., 1st January and 1st July, as the case may be, as per the University calendar. Every approved Candidate shall register by paying the initial fees prescribed.

4. **RESEARCH SUPERVISORS AND NUMBER OF CANDIDATES**

4.1 The Faculty members already recognized as Supervisor for guiding Ph.D scholars are eligible to Guide M.Tech (By Research) Scholars.

i) All M.Tech (By Research) registrants shall be required to work under a Research Supervisor recognized by this University.

ii) In the case of Part-Time candidates there shall be a Co-guide / Research Coordinator from the organization where he/she is employed and requires the approval of the Board of Research.

iii) When the Research Supervisor of a Scholar happens to be away from the University on other assignments for more than six months, he/she may continue to guide the Scholar, but a second Research Supervisor belonging to the University 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.

iv) Change of Research Supervisor: The Board of Research may consider a scholar to change his/her Research Supervisor on valid reasons.

4.2 Recognition:

Recognition of Research Supervisor for guiding research work will be accorded by the Board of Management on making 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 technical paper published in the relevant or allied areas of research in a refereed Journal or two refereed papers in Conference proceedings and/or patents, within a period of three years 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.

4.3 *Number of Candidates*:

Guidance by a Supervisor is limited to 10 Scholars with a maximum of 6 scholars either in Ph.D or M.Tech (By Research) programme at any time, unless the Board of Research specifically permits the same under extraordinary circumstances.
5. **DURATION OF THE M.Tech (By Research) PROGRAMME**

5.1 The duration of the M.Tech (By Research) programme and the time limit for submission of thesis are counted from the date of provisional registration vide clause 3.6. The minimum and maximum duration of time for submission of thesis are given below:

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<th>Duration</th>
<th>Minimum</th>
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<td>Full Time</td>
<td>Two Years</td>
<td>Four Years</td>
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<td>Part Time</td>
<td>Three Years</td>
<td>Four Years</td>
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5.2 **Extension of time from the maximum duration:**

i) Under exceptional circumstances the recommendations of the Monitoring Committee for extension of time will be considered by the Board of Research for a maximum period of one year in spells of six months at a time. Any further extension will be only at the sole discretion of the Vice-Chancellor based on the recommendation of the Board of Research.

ii) Request for such extension (six months at a time) shall be applied to the Dean (PG Studies & Research), with the recommendation of the Monitoring Committee, at least one month prior to the end of the maximum period or expiry of the previous extension.

iii) The Scholar is eligible to apply for extension of time only if his/her registration is already confirmed.

5.3 **Research outside the University:** During the course of the M.Tech (By Research) Programme, for reasons approved by the Monitoring Committee, a Scholar may be permitted by the University to spend up to one year in an Institution/Industry or on a project approved for the purpose, outside the University for carrying out research in areas related to the subject of investigation.

5.4 Every approved Scholar shall register by paying the initial fees prescribed and then continue to pay the prescribed fees every semester, in order to keep the M.Tech (By Research) Registration alive until the thesis is submitted.

5.5 The Dean (PG Studies and 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.

5.6 Break of study to scholars shall be granted up to a maximum period of two years not exceeding one year at a time. Such request with the recommendation of the supervisor should reach the Dean (PG Studies & Research) prior to availing break of study. Break of study shall be accounted for the counting of duration of the programme (clause 5). The scholar should remit the semester fees during the break of study period also.

6. **MONITORING COMMITTEE**

6.1 The Monitoring Committee shall constitute as under:

- Research Supervisor, Joint Supervisor if any.
- Two or more experts approved by the Board of Research
6.2 The supervisor shall request for an alternate member for the Monitoring committee from the panel of experts submitted as per clause 3.4 if,
- the Monitoring committee member is away from his/her place of work for a long period
- the Monitoring committee member expresses his inability to continue as a member in writing

6.3 The Research Supervisor shall be the Convener of the Monitoring Committee. In the event of the Supervisor leaves temporarily the second /Joint-Research Supervisor shall be the Convener.

6.5 All communications shall be routed through concerned Head of Department.

7. COURSE WORK AND COMPREHENSIVE EXAMINATION

7.1 Course work:

i) The Monitoring Committee of the Scholar shall meet within a period of one month from the date of communication of the provisional registration and prescribe course work for the Scholar.

ii) A minimum of eight courses at P.G level being offered under any approved programme of Sathyabama University (if necessary from any other approved institution) shall be recommended by the Monitoring Committee from courses approved by the Board of Studies. If a course is newly prescribed for Directed Study, then each such course shall be designed to be covered in not less than 45 contact hours of instruction and shall be approved by the appropriate Board of Studies. Not more than one directed study course may be prescribed for the Scholar.

iii) Regularly offered PG electives shall not be taken as Special Elective and the scholar shall wait to undertake such course when it is offered to the PG students in the Department.

iv) If any course, specific to the area of research has to be newly designed, then such course shall be formulated as a Special Elective to be covered in not less than 45 contact periods of instruction and the course syllabus shall be designed by the Supervisor, recommended by the Monitoring Committee and shall be approved by the appropriate Board of Studies/Academic Council. These courses shall be of PG level. A scholar shall be permitted to undertake only one such Special Elective based on the recommendations by Board of Research.

v) No change in the courses prescribed shall be made without the prior approval of the Monitoring Committee.

vi) Normally the courses taken after the date of provisional registration only shall count towards this requirement.

vii) The prescribed courses shall normally be completed within one year from the date of provisional registration for full time Scholar and two years for part-time Scholar.
7.2 Comprehensive Examination

ii) On the successful completion of the prescribed course work, as evidenced by the Grade sheet given by the Controller of Examinations, the Monitoring Committee shall conduct for every Scholar a qualifying / comprehensive written and oral examination to test the overall background knowledge of the Scholar in the broad area of specialization. Based on the results of this examination, the Monitoring Committee shall recommend to the Dean (P.G. Studies & Research) for the confirmation of the provisional registration and to proceed further with his/her M.Tech (By Research) work within one month from the date of the comprehensive examination held.

iii) If, based on the results of the comprehensive examination, a Scholar is not approved by the Monitoring Committee, then a grace period of up to a maximum of Six Months shall be given, and at the end of which the Scholar shall be re-examined. If found satisfactory, the Monitoring Committee shall recommend to the Dean (PG Studies and Research) for confirmation to proceed with the Research work. Otherwise, the Scholar’s provisional registration shall be cancelled.

8. MONITORING THE PROGRESS OF THE SCHOLAR

8.1 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 Dean (P.G. Studies & Research) during the payment of semester fee.

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

8.3 The research supervisor shall arrange to make a presentation by the scholar of his/her work twice a year before the faculty of the department and it is mandatory to convene Monitoring Committee meeting at least once in a year and the minutes of the meeting sent to the Dean (PG Studies and Research)

9. CANCELLATION OF REGISTRATION

9.1 The registration of a Scholar who has exceeded the period stipulated for the programme as in clause 5.1 and 5.2 shall stand cancelled automatically.

9.2 The registration is liable for cancellation administratively by the Dean (PG Studies and Research), if

  i) Performance is not satisfactory to the Monitoring Committee and accordingly recommended for cancellation.
  ii) The Scholar wishes to withdraw from the programme and requests to cancel his/her registration.
  iv) Contact of Thesis examiners by the scholar regarding Thesis evaluation.

9.3 In all the above cancellation cases, the fees paid by the scholar shall not be refunded.
10. SYNOPSIS OF THESIS

10.1 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 applicable to the scholar. However, a scholar shall be permitted to submit the Synopsis (after obtaining confirmation) three months prior to the completion of his/her minimum duration, provided the scholar has published one paper in refereed journals after joining the programme and specifically recommended by the Monitoring Committee.

10.2 If the Monitoring Committee approves the research work reported in the synopsis, it shall forward six copies of the approved synopsis and a soft copy of it in CD to the Dean (PG Studies & Research) along with a panel of six experts (within India other than Tamil Nadu) in the field of research of the scholar with their bio data and list of papers published.

11. SUBMISSION OF THESIS

11.1 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 a quality as to make a definite contribution to the advancement of knowledge and the Scholar’s ability to undertake independent research and present the findings in an appropriate manner with actual accomplishments of the work, plainly stated and honestly appraised.

11.2 Three copies of the 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 Monitoring Committee along with three copies of the abstract of the thesis in about 400 words. Under extraordinary circumstances, submission of thesis shall be permitted up to a maximum period of six months with the prior approval of Dean (PG Studies & Research).

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

11.4 Along with the submission of three copies of the thesis, the Scholar shall submit a copy of the thesis in CD ROM duly certified by the Research Supervisor.

12. THESIS EVALUATION

12.1 The thesis shall be referred to two examiners nominated by the Vice-Chancellor from the panel of names recommended by the Monitoring Committee. The Vice-Chancellor, if he/she deems it necessary, may also nominate the examiners from outside the panel.

12.2 The Dean (P.G. Studies & Research) shall take such steps as deemed necessary to enable the reports of the Examiners to be received as quickly as possible.

12.3 The examiners shall send his/her willingness to evaluate the thesis within one month from the date of receipt of the synopsis.
12.4 The examiners shall send, in the prescribed form, their reports within two months from the date of receipt of the thesis.

12.5 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 M.Tech (By Research) degree:
   Highly commended/Commended.

b. Revision required
   (i) Revised thesis be resubmitted
   (ii) Revised thesis need not be resubmitted.

c. Not Commended

12.6 The examiner shall enclose a report in about 300 words, indicating the standard attained in case (a), the nature of revision in case (b) and the reasons in case (c).

12.7 The Monitoring Committee, based on the reports of the examiners, will either provisionally accept the thesis in which case the Scholar is asked to defend his/her work in a public viva-voce oral examination or reject the thesis. The following criteria shall be adopted for this purpose:

a) If both the examiners recommend the award of the degree, the thesis shall be provisionally accepted. Any minor revision, modification etc. suggested by the examiners shall be carried out before the viva-voce examination is arranged.

b) If both the examiners do not recommend, the thesis shall be rejected and the registration of the Scholar cancelled.

c) If one examiner recommends the award of the degree while the other does not, then the thesis shall be referred to a third examiner to be nominated by the Vice-Chancellor as in 12.1. If two of the three examiners recommend the award, the thesis shall be provisionally accepted. If two of the three examiners do not recommend, then the thesis shall be rejected and the registration of the Scholar cancelled.

d) If any examiner recommends revision of the thesis the Scholar shall be permitted only once to revise and resubmit the thesis within six months and the revised thesis shall be referred to the same examiner only in situations such as

   (i) When the examiner recommends new experiments and major modification involving new methodology and also

   (ii) The examiner insists the university to send the thesis back to the same examiner after revision for offering his final decision on the thesis which should only be either recommended for the award or rejection. In case, the examiner does not insist on sending the thesis back to him, then the university may refer the revised thesis to the Monitoring Committee for acceptance.

e) Individual cases not covered by the above clauses shall be referred to the Vice-Chancellor, if he deems it necessary, shall refer the thesis and the comments to the Board of Research which in turn shall refer to the Board of Management, for necessary action.
13. ORAL EXAMINATION

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

13.2 The Board of viva-voce Examination shall be constituted by the Vice-Chancellor as under:
   a) The Indian Examiner of the thesis or a specialist in the subject if he / she is not available in India at that time.
   b) A specialist from a recognized institution from the panel of Members submitted by the Monitoring Committee. The Vice-Chancellor, if deems it necessary, may nominate a member from outside the panel.
   c) Research Supervisor of the Scholar in the University as the Convener.
   c) Joint Research Supervisor/Research co-ordinator, if any.

13.3 The viva-voce examination shall be conducted as “Open Defence Type” examination. The decision of the Board of Examiners shall be final.

14. AWARD OF M.Tech (By Research) DEGREE

If the report of the Board of viva-voce Examination is SATISFACTORY, the Scholar will be awarded the M.Tech (By Research) Degree with the approval of the Board of Management. The faculty for the award of M.Tech (By Research) is normally based on the UG qualification of the scholar.

15. PUBLICATION OF THESIS

Papers arising out of the thesis may be published by the Scholar. However, the thesis as a whole shall not be published by the Scholar without the express approval of the Board of Management of the University.

16. THE ACT OF PLAGIARISM

16.1 In the case of scholars who have committed the act of plagiarism, his/her Thesis/degree shall be forfeited and his/her registration shall be cancelled and also he/she shall be debarred to register for any other programme in the University.

16.2 For the abatement of above such action, the recognition of his/her Supervisor as a research supervisor shall be withdrawn for a period of five years.

17. POWER TO MODIFY

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