Department Specific Guidelines for Ph.D. Programme

(Refer to the Ph.D. Manual for Institute-wide guidelines for the Ph.D. programme. This document consists of guidelines specific to the Department of Mathematical Sciences)

Semester Wise Timeline and Bullet Points for Ph.D. Programme

<table>
<thead>
<tr>
<th>Year</th>
<th>Sem</th>
<th>Lecture courses/ Research Project</th>
<th>Remarks</th>
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<tbody>
<tr>
<td>I</td>
<td>1&amp;2</td>
<td>The student should register for at least 3 Lecture courses (4 credits per course) per semester. These can be attended either at NISER Bhubaneshwar or at IISER Berhampur after discussing with the mentor (if allotted or with Convener, DPGC). Optional reading course / Lecture course if suggested by the mentor.</td>
<td>In the beginning, students will be allotted an academic mentor / potential supervisor with the help and approval of DPGC/HoD. Before the start of the 2nd year, students should choose a potential supervisor with the help and approval of DPGC and HoD, if not done yet.</td>
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MINIMUM CPI requirement for a student to appear for the Comprehensive examinations is 7.

In case, a student obtains CPI strictly less than 7.00 and greater than or equal to 5.50 in the first year, he/she may appeal to DPGC/HoD for a chance of improving the CPI by repeating/substituting/improving the courses as per the institute provision (Given below for ready reference).

Repeat Courses: A student can repeat a course in which he/she has earned an F grade. Such a course is called a repeat course. A student will not be permitted to register for more than two failed courses during a regular semester.

Substitute Course: A maximum of two courses with CC or CD or DD or FF grades can be substituted during the entire course of study.

Improvement course: A student may be permitted to appear in re-examination for a maximum of 8 credits for improvement of grades with CC or CD or DD or FF grades.

Re-examination: The Ph.D. student may get a chance to appear for the re-examination during the winter vacation i.e. December.

Reading Course: Annexure II

<table>
<thead>
<tr>
<th>Year</th>
<th>Sem</th>
<th>Lecture courses/ Research Project</th>
<th>Description</th>
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<tbody>
<tr>
<td>II</td>
<td>3 &amp; 4</td>
<td>MTH 699 (Reading course)</td>
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<td>- Research work/ reading/ lecture courses (as decided by the potential supervisor)</td>
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<td>- Comprehensive Examinations, APS.</td>
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<td>- End of 2nd year: Promotion from JRF to SRF.</td>
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<td>MTH 699: Reading course is compulsory and is expected to be completed by the end of the 3rd semester. - A student may register for this course in the first year as well. (Refer to the Annexure I &amp; II for the structure of the comprehensive examination and reading courses, respectively).</td>
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A student will be assigned to one faculty member among the department who will act as a potential supervisor (as per the department policy). (Refer to the Ph.D. manual #8.4, 8.5, 8.6, 8.7 for the description of APS and promotion from JRF to SRF.)
### III Gradient Seminar and Research work (descriptions as per the Ph.D. Manual #8.8):
- This can cover any recent developments or an advanced topic in his/her area of research. The seminar should be given by the student after the successful candidacy and within six months of qualifying the comprehensive examination.
- Performance of the student will be evaluated with a satisfactory (S) grade or Unsatisfactory (X) grade; no marks will be awarded. If the performance is not S grade, the student has to repeat the Graduate Seminar and this needs to be completed within the third year of his/her PhD programme.
- The Research Progress Committee (RPC) will evaluate the graduate seminar. The evaluation form will be signed by the supervisor, Convener DPGC and FIC, and will be submitted to the Office of Academic Affairs.
- APR and APS towards the end of the year are to be conducted.

### IV-V APR and APS towards the end of the fourth year.
In a case, a student is unable to give a pre-synthesis seminar within the first two months of the 10th semester, he/she can appeal for an extension of stay after the end of the 5th year. In that case, he/she should continue the submission of APR and APS from the 5th and 6th year. Based on the evaluation of RPC, the DPGC will give recommendations to the Office of Academic Affairs for this residency extension. With the approval of Chairperson, Senate, the candidate may be permitted for a maximum of 7 years residency.

### Pre-Synthesis Seminar:
The thesis supervisor should recommend two to three faculty members (in addition to RPC) to evaluate the student’s research work (refer to the IISER Berhampur Ph.D. manual for other details). The synopsis and the thesis (refer to the IISER Berhampur Ph.D. manual for other details) should be submitted within four months from the date of pre-synthesis seminar.
Annexure I
Comprehensive Examination

Details of the comprehensive examination and viva-voce for JRF to SRF for internal and external funding:

- RPC will conduct and evaluate the comprehensive examination. If a student fails the comprehensive examination, he/she will be given another chance to clear the exam. However, the student must clear the comprehensive examinations within the 4th semester (As per the Institute Policy).
- A student is officially admitted to candidacy for Ph.D. after the successful completion of written and oral comprehensive examination.

The comprehensive examination consists of two sections, written and oral.

**Written section:**
1. A student is eligible for written examination only after she/he completes the course requirements, that is, completion of **24 credits** with the minimum **7 CPI**.
2. A student should submit the respective form to the Department office at least a month in advance from the proposed date of examination in consultation with the potential thesis supervisor/mentor.
3. The potential supervisor/mentor will specify the courses and topics for the student to take for the written examination.
4. The grades for the written exam will be pass or fail.

**Oral section:** The oral examination is a question-answer session with the oral examination committee members with or without a presentation by the student. The syllabus is based on the study undertaken in the compulsory reading course MTH 699 of 6 credit towards the oral examination.

1. A student is eligible for an oral comprehensive examination only after he/she completes the course requirements, that is, completion of **30 credits** with the minimum **7 CPI**.
2. This exam cannot be taken unless the student has passed the written section.
3. The student should submit the respective form to the Department office at least **8 weeks** before the proposed oral examination date and along with the synopsis prepared in consultation with the potential thesis supervisor. The synopsis should include the topics from the compulsory reading course MTH 699. The oral exam must be scheduled within two months from the written comprehensive examination subject to the convenience of the committee.
4. The grades for the oral examination will be satisfactory or unsatisfactory.

Students are expected to clear the written examination by the beginning of 3rd semester and must successfully complete both sections before the end of the 4th semester (Including all the attempts). **At most two attempts are allowed for each section.**

**Abbrebriations:**

RPC: Research Progress committee (Doctoral/Ph.D. advisory committee)
APS: Annual Progress Seminar
APR: Annual Progress Report
DPGC: Departmental Post Graduate Committee
Annexure II

Reading Courses

Reading courses (MTH 698, MTH 699) are meant for Ph.D. prior to clearing the Ph.D. candidacy requirements, and are in the process of deciding a research topic and a thesis supervisor. The Grades will be given either S (satisfied) or X (unsatisfied).

1. MTH 699: Reading Course (6 credits)
   - This will be a semester long course. There will be one instructor for the course.
   - The goal of the course is twofold:
     - to promote a focused self-study, and
     - to provide the instructor and student the opportunity to work with each other.
   - A suggested list of reading courses (title, brief outline) with the instructor will be circulated to the students two weeks prior to the pre-registration each semester. The student may contact faculty members for topics outside this list.
   - The student should register for the reading course during the pre-registration. The student should submit a hardcopy of the title of reading course with instructor's signature, to the Department office, by the pre-registration deadline.
   - The student should submit a hardcopy of the course contents for the reading course to the department office within a week after the classes begin.
   - In-Course Seminar: The student will be required to give two mandatory seminars (for every reading course) in the Department during the course of the semester. The student should submit the seminar details (title and abstract) for each of the seminars to the DPGC no later than one week before the scheduled seminar.
   - The course will be evaluated by the instructor based on the performance of the student in the material covered during the course, seminars, and the examinations.

2. MTH 698: Reading Course (with 4 credits)
   - The model for this course with 4 credits is the same as for the Reading course MTH 699 (with 6 credits) as described above, except for the seminar component.