

# **Student's Guide to the Doctoral Programs at HBNI-IMSc (Theoretical Computer Science)**

**HBNI-IMSc Office**

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# 1 Welcome

Dear Student,

Congratulations on being selected for a Doctoral program of HBNI at IMSc and Welcome to IMSc!

This booklet contains step-by-step information about getting your PhD. Please read carefully and familiarise yourself with the requirements and procedures.

The qualification for the PhD degree has several components - qualifying grade in course work, successfully clearing the *Oral General Comprehensive Examination*, getting a supervisor and working on a thesis topic leading to at least one original publication and finally writing a thesis to be examined by experts in the field. Each of these is detailed below.

Shortly after your joining, you will be registered with HBNI. Your normal tenure is five years for PhD students and seven years for Integrated PhD students, and extensions beyond this are given for exceptional circumstances under recommendation from the doctoral committee. You will be assigned a *Monitoring Committee* to advise and assist you during your course work until you find a PhD supervisor. Thereafter, a *Doctoral Committee* will monitor your progress of your research.

You are expected to meet the chairperson of your monitoring committee once a month and the full committee at the end of each semester. *This is your opportunity to seek any clarifications, give your feedback on the course work and communicate any academic difficulties you face.* Your monitoring committee will be glad to assist you.

## 2 The Course Work

### 2.1 Syllabi and course structure

The detailed course structure will be communicated to you by the academic coordinator and your monitoring committee. The course syllabi will be available with the course teachers. The PhD program has eight courses which are expected to be covered in the first year. The Integrated PhD program typically has *twelve courses* followed by a Master's thesis, all covered in the first *two years*, enabling the student to get a Master's Degree at the end of the two year course work.

The integrated PhD students will write a Master's thesis in their fourth semester under the supervision of a faculty member. (The work towards this thesis/project begins in the third semester itself.) This thesis will be examined by a faculty member other than your project supervisor. You will give a seminar talk on your thesis and your Monitoring Committee will give a grade for the Master's thesis as for the other courses. *This is your opportunity to seek a potential guide and get familiar with research methodologies.*

**The project/thesis evaluation is expected to be completed by June 30th.**

*If you have already done a particular core course and are proficient in it, you could seek exemption from it and your monitoring committee will take the decision.*

## 2.2 Evaluation

The course teachers will formulate and convey to you the evaluation method for their respective courses. Typically, it will involve home assignments, a mid-term examination and a final examination with some suitable weightage for each component.

## 2.3 Qualifying grades

You are expected to be regular in attending the lectures, doing the home works and maintain an average *qualifying grade* throughout the Course Work.

The grades  $\leftrightarrow$  marks correspondence is as follow: 'A'  $\leftrightarrow$  (90 - 100 %), 'B'  $\leftrightarrow$  (80 - 89 %), 'C'  $\leftrightarrow$  (70 - 79 %), 'D'  $\leftrightarrow$  (60 - 69 %), 'F'  $\leftrightarrow$  (< 60 %). The *Grade Point Average* is computed by assigning 4 points to an 'A', 3 points to a 'B', 2 to a 'C' and 1 to a 'D' and taking the average.

The *Qualifying GPA* requirements are detailed blow:

- The student must maintain a GPA of  $\geq 3.0$  in order to proceed to PhD.
- If an integrated PhD student's GPA is below 3.0 but  $\geq 2.0$ , then the student will be allowed to stay in the Master's program and will have to leave after obtaining MSc. Likewise, if a PhD student secures GPA below 3.0 but  $\geq 2.0$  then the student can continue only as an MPhil student and will have to leave after completing MPhil.
- A GPA below 2.0 will result in termination of the registration and the student will have to leave the Institute.
- A single 'F' will result in termination of the registration and the student will have to leave the Institute. An "incomplete course" automatically entails an 'F' grade leading to termination of the registration.

## 3 The Oral General Comprehensive Examination

This is the second component for qualifying for PhD research work. At the end of your course work, your monitoring committee will prescribe a syllabus (or a set of research papers for you to read) for the oral general comprehensive exam conducted by an examination committee comprising of faculty members. The purpose of this examination is to determine if you are adequately prepared to undertake doctoral research. A satisfactory performance will permit you to proceed to your doctoral research. In case of unsatisfactory performance, you will be given another opportunity to clear the examination.

Failure to clear the Oral General Comprehensive Examination will foreclose your option of going for the Doctoral research and your registration will be terminated.

**The Oral General Comprehensive Examination is expected to be conducted by July 31st after successful completion of prescribed course work (and Master's thesis in the case of integrated PhD students).** The Monitoring Committee may, at its discretion, allow an extension.

## 4 Doctoral Research

After successful completion of the course work and the Oral General Comprehensive Exam, **you should arrange with a faculty member to be your Doctoral advisor within *three months* and inform the monitoring committee.**

If needed, a further extension of three months to confirm with an advisor will be granted by the Dean on the recommendation of the Monitoring Committee. A maximum of two such extensions can be given.

As per the HBNI rules, a supervisor can be from any of the CI's. A co-guide can be from another Institute with which IMSc has a appropriate MoU.

After arranging with an advisor, the Advisor/Dean will constitute a Doctoral Committee. This will meet usually once in six months, and in any case at least once a year, to monitor your progress and advise you accordingly.

Your thesis supervisor and you, will formulate a suitable thesis topic. You will receive guidance from your supervisor and the Doctoral Committee. However, please be aware, succeeding in the research work is primarily your responsibility. The Doctorate degree declares that you have the necessary competence to undertake and carry through independent research.

The normal tenure of registration is **five years**. An extension to the sixth year is possible under exceptional circumstances upon the recommendation of the Doctoral Committee and subject to the approval by the Director. A further extension for another year could only be obtained by the approval of the Board of Studies and the Director. It is to be noted that these extensions are permissible only under exceptional conditions and on well justified grounds.

Your advisor and the Doctoral Committee will determine if you have done adequate work for writing your thesis and advise you accordingly. It is a requirement of the UGC, that there should be at least *one publication* before a thesis may be submitted. Publications should explicitly list HBNI along with IMSc in your author affiliation.

A separate booklet is available on the web-site for basics of research methodologies as well as for the ethical aspects of doing and publishing research work.

*Note: You are expected to be a Teaching Assistant for at least one of the courses, for one semester, during your tenure as PhD student. There is a financial compensation for these duties.*

### 4.1 The Thesis Submission Process

Here are the steps in the thesis submission process:

1. In consultation with your advisor, schedule a pre-synopsis seminar, open to all and attended by the Doctoral Committee, describing the research done and the outline of the proposed thesis.
2. Submit a synopsis to your advisor (a template is available on the web-site);
3. Advisor submits your synopsis and a list of 6 examiners, both duly approved by your Doctoral Committee, to the HBNI Cell;

4. The Dean sends the papers to the Board of Studies for approval and a selection of 4 examiners. This conveyed back to the IMSc Dean;
5. The thesis is prepared (template available on the web-site) and submitted to the HBNI Cell *within three months* of synopsis submission;
6. The Dean, IMSc coordinates the evaluation process. Upon receiving two examiner's reports, a viva examination is organised;
7. After the viva examination, the final copy of the thesis is prepared incorporating all suggestions of the examiners. *Two* bound copies and a soft copy is to be submitted to the HBNI Cell. *A one page summary of your thesis and your name in Devanagari Script* is also required to be submitted for the purposes of Annual Report of the HBNI;
8. The Dean, IMSc issues a certificate of completion of the viva to the student. HBNI cell sends the necessary papers to HBNI, central office who after a scrutiny sends a provisional certificate to the HBNI Cell. The final Degree Certificate is sent directly to the student and the communication address given by the student.

With the Doctorate Degree, you begin your research career.

**Wish you all the best for a successful tenure at IMSc.**