

## ORDINANCE PGD4

### Ph.D. Programme

#### 1. Admission

- 1.1 Minimum qualification for admission to Ph.D. in Engineering Sciences shall be B.E./B.Tech. or equivalent from a recognized university or institute with minimum 50% of marks. However, whenever MHRD/UGC/Statutory Authority stipulation is higher than 50% the stipulated % shall be followed. The candidates having M.Sc. or equivalent degree and having aptitude for research in Engineering may also be considered for admission to Ph.D. programme in Engineering Sciences.
- (i) Minimum qualification for admission to Ph.D. in Science or Mathematics shall be M.Sc., MBBS, M. Tech.-Biotechnology, M. Tech in Bioinformatics provided M. Tech Bioinformatics course includes adequate content of Biochemistry, Molecular Biology, Cell Biology, Immunology, and related Laboratory techniques. The required knowledge base should be assessed by the BoS-Life Sciences, HBNI before accepting the candidate for Ph. D. programme.
- 1.2 or M.B.B.S. or equivalent from a recognized university or institute with minimum 50% of marks. However, whenever MHRD/UGC/Statutory Authority stipulation is higher than 50% the stipulated % shall be followed. The candidates having B.E./B.Tech. or equivalent degree and having aptitude for research in Science or Mathematics may also be considered for admission to Ph.D. programme in Science or Mathematics.

- 1.3 Admission to the Ph.D. programme shall be by interview of the applicants who must be short listed by a screening examination approved by the Academic Council.
- 1.4 The CI to which the candidate is admitted for the Ph.D. programme, shall allot each candidate to a mentor or a guide and, if necessary, a co-guide. In case the candidate is assigned only a mentor, his/her guide shall be identified as soon as possible but not later than the end of his/her second year in the doctoral programme. The guide shall be identified by taking into consideration the academic interests of the concerned candidate and the research profile of the CI to which the candidate is admitted. The guide and, where applicable, co-guide could be from any Institute or University with which HBNI has an agreement of cooperation. To get guidance on issues related to technology, a student may have a guide and a Technology Adviser. A Technology Adviser will be an individual who has demonstrated abilities in technology development or engineering design in areas related with the research topic of the student. Only the guide has to have recognition as faculty from HBNI.
- 1.5 To encourage inter-disciplinary research, a candidate may have two guides. The guides could be from different CIs. However, the student will belong to a particular CI.

## 2. Programme

- 2.1 The Ph.D. programme at each CI shall consist of two components: (i) course work, and (ii) research work leading to a thesis.
- 2.2 The duration of the course work shall normally be not less than one academic year. Wherever necessary, a course or courses may be substituted by one or several term papers on subjects and/or allied subjects so as to ensure that the basic intent of the course work, viz., to make the student acquire broad-based knowledge is met.
- 2.3 In individual cases, having degree such as M.Phil., M.Tech., M.Sc.(Engg), the extent of the coursework or exemption there from shall be decided by the Monitoring/Doctoral Committee/Standing Committee-relevant discipline in the CI (see Clauses 3 and 4 below). The exemption from course work may also be considered in case the candidate has attended courses without getting any degree or has adequate research experience. The admissibility of courses for consideration for exemption shall be decided by the Monitoring/Doctoral Committee. The Monitoring/Doctoral Committee will certify successful completion of course and research work by the candidate.
- 2.4 Having completed the course work successfully, a candidate shall appear for an Oral General Comprehensive Examination to be conducted by the Monitoring/Doctoral Committee. If his/her performance is satisfactory, the Monitoring/Doctoral Committee shall permit the candidate to pursue/continue research towards thesis. Else, it may give specific suggestions and time period (maximum six months) to the candidate for preparation before reappearing for

the oral general comprehensive examination. If a candidate fails to qualify in two attempts, his/her registration for Ph.D. shall be cancelled.

In that event, the Monitoring/Doctoral Committee shall prescribe additional requirements to be met by the student to enable him/her to earn a lower degree such as M.Phil./M.Sc.(Engg).

The CIs must ensure that a guide is identified as soon as the candidate qualifies the General Comprehensive Examination.

- 2.5 The normal period of course work and research from the date of admission to Ph.D. programme shall be 48 months for the candidates with Master's degree or equivalent in Engineering/Technology and 60 months for candidates with Master's degree or equivalent in Science or a Bachelor's degree or equivalent in Engineering/Technology from a recognized Institute or University. The period may be extended up to a maximum of one year by the Doctoral Committee. Any extension beyond one year will require approval of the concerned Board of Studies. Minimum period for submission of thesis shall be two years from the date of admission.

### **3. Monitoring Committee**

- 3.1 Whenever a guide is not appointed in the beginning, the progress of each student during the course work shall be monitored by a Monitoring Committee to be constituted by the Dean-Academic at the CI within four weeks of joining of the candidate. The Monitoring Committee will function to supervise the progress of the student until such time as a Doctoral Committee (see clause 4 below) is constituted. The constitution of the Monitoring Committee shall be as follows:
- a. A senior faculty member to be nominated by the CI shall be the Convener,
  - b. Up to two faculty members specializing in an area falling in the domain of the Board of Studies to which the student is enrolled,
  - c. Up to two members from the faculty involved in teaching the courses that the student is attending.
- 3.2 The Committee will mentor the student and evaluate his/her performance until such time as a Doctoral Committee is constituted.

### **4. Doctoral Committee**

- 4.1 To monitor the progress of the students, the Dean-Academic at the CI, in consultation with the Convener, concerned Board of Studies, shall constitute a Doctoral Committee for each student as soon as a guide is assigned. The composition of each committee shall be as follows:

- a. A Professor or a member (present or past) of the Board of Studies to which the student belongs or a member of the Academic Council shall be the Chairman of the Committee.
- b. The guide shall be the Convener and, where applicable, the co-guide shall be a member.
- c. One faculty member of the Institute specializing in a domain encompassing the topic of research,
- d. One faculty member from an allied domain of specialization,
- e. The Technology Adviser, if any, shall be a permanent invitee.

It would be desirable to have one of the members in category c or d from another CI.

- 4.2 The student shall prepare, in consultation with his/her guide, a plan of research work. The Doctoral Committee shall meet as soon as soon the student is prepared to make a presentation of his/her plan of research. In this meeting, the Committee shall approve the topic of research and, in cases where a guide is assigned before the General Comprehensive Examination, prescribe additional courses, if any, to be taken by the student. The Committee might suggest a change in the plan of work or a change in the topic itself. The Doctoral committee can also suggest a change in guide and, where applicable, co-guide and Technology Adviser.
- 4.3 During the course of his/her thesis work, the student will give periodic seminars to the Doctoral Committee on the progress of his/her work. The committee shall monitor the progress and advise the candidate as appropriate including permission for submission of synopsis.

### 5. Award of Degree

- 5.1 If satisfied with the synopsis, the Doctoral Committee shall permit the candidate to submit the thesis. The thesis examiners will be appointed as per the procedure detailed below:

1. The Dean-Academic of a CI will forward the synopsis and a list of six examiners, as recommended by the Doctoral Committee to the Convener, Board of Studies (BOS) in the relevant discipline.
2. The Convener, BOS-relevant discipline, in consultation with the BOS members will shortlist four examiners, who may or may not be from the list recommended by the Doctoral Committee. The Convener then will forward both the list of examiners one by the Doctoral Committee and the other by the BOS, to Dean, HBNI.
3. The Dean, HBNI after the approval of Director, HBNI will communicate the approved list of examiners to Dean-Academic as well as to the Convener, BOS.

4. In case of clarifications, if any, the Dean, HBNI will get back to Convener, BOS. After the clarification, procedure at Sr. No. 3 will be repeated.
- 5.2 The student shall submit to the Dean-Academic `soft` as well as the requisite number (to be specified by the Chairman, Doctoral Committee) of `hard` copies of the thesis within three months of approval of the synopsis by the Doctoral Committee. This time limit may be relaxed by the Dean-Academic in deserving cases. The Dean-Academic shall take the responsibility of forwarding the thesis to first two examiners in the list prepared by the Board of Studies and monitor subsequent correspondence with them. The Board shall also ensure that each examiner's report concludes with specific recommendations that the thesis be (i) accepted, (ii) accepted after revisions, or (iii) rejected.
- 5.3 The examiners are expected to submit their report within eight weeks of the date of receipt of the thesis.
- 5.4 In case of undue delay in receiving the thesis report, the Dean-Academic may approach the person next on the list of examiners to act as an examiner.
- 5.5 In case the thesis is rejected by both the examiners, the registration of the student shall be cancelled.
- 5.6 In case one or both the examiners suggest revisions, the suggested revisions shall be communicated to the candidate and, after having been duly revised, the thesis shall be re-sent to the examiners if so recommended by him/her. Else, the Doctoral Committee will decide about acceptability of the revisions.
- 5.7 In case the thesis is rejected by both the examiners even after revisions are made, the registration of the student shall be cancelled.
- 5.8 If report of only one of the examiners is negative, then the Doctoral Committee can either ignore that report or go for a third opinion.
- 5.9 If the third examiner also declares that the thesis is not acceptable for award of the degree, the student shall be asked to revise it within a time period stipulated by the Doctoral Committee. The Doctoral Committee shall then take a decision about further processing of the revised thesis.
- 5.10 In case the thesis is accepted for award of the degree, the Doctoral Committee shall act as the viva voce board and conduct the viva voce examination of the student as soon as possible after giving two weeks notice to the student. One of the Thesis Evaluators, as decided by Director, HBNI, shall be a member of the Viva Voce Board. If the Board is satisfied with the performance of the student, it shall sign its report recommending the award of the degree to the student. If the viva voce Board is not satisfied with the performance of the student, it shall fix another date which shall not be earlier than a month after and not later than six months from the date of the first viva. If the performance of the student is unsatisfactory even in the second viva, the matter shall be referred to the Board of Studies for a decision. The viva voce Board, if satisfied with the performance of the student shall sign its report recommending the award of the degree to the student.

- 5.11 Students may present themselves for oral examination only twice and the report of the viva voce Board signed by all members must reach the office of Dean HBNI through Dean-Academic of the CI for the award of the degree.

## ORDINANCE PGD5

### Ph.D. Programme (Integrated Scheme)

#### 1. Admission

- 1.1 The minimum qualification for admission to Ph.D. (Integrated Scheme) in Science or Mathematics shall be Bachelor's degree in science/ mathematics/ /statistics /computer science/information technology/Engineering or an equivalent degree of a University recognized by the University Grants Commission with minimum 50% of marks. However, whenever MHRD/UGC/Statutory Authority stipulation is higher than 50% the stipulated % shall be followed.
- 1.2 Admission to the Ph.D. (Integrated Scheme) shall be by interview of the applicants who may be short listed by a screening examination approved by the Academic Council.

#### 2. Programme

- 2.1 Ph.D. (Integrated Scheme) at each CI shall consist of two components: (i) course work, and (ii) research work leading to thesis. In addition, specific project work requirements may be imposed by individual CIs.
- 2.2 The contents of the course work shall be in accordance with the syllabi approved by the Board of Studies. The duration of the course work shall be equivalent to two academic years. Wherever necessary, a course or courses may be substituted by one or several term papers on subjects and/or allied subjects or a minor thesis.
- 2.3 The candidates shall take examinations based on the course work. Those who score marks or grades above a minimum specified by the concerned Board of Studies shall be declared as having completed the course work successfully. The candidates are expected to earn the required grades within the period stipulated for the course work. The decision on whether a candidate should be allowed a second attempt, in the event of failing to secure the necessary grades at the first try, shall be taken by the Monitoring Committee (see Clause 3 below), with the concerned Board of Studies kept informed of all such decisions.
- 2.4 All candidates successful in the course work of this programme shall be awarded M.Sc. degree.
- 2.5 Having completed the course work successfully, a student shall appear for an oral General Comprehensive Examination to be conducted by the