

**Appendix 'A'**  
**Item No.28.2.1**

**Ph.D. Ordinances and Regulations**

**PREAMBLE**

Indian Institute of Technology (I.I.T.) Roorkee offers academic programmes leading to the award of Ph.D. degree through its Departments/Centres. The award of Ph.D. degree is in recognition of high academic achievements, independent research and application of knowledge to the solution of technical and scientific problems in Science, Technology, Humanities & Social Science and Management; creative and productive inquiry is the basic concept underlying the research work.

The academic programme leading to the Ph.D. degree is broad-based and involves a minimum course credit requirement and a research thesis. The institute also encourages interdisciplinary areas through a system of Co-supervision and provides excellent opportunities for such programmes. The institute undertakes sponsored research and development projects from industrial and other organizations in the public as well as private sector.

The degree of Doctor of Philosophy shall be abbreviated as Ph.D. The Degree of Doctor of Philosophy is granted for research work in areas recognized by the Academic Departments/centres of the Institute subject to the conditions and regulations contained hereinafter.

The research work shall be an original work characterized either by the discovery of facts, or by a fresh approach towards the interpretation and application of facts, or development of innovative products and technologies. It shall evince the candidate's capacity for critical examination and sound judgment and shall represent original contribution to the existing knowledge.

The degree of doctor of philosophy (Ph.D.) of the Indian Institute of technology, Roorkee shall be conferred on a candidate who fulfils all the requirements specified in these ordinances and regulations, which were approved by Board of Governors/Senate.

**1. Definitions**

- (i) "DRC/CRC" shall mean the Research Committee of the Deptt./Centre.
- (ii) "Applicant" shall mean an individual who applies for admission to the Ph.D. programme of Indian Institute of Technology, Roorkee on a prescribed Application Form.
- (iii) "BOR" shall mean the Board of Research of Indian Institute of Technology, Roorkee.
- (iv) "Candidate" shall mean a person registered for the Ph.D. Degree and who has successfully completed the course requirement, the written and oral comprehensive examinations, and has submitted and presented the research plan and approved as per R.9 and R.10 of the Regulations.
- (v) "DAR" shall mean the Dean, Academic Research.
- (vi) "Research Student" shall mean a person registered for the Ph.D.

programme of Indian Institute of Technology, Roorkee before becoming the candidate.

- (vii) "Supervisor(s)" shall mean member(s) of the academic staff of the Institute approved by Dean AR (DAR) on the recommendation of DRC/CRC to guide/supervise the research/academic work of the research student/ candidate.
- (viii) "Caretaker Supervisor" shall mean a member of the academic staff appointed to look after the research interests of a research student/candidate in the absence of the Supervisor(s) and after the submission of the thesis, if necessary as per R.7.3(A)[b] of the Regulations.
- (ix) "Course Advisor" shall mean a faculty member appointed to advise a research student on the programme of study and on the courses to be taken by him/her. If a supervisor(s) has already been appointed, he/she shall be the Course Advisor for that student. When supervisor is yet to be appointed, then Chairman, DRC/CRC shall be the Course Advisor.
- (x) "Course Work" shall mean courses of study prescribed by the Department/Centre through the Course Advisor, to be undertaken by a research student registered for the Ph.D. Degree.
- (xi) "Degree" shall mean the Degree of Doctor of Philosophy (Ph.D.) of the Indian Institute of Technology, Roorkee.
- (xii) "Educational Institution" shall mean those Institutes, which offer Bachelor's or higher Degree.
- (xiii) "Institute" shall mean the Indian Institute of Technology, Roorkee (IIT Roorkee).
- (xiv) "Full-time Research Student/Candidate" shall mean a person registered for the Ph.D. Degree devoting full time at the Institute for completing the degree requirements.
- (xv) "Part time Research Student/Candidate" is a person who is registered for the Ph.D. degree and has been allowed to devote part of his time towards this pursuit.
- (xvi) "Registration Period" shall mean the length of time span commencing with the date of initial registration at the Institute.
- (xvii) "Minimum Registration Period" shall mean the minimum period for which a candidate must be registered, including the time spent as research student before becoming a candidate, prior to submission of the thesis.
- (xviii) "ODC" shall mean Oral Defence Committee.
- (xix) "Residency" shall mean the minimum period for which a student/candidate must attend the institute.
- (xx) "SRC" shall mean Student Research Committee.
- (xxi) "Sponsored Research Student/Candidate" shall mean a research student/candidate sponsored by an organization /his employer who provides full financial support for doing Ph.D.

**NOTE: 'HE' & 'HIS' IMPLY 'HE'/'SHE' AND 'HIS'/ 'HER' RESPECTIVELY.**

## **R.1 ADMISSION CATEGORIES**

1. The applicant for admission to the Ph.D. programme shall be classified under any one of the following categories which will be decided and recommended by DRC/CRC.

### **(I) Full-time Research student/Candidate**

- a) Research student/Candidate getting Institute MHRD assistantship.
- b) Research student/Candidate including foreign nationals getting financial support from Govt. / Semi Govt. agencies (QIP, CSIR, UGC, DAE, DST, DBT, NBHM, JEST, ICCR, NDF, etc.)
- c) Research student/Candidate including foreign nationals supported by a sponsoring organization, the applicant (Sponsored Research Student/ Candidate) having TWO years experience out of which at least ONE year experience with the sponsoring agency.
- d) Self Financed Research student/Candidate

—**Indian:** This category refers to persons with experience and with good track record to join the doctoral programme. They will be admitted along with the regular research students through the usual admission procedure.

—**Foreign:** Admission of Foreign nationals to Ph.D. programme will be made as per policy and direction of the Govt. of India from time to time

—**Study Leave:** This category refers to persons who are released from governmental or educational institutions on study leave for a period of not less than three years for pursuing Ph.D. programme. They will be admitted along with the regular research students through the usual admission procedure.

- \*e) Research student / Candidate regularly working full time in an R & D project at IITR. His Ph.D. topic is in confirmation to the project as certified by the SRC.

### **II) Part-time Research Student/ Candidate;**

- a) Research student/Candidate working as a regular employee in the Institute
- \*b) Research student / Candidate working regularly full-time in an R&D project in the institute. The project must have tenure of at least next 2 years.
- c) Research student / Candidate working in other organizations / institutes, approved by IIT Roorkee as Research Centre or having

MoU for research purposes.

\* The research student / candidate working in a project will be given full time status, provided his research for Ph.D. is related to the project as certified by the SRC. However, part time research student/candidate may be given full time status when the project tenure is completed.

## **R.2 ADMISSION ELIGIBILITY**

1. An applicant belonging to the above admission categories in R.1 should possess the following qualifications in appropriate areas to be eligible to apply for admission for the Ph.D. programme of the Institute.

a) Masters degree in Engineering/ Technology/ Architecture/ Urban & Rural Planning / Pharmacy / Computer Applications of 3 years duration after graduation in respective discipline or equivalent with a minimum Cumulative Grade Point Average (CGPA) of 6.00 on a 10 point scale or equivalent as determined by the Institute wherever letter grades are awarded; or 60% marks in aggregate (of all the years/semesters) where marks are awarded.

OR

b) Masters degree in Sciences/Humanities & Social Sciences/ Management in respective discipline or equivalent with a valid NET or valid GATE or valid GPAT score and minimum Cumulative Grade Point Average (CGPA) of 6.00 on a 10 point scale or equivalent as determined by the Institute where letter grades are awarded; or 60% marks where marks are awarded.

OR

c) B.Tech. / B.Arch. degree or equivalent in respective discipline with excellent academic record (with a minimum CGPA of 7.0 on a 10 point scale or equivalent or 70% marks) and in possession of a valid GATE score.

2. The admission eligibility requirements may be relaxed to 5.5 on a 10 point scale or equivalent, or to 55% marks to the following categories:

- a. SC/ST candidates with Master's degree.
- b. Any category of PD (Persons with disabilities) Candidate holding B.Tech. degree or equivalent degree.
- c. Academic staff of the Institute who has an experience of more than 5 years.

### **3. Eligibility for Part-time Ph.D.**

- a) The applicant possesses the minimum entry qualifications for the degree as given in R.2.1;
  - b) The applicant proves that his official duties permit him to devote sufficient time to research;
  - c) He / She will be required to reside at the Institute for a period of not less than 6 months during his/her registration for the degree. (This condition of minimum residence period will be automatically waived for candidates who are working in Roorkee or in Organizations / institutions located within a distance of 100 km from the Institute).
  - d) The facility of part time registration will also be available to all employees of the IIT Roorkee or candidates working in organizations having MoU with IITR or organizations approved by IIT Roorkee as Research Centres. Such applicants are exempted from the requirement of having valid GATE/NET/GPAT.
  - e) The applicants must have been in continuous service with the sponsoring organization for at least two years at the time of submitting the application form for admission.
  - f) The candidates working in Institute/University awarding Ph.D degree itself are not eligible for admission as part-time candidate.
4. Employee seeking admission to the Ph.D. programme with minimum of two years service in an organization or confirmed regular employee may obtain and submit 'No Objection Certificate' from the employer to the effect that the duties allotted by the employer will allow the required time for this pursuit.

### **R.3 RESERVATION**

15% (Fifteen percent) of seats are reserved for Scheduled Caste applicants, 7.5% for Scheduled Tribe applicants and 27% for Other Backward Classes. A total of 3% of the sanctioned strength will be reserved horizontally for PD (Persons with disabilities) Applicants in the Ph.D. programme of the Institute put together. The reservation is extended to research students/candidates of reserve categories as per the policy of the Government of India, Ministry of Human Resource Development.

#### **R.4 SHORT LISTING**

1. The short listing of applications for the purpose of admission test/interview will be carried out by the DRC/CRC of the concerned department/centre.
2. The DRC/CRC of the concerned department/centre may set the short-listing criteria, if considered necessary, higher than the minimum eligibility criteria defined in R.2.
3. The basic guidelines/instructions for short listing will be issued by the Dean, Academic Research.

#### **R.5 REGISTRATION, APPOINTMENT OF SUPERVISOR AND SRC**

1. Fresh research students admitted to the Ph.D. programme are required to join the Institute and report to the Head of the Department/Centre one week in advance before the scheduled date of registration.
2. The admission to Ph.D. programmes at any time during the session is allowed to give opportunity to candidates with high accomplishments. Such candidates, recommended with or without financial assistantship, must have merit index comparable with the top candidate selected in the last admission. Such admissions shall be approved by the Director on the recommendations of DRC and DAR.
3. The research supervisor(s) of a student admitted to a department/ centre may be recommended by the DRC/CRC as per preference given in writing by the student before the date of registration, subject to approval of Dean, Academic Research.
4. The Student Research Committee (SRC) for a research student shall be appointed within a week but not later than a month from the date of initial registration by HoD on the recommendation of Chairman, DRC. The SRC shall consist of:
  - a) Chairman, DRC/CRC or his nominee: **Chairman**
  - b) One expert in the field from the department/centre.
  - c) One institute faculty expert, preferably in the concerned area, from outside the department/ centre to which the student belongs.
  - d) Supervisor (s)

**Note:** Names for 4(b) and 4(c) shall be proposed by the supervisor(s).

5. Every research student/candidate will be required to carry out online subject registration prior to candidacy during stipulated dates and register for the Ph.D. Degree programme every semester till the submission of the thesis irrespective of their category and status. However, after candidacy no on-line registration is required.

#### **R.6 Minimum and Maximum Time for Thesis Submission**

- i) A candidate who has a B.Tech./M.Sc./M.A. degree or its equivalent shall be required to be registered for the degree for a period of not less than three years (36 months) from the date of his initial registration; in exceptional cases, the minimum period of registration may be reduced to two years (24 months) with the approval of the Senate. For a candidate who has an M.Tech. degree or its equivalent the minimum period of registration shall be two years (24 months).
- b) The candidates of all categories shall submit their thesis within a period of five years from the date of their initial registration for the Ph.D. Programme. However, as a special case, this limit may be extended on the recommendation of SRC to a maximum of six years for Full time research candidate and seven years for Part time research candidate by the Dean, Academic Research (DAR) after which the registration shall stand cancelled automatically.

#### **R.7 SUPERVISOR(S)**

1. Supervisor(s) can be any full-time faculty member of the Institute with a Ph.D. degree. Regular/full time faculty members who do not have Ph.D. degree may be allowed to supervise a research student/ candidate provided such faculty members have been engaged in research at least for five years as evidenced by publications in refereed/reputed journals. No person who himself is registered for Ph.D. degree at this Institute or any other Institution, would qualify to act as a supervisor. Those without a Ph.D. degree, if appointed Supervisor(s), would cease to be Supervisor(s) if they themselves register for Ph.D. Faculty on contract is not allowed to supervise research student/candidate singly.
2. The Dean, Academic Research, on the recommendations of the SRC, may appoint one or more Supervisor(s) not exceeding a total of three to supervise the research student/candidate. These may be from inside or outside the Institute and there should not be more than two supervisors from within the Institute and not more than one supervisor from outside Institute. Addition/deletion of Supervisor(s) would not be made after the lapse of 12 months from the date of admission to candidacy. In such cases, the minimum association period of new supervisor shall not be less than one and a half year.
3. Change of Supervisor(s) and Appointment of Caretaker Supervisor for Ph.D. students

A faculty member appointed as a Ph.D. Supervisor(s) is expected to be available to a research student/candidate in the Institute till the thesis is submitted. However, under unavoidable circumstances, such as: long leave of more than 12 months, resignation, retirement, death or withdrawal by the supervisor, a new Supervisor(s) may be appointed following regulations as under:

##### **A. Supervisor(s) proceeding on long leave of more than 12 months**

- a) (i) Where there are more than one Supervisor for a research student/candidate, if one of the supervisor proceeding on long leave for more than 12 months

other alone may continue to be a Supervisor.

- (ii) Where only one Supervisor exists for a research student/candidate, another supervisor may be appointed by the SRC in cases where SRC has not yet found the research work fit for submission following R.12 sub-clause 1c) in the area of his research work.
- b) (i) If SRC has recommended the research work for submission following R.12 sub-clause 1c) before the supervisor proceeds on leave, only a caretaker supervisor will be appointed.
- (ii) If the thesis has been submitted before the supervisor proceeds on leave, only a caretaker supervisor will be appointed.
- (iii) Further, if a major revision becomes necessary, and the supervisor(s) is (are) on leave, he should be asked to specifically state whether he would effectively help the Research Scholar in carrying out the major revisions within a reasonable period. In case the supervisor(s) expresses his inability due to one reason or the other, the caretaker supervisor, if he/she provides the required help in carrying out the major revision, will automatically be treated as a supervisor of that candidate.
- c) If a supervisor(s) proceeds on leave for a period less than 12 months initially, but later extends his leave beyond 12 months, the above procedure as applicable for leave beyond 12 months, will be followed. The extension granting authority will inform the Dean, Academic Research (DAR) accordingly.
- d) If the supervisor(s) proceeds on leave for more than 24 months during the Ph.D. registration of a research student/candidate and in the opinion of SRC, he has not already contributed significantly to the thesis, he/she will cease to be the supervisor(s).

**B. A Supervisor retiring**

A faculty member who is due to retire within the next two years may be appointed as an additional supervisor(s) and may continue to be the supervisor(s) even after his retirement provided the SRC is convinced of his availability/continued guidance to the student. In other cases, a faculty member on retirement may continue as a supervisor(s), if reemployed or appointed Emeritus Fellow; or, If SRC has recommended the research work for submission following R.12 sub-clause 1c). Appointment of another supervisor(s) / caretaker supervisor may be done in similar circumstances as in A above.

**C. A Supervisor(s) resigning**

A new supervisor(s) will be appointed, if necessary, in similar circumstances as in 'A' above

**D. Death of Supervisor(s)**

A new supervisor(s) will be appointed, if necessary on the recommendation of SRC.

**E. Supervisor(s) declining to supervise**

In case a Supervisor(s) declines to supervise a research student, another faculty member qualified to be Supervisor(s) and actively engaged in the same area of research, consents to supervise the research student, new Supervisor(s) may be appointed by the department as per the choice of the student on the recommendation of the remaining members of SRC. After that, SRC may be reconstituted consisting of new Supervisor(s) and keeping the same internal and external experts.

**F. Change/drop of Supervisor(s) by the research candidate**

If a research student before admission to candidacy wants to drop one of the supervisors, or wants to change the Supervisor(s), a new Supervisor(s) will be appointed by Dean, Academic Research, on the recommendation of DRC/CRC.

In case, research student wishes to change the area of research with new supervisor, SRC be constituted a fresh.

**5. Maximum Number of Institute (MHRD) supported Scholars under supervision of a faculty will be two.**

The maximum number of Scholars supervised by a faculty member at any time at IIT Roorkee shall not be more than 8 jointly or 5 singly or a combination of both, the aggregate not exceeding eight (including internal/outside scholars) as per table given below:

Students under supervision

	<i>Singly</i>	<i>Jointly</i>
a)	5	0
b)	4	2
c)	3	4
d)	2	6
e)	1	7
f)	0	8

However, this will be as decided by the Senate from time to time.

Joint supervision of a Ph.D. scholar will be treated as 0.5 per faculty member.

**R.8 COURSE CREDIT REQUIREMENTS**

1. Each research student will satisfy the credit requirements as given in Table-1 by crediting courses as advised by course supervisor and approved by SRC. Student earns credits for a course only if he/she obtains a minimum of B Grade for successfully completing the course.

However, if any subject-class is having more than 80% research scholars, absolute grading be carried out.

2. SRC may recommend additional course(s) as Audit course(s), if required, in a particular case. A research student is deemed to have fulfilled the requirement of additional course(s) as Audit Course(s) if he/she obtains 'Audit Pass' for successfully completing each of such course(s).
3. The pre-Ph.D. courses including Audit course are to be completed successfully in first three/four semesters (counted from the date of initial registration) by full time/part time research students respectively.
4. The courses offered for the Ph.D. programmes may be Lecture Courses, Laboratory Courses, Design Courses, Self-Study Courses, Mini Project and Seminars.

**A. Self-study Courses shall satisfy the following conditions:**

- a) A self-study course should be preferably outside the courses listed in the Courses of Study and offered to a research student/candidate following sub-clause d) below.
- b) A course listed in Courses of Study but not offered in a semester due to lack of sufficient number of students registering for it, may be offered as a self-study course in that semester with the prior approval of Dean, Academic Research (DAR).
- c) A course already running in a semester shall not be offered as a self-study course.
- d) The SRC shall examine proposals for self-study courses, not listed in the course of study, along with the course contents, textbooks, mode of assessment and name(s) of the instructor(s) and shall recommend the proposal and the credit to be assigned to Dean, Academic Research for his approval.
- e) All self-study courses shall carry a maximum of four credits.
- f) A student shall not take more than one self-study course during the entire Ph.D. programme.

**B. Seminars shall satisfy the following conditions:**

- a) Seminar in a semester shall carry a maximum of two credits and every research student must deliver at least one seminar as a part of course requirement and may be within or beyond the minimum limit of credits for course requirement.
- b) Seminar shall be treated as a course for the purpose of registration and evaluation.
- c) Seminar coordinators shall be appointed by the DRC/CRC. They

shall arrange the seminars and forward the grades awarded by the panels of examiners to the Dean, Academic Research by the end of the semester.

d) A student shall not get credits for more than one Seminar during the entire Ph.D. programme.

**Table 1 COURSE CREDIT REQUIREMENTS**

S. No.	Candidate Having	Range of Credit Requirements	Remarks
1.	M.Tech, MCA or M.Tech. (Integrated/IDD) or Equivalent Degree	– 8–12 credits – should earn at least 2 credits by delivering seminar	Course From the existing M.Tech and/or pre-Ph.D. courses offered by own Deptt./ other Deptts.
2.	M.Sc / M.A./ M.B.A. or Equivalent admitted to Science / HSS / Management department	– 12-15 credits. – Should earn at least 2 credits by delivering seminar	Course From the existing PG level and/or pre-Ph.D. courses offered by own Deptt./ other Deptts.
3.	B.Tech. or equivalent, or M.Sc. or equivalent, admitted to anyone of the Engg. Disciplines	— 6-20 credits — should earn at least 2 credits by delivering seminar	Course Form the existing PG level and/or pre-Ph.D. courses offered by own Deptt./ other Deptts.

**R.9 Comprehensive Examination**

1. Soon after successfully completing the pre-Ph.D. course requirements, each research student will request for and appear in a comprehensive examination which has three segments (i) written comprehensive examination and (ii) oral comprehensive examination to test comprehension of the research student in the broad area of study, and (iii) submission of research plan and its oral presentation to SRC, which will examine his/her academic preparation and potential to carry out the proposed research plan. Comprehensive examination shall be conducted by the SRC of the research student appointed under R.5 sub-clause 4, within the stipulated time frame of 20/26 months for Full Time/Part Time.
2. On the basis of the performance of student in the comprehensive

examination, SRC will make one of the following recommendations under each a), b) and c), to the Dean, Academic Research:

a) Written comprehensive examination

(i) passed

(ii) to reappear in the written comprehensive examination after a certain period of time specified by the SRC and after taking additional courses recommended by it, if any.

(iii) failed

ii) Oral comprehensive examination

(i) passed

(ii) to reappear in the oral comprehensive examination after a certain period of time specified by the SRC and after taking additional courses, if recommended by it.

failed

c) Research plan and its oral presentation

(i) approved

(ii) not approved

**3. A STUDENT WILL BE PROVIDED A MAXIMUM OF TWO ATTEMPTS TO QUALIFY IN EACH SEGMENT OF THE COMPREHENSIVE EXAMINATION, BY OBTAINING THE SRC RECOMMENDATION OF A(I), B(I) AND C(I).**

**4. THE RESEARCH STUDENT IS REQUIRED TO OBTAIN A MINIMUM OF 'B' GRADE (OR SCORING 64%) IN WRITTEN AND ORAL COMPREHENSIVE EXAMINATIONS RESPECTIVELY.**

#### **R.10 ELIGIBILITY FOR THE CANDIDACY**

1. The Dean, Academic Research will approve admission of a research student to candidacy on the recommendation of SRC which will satisfy that a research student has fulfilled the following:

a) completed the required course work;

b) passed the written and oral comprehensive examination

c) submitted a research plan and defended it to the satisfaction of SRC.

Thereafter, the research student will be admitted to candidacy from the date on which SRC recommended and be called a research candidate.

2. If a research student fails to get admission to candidacy within the 20/26 months for Full Time/Part Time, his/ her registration for the Ph.D. Programme will be terminated.

#### **R.11 RESEARCH PERFORMANCE MONITORING**

1. The research progress of each research candidate in a semester will be monitored by the supervisor(s), who will assess the performance to be 'satisfactory' or 'unsatisfactory' at the end of each semester. For this purpose, each research candidate will be asked to submit a progress report to the supervisor(s) by the dates stipulated in R11.6.

2. The supervisor(s) shall forward his/her recommendation regarding the performance of the research candidate to the Chairman, DRC/CRC in the Department/ Centre before the beginning of the next semester. The Chairman, DRC/CRC will forward the recommendation to the Dean, Academic Research for necessary action.

There is no need to send progress report to Dean, Academic Research. Only those cases where some action is required be sent to the Dean, Academic Research.

3. If the progress of a research candidate in a semester is evaluated as 'satisfactory' by the supervisor, 'S' grade will be awarded to the research candidate for that semester and need not be forwarded to Dean, Academic Research.

4. If the progress is evaluated as 'unsatisfactory' by the supervisor(s), the evaluation will then be submitted to SRC, which will make suitable recommendation to the Chairman, DRC/CRC for the award of 'U' grade and other appropriate actions for forwarding it to the Dean, Academic Research. For the first award of 'U' grade, a warning will be issued to the Research Candidate by the office of Dean, Academic Research.

5. If there are 'U' grades awarded in two consecutive semesters to a research candidate, his/her registration for Ph.D. programme will stand terminated.

6. The academic calendar will include the following dates for the submission of the progress reports by the research candidate. Such as:

**Autumn Semester:** 1<sup>st</sup> November (Receiving of blank progress forms from the office of Dean, Academic Research / Department / Centre)

15<sup>th</sup> December (submission of progress report by the research candidate to the supervisor)

**Spring Semester:** 1<sup>st</sup> May (Receiving of blank progress forms from the office of Dean, Academic Research/ Department/Centre)

15<sup>th</sup> June (submission of progress report by the research candidate to the supervisor)

## **R.12 THESIS SUBMISSION**

1.a) The research candidate is required to publish

- i) at least one paper or accepted for publication in refereed journal of repute (preferably journals included in SCI) or at least one patent filed and
- ii) another paper published/accepted in refereed journal of repute or in the proceedings of a refereed International Conference before submission of thesis.

In case no paper(s) are published/accepted in referred journal of repute, the SRC will give justification and supervisor(s) will ensure to make efforts to publish paper in future out of the Ph.D. thesis.

- b) When the supervisor is of the opinion that the research work as planned in the research proposal has been completed and the quality of work is up to the mark for submission of Ph.D., he/she will ask the research candidate to prepare a synopsis of the work and submit 8 hard copies and one soft copy of the synopsis to the Chairman, SRC with the request to convene the meeting of SRC.
- c) The research candidate will deliver a seminar on his research work and the seminar shall be adequately notified by the Chairman, SRC, so as to enable interested staff members and students to attend it. If the SRC is satisfied about the quality of the work and considers it fit for submission as a Ph.D. thesis, it will send its recommendation to Dean, Academic Research along with five hard copies and one soft copy of the synopsis and the proposed panel of examiners.

The research candidate shall be required to submit fresh synopsis if he fails to submit his thesis within 4 months of SRC recommendation for submission of thesis. However, in case a candidate fails to submit his thesis within the stipulated time and has suitable justification for the same, the Dean, Academic Research may, on recommendations made by the SRC and on individual merits of each case, grant him extension in time beyond more than four more months, i.e. the candidate may be allowed to submit his thesis within a period normally not exceeding 8 months from the date of SRC meeting recommending submission.

## **2. Panel of Examiners**

A panel of at least ten experts in the area of the Ph.D. thesis would be suggested by the supervisor(s) and recommended by the SRC while forwarding its recommendation for submission of thesis. The panel so recommended would include at least 50% of the examiners from outside India and out of the bibliography list of references as submitted by the candidate with synopsis. Any person working in the laboratory(ies)/ Institution(s) where the research candidate or supervisor(s) from outside the institution, if any, is employed, cannot, however, appear in the panel of examiners. Any person related to the candidate or supervisor(s) should not appear in the panel of examiners.

### **3. Board of Examiners**

On receipt of the recommendation of SRC for submission of thesis along with synopsis and panel of examiners, the Dean, Academic Research (DAR) will seek consent of the examiners and appoint the Board of Examiners for each research candidate. The Board will consist of internal examiners - the Supervisor(s), and two external examiners - one from within India and the other from abroad, who shall be experts in the subject of the thesis except for cases covered under R.12.2(b). These external examiners shall be chosen from the panel of examiners recommended by the SRC.

### **4. Submission of thesis**

- (i) The thesis shall be written in English in the specific format available in the office of Dean, Academic Research / Department.
- (ii) The thesis shall contain a critical account of the candidate's research. It should be characterized by discovery of facts or fresh approach towards interpretation of facts and theories or significant contribution to knowledge or development of innovative products and technologies or a combination of these. It should bear evidence of the candidate's capacity for analysis and judgment as well as his ability to carry out independent investigation, design or development.
- (iii) The Ph.D. thesis must contain the following copyright certificate in the beginning of the thesis, on a separate page on the left side:

**© INDIAN INSTITUTE OF TECHNOLOGY, ROORKEE, 200..  
ALL RIGHTS RESERVED**

The research candidate shall submit n+3 copies of the thesis with a soft cover, where 'n' is the number of supervisor(s), and also a soft copy (pdf file) on a CD.

### **R.13 THESIS EVALUATION**

- 1. The thesis will be sent to the examiners by the office of the Dean, Academic Research with the request for a detailed assessment report and his/her recommendations on the prescribed proforma within six weeks of the date of receiving the thesis.
- 2. In the event of the thesis report not being received from an examiner within a period of two months, the Dean, Academic Research may appoint another examiner in his place for evaluating the thesis, from the panel of examiners recommended by SRC.
- 3. a) Examiners will examine the thesis individually with a view to judge that the thesis is a piece of research work characterized by;
  - i) The discovery of facts, or
  - ii) A fresh approach towards interpretation and application of facts or theories, or

iii) Development of innovative products and technologies

b) Each examiner will send detailed comments on the research work along with a clear recommendation stating one of the following:

A) The thesis is recommended for the award of Ph.D.,  
or

B) The thesis is recommended for the award of Ph.D. Degree subject to the candidate giving satisfactory answers to queries specifically mentioned in the report at the time of oral defence, or

C) The candidate be allowed to resubmit his thesis in the revised form,  
or

D) The thesis be rejected.

4. The Dean, Academic Research will, on the basis of the recommendations of the examiners will take one of the following actions:

i) If all the examiners recommend acceptance of the thesis, their recommendations shall be accepted.

ii) If majority of the examiners recommend rejection, their decisions would be accepted. The candidate may, however, be allowed to resubmit the thesis at least after one year, provided the title of the thesis remains unchanged. Normal procedure will be followed for the evaluation of the resubmitted thesis. In case of resubmission of the thesis, a fresh fee for the examination shall be paid by the candidate. No candidate shall be allowed to resubmit the same thesis more than once.

iii) If some of the examiners, although in minority, recommend rejection, the candidate's replies to the comments made by the examiners shall be sent to these examiners and their clear verdict sought. The examiners may then recommend acceptance, rejection or revision of the thesis.

In case the thesis is accepted, sub-clause 4(i) above will be applicable. In case of recommendation for revision, sub-clause 4(iv) below will apply. However, if these examiners still recommends rejection, alternate examiners would be appointed from the panel of the examiners recommended by SRC by the Dean, Academic Research. In such cases sub-clause 4(v) will apply.

iv) In case some examiners recommend revision of the thesis, the thesis would be revised normally within one year, if the candidate so desires. The revised version of the thesis would be sent to all the examiners for their recommendations.

If the candidate does not agree for revision, he may ask for appointment of the fourth examiner under sub-clause 4(v) below.

- v) A new examiner, if appointed, shall be Indian or Foreign depending on whether the thesis was rejected/to be revised on the recommendation by an Indian or a Foreign examiner in the first instance. The reports of all the examiners will be sent to the new examiner without revealing the identity of the previous examiners, along with the response of the candidate, if any, to the grounds for such recommendation as given in the detailed comments. The thesis shall be deemed to be acceptable if majority of the examiners including the new examiner recommend acceptance.

If the newly appointed examiner recommends revision, the thesis would be suitably revised and resubmitted at least after 3 months and sent for examination to all the examiners except the ones in whose place the new examiner was appointed.

In case the newly appointed examiners recommend rejection or their recommendations for revision is not accepted by the candidate, the thesis would be rejected. The candidate may then avail the benefit of sub-clause 4(ii) above.

- vi) If the majority of examiners recommend revision of the thesis, the candidate may revise the thesis accordingly and resubmit it within a period of one year for the evaluation by the same set of examiners.
- vii) If there is no clear majority opinion and there are recommendations for rejection by some and also, revision of the thesis by some others, the candidates may revise the thesis and resubmit it within a period of one year, for evaluation by the same set of examiners.
- viii) Any doubt arising out of following the procedure laid down in R.13.4 shall be referred to the Director for a decision.
- ix) In case of ambiguous recommendations by the examiner, Dean, Academic Research will approach the examiner for a clear recommendation. In case clear recommendation is not forthcoming, the matter may be referred to the Director for his decision.
- x) In case any examiner gives comments to be incorporated in the thesis and also states that the revised thesis need not be sent again to him / her, the revised thesis will not be sent to the examiner. The supervisor(s) shall certify that the comments have been incorporated, before the viva-voce examination.

#### **R.14 ORAL DEFENCE OF THESIS**

1. If the thesis is recommended for the award of degree, the candidate shall be required to defend his / her work / thesis orally (viva-voce examination) before a duly constituted committee hereinafter referred to as the Oral Defence Committee (ODC). The Dean, Academic Research shall request the thesis supervisor and Chairman, SRC to arrange the

conduct of oral thesis defence. The copies of the report of the thesis examiners shall be sent to the supervisor with the request to provide them to the candidate so that he/she may prepare to answer the queries raised in the report during oral defence. The oral thesis defence shall be adequately notified so as to enable interested staff members and students to attend it.

- 2.(i) The ODC shall be chaired by the Head of the department / centre and shall consist of Chairman, SRC, supervisor(s) (internal examiner(s)), and one Indian external examiner. The Chairman, SRC and the supervisor in the capacity of internal examiner shall arrange the viva-voce examination of the candidate and the Head of the department/centre will notify it. The oral defence of the thesis of the candidate shall be arranged as early as possible and normally within two months from the date of receipt of communication from the Dean, Academic Research for holding the viva-voce examination.
  - (ii) In case of the inability of the supervisor in the capacity of internal examiner to arrange the conduct of the oral defence of the thesis due to any reason whatsoever, the Director may appoint another Internal Examiner(s) for oral defence from amongst the faculty of the department concerned belonging to the particular field of the thesis, in consultation with Dean, Academic Research, and the Head of the Department/Centre concerned and he may assist the Chairman, SRC to conduct the oral defence of the thesis. In such cases also, the Ph.D. work will be deemed to have been carried out under the guidance of the supervisor only.
- 3.a) In case of non-availability of the Indian External Examiner in conducting the viva-voce examination, the Dean may appoint another examiner to conduct the oral defence of the thesis from the panel of Indian examiners recommended by SRC.  
  
If need be, the SRC may suggest a fresh panel of examiners.
  - b) The examiners in Oral Defence Committee (ODC) shall be provided with the comments made by the examiners before the viva-voce examination.
  - c) If there is a difference of opinion among the viva-voce examiners in Oral Defence Committee (ODC), the recommendations of the ODC will be put up to the Director for a decision who may either direct that a fresh viva be held with a new ODC or recommend acceptance or otherwise to the Senate.
  - d) On the completion of the oral Defence, the Oral Defence Committee shall recommend to the Dean, Academic Research, one of the following courses of action:

- (i) that the degree be awarded;
- (ii) that the research candidate be re-examined at a later specified time in a specified manner;
- (iii) that the degree shall not be awarded. The thesis will be rejected on the conclusion that the thesis is not genuinely the work of the research candidate.

In case of (i) and (ii), the Oral Defence Committee shall also provide to the research candidate a list of all corrections and modifications in the thesis (if required) including suggestions made by the examiners during the thesis evaluation.

The second viva-voce examination may be held in case of (ii) normally after a period of 3 months.

Any other matter not explicitly provided herein or of an exceptional nature, may be referred to the Director for his decision.

#### **R.15 AWARD OF Ph.D. DEGREE**

1. The Degree of Ph.D. shall be awarded by the Senate, provided that:
  - a) The Oral Defence Committee so recommends;
  - b) The candidate produces a 'No dues Certificate' in the prescribed form.
  - c) The candidate has submitted one soft and two hard cover copies of the thesis; one for the Library of the Department/Centre and the other for the Central Library. The thesis should incorporate all necessary/ corrections/ modifications listed by the Oral Defence Committee (ODC).

#### **R.16 FINANCIAL ASSISTANCE (Institutional Assistantship)**

- 1.a) Those students who are admitted on full-time basis are considered on request, for the award of Institutional MHRD Assistantship of the amount as decided by the Government of India from time to time, under specified terms and conditions.
  - b) The students getting Institute MHRD Assistantship will provide 8-10 hours of assistance per week in teaching, laboratory development, and research.
  - c) The total number of MHRD assistantships in a department will be as decided by the institute from time to time.
2. The maximum duration for which assistantship can be awarded to any Ph.D. research student/candidate is 4/5 years or till the end of the semester in which the thesis is submitted, whichever is earlier. Continuation of the fellowship is contingent on satisfactory academic and research performance and satisfactory performance in

the discharge of responsibilities for assistance assigned under the scheme.

It is to be noted that admission to the Programmes and award of assistantship are not linked. Admission to any programme does not guarantee the award of fellowship/ assistantship. Those who are not awarded assistantship can continue with the programmes as a self financing student.

However, based on their performance as evaluated and recommended by DRC, eligible students may be awarded assistantship for the remaining part of their four year registration period, if available. Such performance shall be evaluated after first year of admission.

#### **R.17 TUITION FEE WAIVER TO Ph.D. STUDENTS**

Tuition Fee Waivers is given to research students/ candidates following the policy of the Government of India, Ministry of Human Resource Department.

#### **R.18 LEAVE AND ATTENDANCE**

A research student/candidate will be entitled to avail leave as approved by the Head of the department/centre following Leave Rules/Attendance Rules formulated and amended from time to time by the Senate. Presently these are as under: 1

##### **1. Leave Rules**

A full-time research student/candidate, during his/her stay at the Institute will be entitled to leave for 30 days per academic year including leave on medical grounds, in addition to Public Holidays. He/she will not be entitled to mid-semester breaks, summer and winter vacation. The leave due can be carried over to the next year and accumulated up to 90 days.

Leave beyond 30 days in an academic year may be granted to a Research student/ candidate in exceptional circumstances, on the recommendation of the supervisor, by the Head of the Department/ Centre concerned, subject to the following conditions:

- a) The leave beyond 30 days will be without Assistantship/Scholarship/ Fellowship.
- b) An extension of leave up to additional 30 days will be granted only once during the programme of the scholar.
- c) A proper leave account of each research student/ candidate shall be maintained by the Department/ Centre concerned.
- d) Women scholars are entitled for maternity leave with full fellowship/assistantship as applicable, for a period not exceeding 135 days, once during the tenure of their award. The application for maternity leave should be supported by medical certificate.

- e) Male Scholars are entitled for 15 days paternity leave once during the tenure of their award. The application for paternity leave should be supported by medical certificate.
- f) Special leave may be granted with the permission of Dean, Academic Research, to attend Seminars/ Conferences in India /abroad and present paper.
- g) Research student/candidate supported by a Govt./ semi - Govt. agencies may be governed by their own rules, if applicable.

## **2. Attendance**

A research student/candidate irrespective of the source of support including self financing, while pursuing course work, must have at least 75% attendance in each course in which he/she is registered. A research student falling short of 75% attendance in a course shall not be permitted to appear in the examination of that course.

A research student/candidate after having completed the course work must attend to his/her research work on all the working days and mark attendance except when he/she is away from the campus on duty/sanctioned leave. The requirement of 75% attendance will apply as above on daily attendance on monthly basis except in the cases where longer leave have been duly sanctioned within the leave entitlement of the research student/candidate.

In case the attendance of a research student/candidate falls below 75% during a month, he/she will not be paid his assistantship/support, if applicable, for that month. Further, if his/her attendance again falls short of 75% in any subsequent months in the same semester his/her studentship/candidacy and support will be terminated.

For the above purpose, if 75% works out to be a number which is not a whole number, the immediate lower whole number will be treated as the required 75% attendance.

## **R.19 WITHDRAWAL FROM SEMESTER/COURSES**

1. A research student/candidate may be permitted by the Dean, Academic Research to withdraw from all the courses registered by her/him in the entire semester, on medical grounds supported by a medical certificate from the Institute Medical Officer. The medical certificate issued by a registered Medical Practitioner will also be acceptable in those cases where the research student/candidate has valid reasons for his absence from the Institute. Withdrawal may also be granted by the Dean, Academic Research provided he/she is convinced that the research student/candidate cannot pursue his studies for the reasons beyond his control.
2. Research Student/Candidate should present the medical certificate in support of his absence on health reasons within two days of his rejoining the Institute, if not produced already. Under no circumstances a request

for semester withdrawal from a research student/candidate will be entertained after the major tests in courses have begun. Withdrawal will not be granted retrospectively.

3. The period of authorized absence in the semester should not be less than three weeks in a Semester, for which withdrawal is to be granted. Regularity in attending the classes / department and satisfactory performance in research/ the mid-term examinations, if any, held prior to the date of application for withdrawal are the factors which would be taken into account while recommending/granting withdrawal.
4. Any semester withdrawal will count towards the maximum limit of registration for six years for full time /seven years for Part time research student/candidate as R.5.6 (b).

#### **R.20 CANCELLATION OF REGISTRATION**

1. Registration of a Research student/candidate shall be cancelled in any one of the following eventualities, after due approval of Dean, Academic Research.
  - a) If he/**she** absents himself for a continuous period of four weeks without prior intimation/sanction of leave.
  - b) If he/**she** resigns from the Ph.D. Programme and the resignation is duly recommended by the supervisor/ Chairman, DRC/CRC/HoD.
  - c) If he/she fails to renew his/her registration in any semester following the provision contained in R.5.5.
  - d) If his/ her academic and research progress is not as per requirement. R.11(4 & 5).
  - e) If all the prescribed courses including Audit course(s) are not successfully completed within the stipulated time frame of 20/26 months for full time/part time Research student respectively from initial registration following provisions of R.8.
  - f) If he/she does not clear the comprehensive examination as stipulated in R.9.3 and R.10.2.
  - g) If he/she is found involved in an act of misconduct and/or indiscipline and termination has been recommended by a competent authority.

#### **R.21 TO TAKE UP JOBS/ASSIGNMENTS**

The Full time research student/candidate can not take up any job/assignment during Ph.D. programme.

If he takes up a job / assignment, his status will be converted from Full time to Part- time student in accordance with clause R.2.3.

## **R.22 SUPERVISION OF Ph.D. STUDENTS OF OTHER INSTITUTES/ UNIVERSITIES**

A faculty member of IIT Roorkee may supervise and guide Ph.D. students of other institutes/universities subject to following conditions.

- a) The host Institution/University is recognized by MHRD-UGC/AICTE.
- b) The request must be forwarded by the competent authority of the host institution.
- c) The concerned faculty should have guided/guiding at least one Ph.D. student registered at IIT Roorkee.
- d) The total number of such externally enrolled Ph.D. students under any faculty of IIT Roorkee, should not be more than 2 (two) at any point of time.
- e) Due to extension of this facility to the host institution, the work of the IIT Roorkee should not suffer.
- f) If the concerned faculty of IIT Roorkee, as supervisor of thesis of students of another institute/university is required to visit outside, he/she shall seek specific approval for the visit on Casual Leave/leave as due, by the competent authority and shall not be on duty for the visit. Further, the expenses, facilities etc. in this regard shall not be borne by the IIT Roorkee.
- g) If the external candidate wishes to avail the facilities at IIT Roorkee, he/she shall register as casual student for a period not exceeding six months by paying tuition fee being charged from the research student/candidate of IIT Roorkee as per rules and regulations.
- h) The host Institution/University as per regulations, appoints a foreigner as one of the examiners for Ph.D. thesis or else it is recognized by IIT Roorkee for this purpose. Wherever, the foreign examiner is not appointed, the Director is authorized to take such a decision. A Standing committee of Dean, Academic Research, Dean (Faculty Affairs) and the concerned Head of the Department/Centre is constituted to consider such requests from the host institution.

## **R.23 GENERAL**

1. Notwithstanding anything contained in these Ordinances & Regulations, all categories of the research students/candidates shall be governed by the regulations, guidelines and procedures framed by the Senate in this regard, and in force from time to time.
2. Unfair means and Plagiarism

- a) In case a research student/candidate is found adopting or suspected of adopting unfair means before, during and after the examination or lifting of some other's work(s) and inserting it in his/her project, seminar and dissertation, etc. without proper acknowledgment, credit and reference or plagiarizing the dissertation/project report etc., such penal action shall be taken by the Institute as may be necessary to uphold the sanctity and integrity of the examination system and the credibility of the Institute.
- b) All such cases may be taken suo-moto cognizance of by the Institute Standing Committee (ISC) appointed by the Senate for this purpose. Such cases may also be reported by examiners/invigilators/supervisor(s)/ Chairman, DRC/CRC or any person to Dean, Academic Research and or the Institute Standing Committee for consideration. After giving an opportunity to the concerned research student(s) /candidate(s) to explain the conduct/defend against the charge, the Chairman, Senate on the recommendation of Institute Standing Committee shall take action to impose on the concerned research student(s) /candidate(s) appropriate penalty including termination of registration or award of F Grade in the concerned course(s) etc.

#### **R.24 INTERPRETATION**

1. Any doubt or dispute about the interpretation of these Ordinances and Regulations shall be referred to the Chairman, Senate whose decisions shall be final.
2. Eligibility for admission to Ph.D. programmes in different disciplines is summarized in **Annexure-I**. This may be reviewed from time to time by the concerned department/centre and approved by the Senate.

Note: The recommendations of SRC in respect of a research student/candidate are to be made on prescribed proforma available in the office of concerned department / centre as well as institute website.