

BIRLA INSTITUTE OF TECHNOLOGY
MESRA, RANCHI-835215

REGULATIONS FOR RESEARCH PROGRAMMES LEADING TO
THE AWARD OF THE DEGREE OF DOCTOR OF PHILOSOPHY
2013

PREAMBLE

1. Consistent with the availability of the required infrastructure, the Birla Institute of Technology, Mesra, Ranchi, a deemed university u/s 3 of UGC act, 1956, hereinafter referred to as the Institute, shall provide facilities for research in several areas of Science, Technology, Engineering, Architecture, Pharmacy, Management, Humanities and other interdisciplinary fields leading to the award of the Degree of Doctor of Philosophy, hereinafter abbreviated as Ph.D. Extension Campus, wherever mentioned in these regulations, refers to an Extension Campus of the Institute. International Campus, wherever mentioned in these regulations, refers to an International Campus of the Institute.
2. The Regulations, hereinafter specified, lay down the procedure to be adopted for the research programme for the Ph.D. Degree of the Institute.
3. Department, wherever mentioned in these Regulations refers to a Department of the Institute.
4. Technical Council, wherever mentioned in these regulations, refers to the Technical Council of the Institute.
5. A scholar is an eligible person, who is enrolled at the Institute for any specific Ph.D. programme. Prior to enrollment, this person is referred to as an applicant.
6. Guide/Co-guide/Internal guide/External guide is a person approved by the Technical Council for the guidance of the Scholar while pursuing the programme of research leading to Ph.D. degree of the Institute.

Objectives of the Ph.D. Programme

7. The objectives of this programme are to impart research training to the scholar, and prepare him/her for a career in independent investigation and original research so as to enable him to make a significant contribution to knowledge in his/her field and profession. The training programme shall ensure that it is not an end in itself, but a means for a fruitful research career.

8. To achieve these objectives, the training programme shall ensure the following:
 - (a) Acquisition of fundamental knowledge in the chosen discipline.
 - (b) Acquisition of in-depth knowledge in the field of research.
 - (c) Training in the use of research tools of the field, and develop skill and capability to conduct original research.
9. The evaluation and examination procedure to measure the achievement of these objectives is prescribed in these Regulations under appropriate headings.

Eligibility Qualification for the Ph.D. Programme

10. An applicant for admission to the Ph.D. programme of this Institute shall possess, normally, an M.Phil., Master's degree in Technology/ Engineering/ Pharmacy/ Management/ Architecture/ or equivalent, with a minimum of 60% marks for General candidates (55% in case of SC/ST candidates and 55% in case of Full-Time Sponsored candidates with a minimum of three years professional experience) at Master's level or an M.Phil., Master's Degree in Science/Humanities with a minimum of 55% marks for General candidates (50% in case of SC/ST candidates and 50% in case of Full-Time Sponsored candidates with a minimum of three years professional experience) at Master's level or any other discipline approved by the Technical Council of the Institute from time to time. However, if the final result of a candidate pursuing his/her Post Graduate course programme at the time of application is not declared, then he/she shall be governed by Clause 11 during the entire Ph. D. programme irrespective of when he/she obtains his/her Post Graduate final result (Please see Clauses 28 and 33).

Candidates must hold the required degree or equivalent qualification in appropriate discipline of any of the Universities incorporated by an act of the central or state legislatures in India or other educational institutions established by an act of Parliament or declared to be deemed as an University under section 3 of UGC Act, 1956, or possess an equivalent qualification recognized by the ministry of HRD, Government of India/Association of Indian Universities

11. Applicants with B.Tech /B.E./B.Sc.(Engg.)/B.Arch./B. Pharm./M.B.B.S. having a minimum of 70% marks for General candidates (55% in case of SC/ST candidates, and 55% in case of Full-Time Sponsored candidates) at Graduation level with a minimum of three years professional experience may also apply. This degree must entail a minimum of 4 years of education after higher secondary schooling (10+2) or equivalent.
12. However, an applicant having professional qualifications such as Associate Member of The Institution of Engineers (India) / Aeronautical Society of India or equivalent may be considered for admission to the Ph.D. programme only after he/she completes the M.E. programme of any recognized university with a minimum of 60% marks (55% in case of SC/ST candidates, and 55% in case of Full-Time Sponsored candidates with a minimum of three years professional experience) at Master's level.

Notes:

- (i) The category for the various research scholars is included in Annexure I.
- (ii) Sponsored Candidates who are employed in recognized Educational Institutes / Universities / Colleges or in Research Laboratories or in Industry, etc. Such candidates should normally have at least three years of experience.
- (iii) Applicants with foreign diplomas should see the EdCIL website (<http://www.edcil.co.in>) for equivalence and if required should obtain an equivalence certificate well in advance from the evaluation division of the AIU (website <http://www.aiuweb.org>).
- (iv) In case any Board / University awards grades instead of marks, the calculation of equivalent marks would be based on the procedure prescribed by the Board / University. In case a University does not have any scheme for converting CGPA into equivalent marks, the equivalence would be established by dividing obtained CGPA with the maximum possible CGPA and multiplying the resultant with 100.
- (v) Foreign Nationals wishing to pursue the Ph.D. programme at BIT Mesra or its extension Campus in India, will have to obtain prior security clearance from Ministry of Home Affairs and the approval of the Department of Secondary & Higher Education, Ministry of Human Resource Development, Govt. of India / any other appropriate Govt. Agencies, and this must be on the appropriate (student) visa. (Please see UGC website for details)
- (vi) Candidates must have adequate proficiency in written and spoken English. Foreign nationals, excluding ex-students and faculty/staff members of B.I.T. International Campus, possessing any of the qualification listed at 10 and 11 above shall be required to clear TOEFL or any other equivalent examination prescribed by the Technical Council of the Institute from time to time to become eligible for admission to the Ph.D. programme.
- (vii) Candidates with qualifications acquired through correspondence or distance-learning programmes are eligible only if (a) the programmes are recognized by the DECUGC-AICTE or MHRD, and (b) they have passed the qualifying examination at the time of applying, with minimum requisite marks as given in eligibility criteria. They must enclose photocopies of pass certificate and mark sheets of qualifying examination with their application.

Selection Procedure

Pre Admission Procedure

13. (i) The Ph.D. programme shall be open to candidates of any Nationality in true spirit of an University Education provided that the candidate satisfies any one of the clauses 10,11 or 12 and where equivalence of his/her qualifications is established by the Equivalence Committee of the Institute.

- (ii) The admission into the Ph.D. Programme shall be made twice a year only, in January / July each year through All India Admission Test. Any applicant satisfying clause 13 (i), and seeking admission to the Ph.D. programme shall in the first instance submit an application in the prescribed Application Form to the Dean (Admission, & Academic Coordination) as per the Institute notification through advertisement in the News Papers/ Notification on the Institute Website www.bitmesra.ac.in. The prescribed Application Form may be obtained from the institute website.
 - (iii) The research areas of each of the department offering Ph. D. programme will be displayed on the Institute website.
14. (i) Selection to the Ph.D. programmes would be based on previous Academic record, Performance in an entrance test followed by an Interview in the Institute's Campus at Mesra, Ranchi 835215 and other extension campuses.
- (ii) The Ph.D. Entrance Test would consist of 2 parts:
- a) General Aptitude Test common to all applicants, and
 - b) Subject Specific Tests to examine basic fundamental knowledge in the subject which would reflect the ability of the candidates to address some complex problems.

The syllabi of the General Aptitude Test and the Subject Specific Tests for each Department will be displayed on the Institute website.

- 15 (i) Provisional selection lists, along with procedures for admissions, will be notified after the interview, on the Institute website and Notice Boards of the Institute only. Provisionally selected applicants will be required to take admission by the date specified; failing which vacant seats may be allotted to waitlisted applicants. The list of waitlisted applicants will also be announced on our website and Institute Notice Boards only. **No separate intimations will be sent to applicants.**
- 15 (ii) After submission of the required fees, the applicant will be assigned the Institute Roll No. by the Admission Office. He/She then shall immediately report to the concerned Head of the Department/Director Extension Campus for necessary actions with his/her Enrollment Form (The Enrollment Form will be available at his/her Department office/office of the Director of Extension Campus/Dean (Admission & Academic Coordination) / Institute website).
- 15 (iii) Applicants provisionally admitted to the Ph.D. programme will be required to contact The Head of the Department of respective Department to get acquainted with research facilities & faculty member of the Department. They are required to fill the Enrollment Form with details of their proposed field of research, research topic, and name of their guide, within 16 weeks after their admission, and submit the same to the Chairman Departmental Academic Committee (DAC) / Chairman Academic Committee in case of Extension Campus. **(Please see Clauses 24 & 25 for more clarification).**

Guide for the Scholar

16. There shall normally be a Guide for each scholar embarking on a programme of research for Ph.D. degree, approved by the Technical Council. He/She shall normally be:
 - (a) A Full-time faculty member of the Institute or Extension Campus holding Ph.D. Degree.
 - (b) A Professor of the Institute holding at least a Master's degree, with considerable amount of proven research experience in the field.
 - (c) A Scientific Officer in PB -3 pay band or above with Ph.D. Degree.

For greater participation of the faculty in the research programme and to build wider R & D base in the Institute, the Technical Council normally may restrict the number of Ph.D. scholars at a time under a guide to five for an Assistant Professor and eight for an Associate Professor/Professor.

17. If considered necessary, the Technical Council may approve another guide who could be a teacher of the Institute or an external expert of the domain with proper justifications for joint supervision and guidance of the scholar, possessing qualifications consistent with clause 16. In such a case, teacher/expert so appointed, shall be designated as co-guide/external guide as may be the case.
18. Also, in the event, the Technical Council permits an applicant from another institution/organization to be admitted to the Ph.D. Programme at the institute, the Technical Council may approve joint supervision of scholar's work by a suitably qualified external guide after examining his/her biodata. The application of such an external candidate must be forwarded by a competent authority of applicant's institution/organization. In this case, the internal guide shall be in accordance with clause 16.
19. Notwithstanding the provisions contained in the above Clauses, a teacher of this Institute who has considerable experience in his/her chosen field of research, may be permitted by the Technical Council to pursue his/her Ph.D. programme on his/her own without a guide, provided that the Admission Committee has recommended such a course of action. In all cases, Chairman of the Doctoral Committee will perform all the duties of the guide except the detailed supervision of the Thesis.

Function of the Guide(s)

20. The functions of the Guide/Internal guide shall be as under:
 - (a) Assessment of the suitability and aptitude of the applicant for the proposed research work and reporting on the same to the appropriate **Departmental Academic Committee, PG and Research (DAC, PG & R)**, and the facilities required for the same.
 - (b) Critical evaluation of the proposed research work of the applicant with a view to ensure that it would be a piece of original work, and when completed, it would positively contribute to the knowledge in the field.

- (c) Guidance and supervision of the work of the scholars after the approval and registration by the Technical Council.
21. The External Guide/Co-guide (if any) shall undertake joint supervision/guidance of the work of the scholar under mutual consultations with the internal guide/guide.

Residence Requirement for External Scholar at this Institute/Extension Campus.

22. The residential requirement is essential to build the research atmosphere in the Institute. The residential requirement for external Ph.D. candidate shall be a minimum period of one semester at the Institute/Extension Campus.

Departmental Academic Committee Post Graduate and Research (DAC, PG & R)

23. Each Department shall have a Departmental Academic Committee (DAC) duly approved by the Technical Council with the following composition:

A. Department of the Institute

- (a) Head of the Department Chairman
- (b) All Professors and other five Members
Faculty Members of the Department with Ph. D. degree
on 2 years rotation basis to be nominated by the concerned Head
- (c) Two Faculty Members from allied department Members
- (d) The guide(s) of the candidate Member(s)

B. Extension Campus/International Campus

- (a) The Director/The Coordinator of the Campus, Chairman
Provided, he/ she posses the qualification as per Clause (16) of the regulation. If not, the Dean(PG&R) in consultation with VC shall nominate a faculty member of the level of Professor /Associate Professor qualifying the Clause (16) as the Chairperson Academic Committee by rotation of two years and the Director/The Coordinator of the Campus will be a special invitee in all meetings.
- (b) All Professors and two faculty members of the Campus with Ph.D. Degree on the two years rotation basis to be nominated by the Heads /Academic Section In-charges. Member
- (c) One eminent person with Ph.D. from Industry/R&D organization/other Institution of related field by rotation of two years. Member
- (d) The guide(s) of the candidate (in case of Ph.D. Admission). Member

Action by the Departmental Academic Committee Post Graduate and Research (DAC, PG & R)

- 24 (i) The scholar immediately after admission, will report to the respective Department. The Chairman DAC (PG&R) shall brief him/her about the facilities and faculties of the Department. He shall permit two week time to the scholar to interact with faculty members of the Department to facilitate him/her in selection of guide(s). The scholar shall intimate the chairman DAC (PG&R) the proposed guide(s) within this stipulated time period.
- (ii) The Departmental Academic Committee shall call the candidate for counseling on a date and time convenient to the members of the committee to discuss his/her Research programme/selection of Guide(s) and assignment of course as specified in clause (28) before filling the enrollment form. If necessary the DAC (PG&R) may consult the proposed guide(s) for his/her consent. The recommendation for the course work must be submitted within one month from the date of registration to the Dean (PG&R) for the approval of the Technical Council.
25. (i) The candidate shall prepare the synopsis of the proposed Ph.D. research programme in consultation with his/her guide(s) within four months time and submit his/her enrollment form along with the synopsis to the concerned Chairman, DAC(PG &R).
- 25 (ii) The candidate shall present a seminar on his/her proposed research work before the DAC (PG & R) members on a date and time notified by the Chairman, DAC (PG & R), anytime within 2 weeks from the date of submission of Enrollment Form and Synopsis.
- 25 (iii) The DAC(PG & R) will assess the research proposal of the candidate and submit its recommendations in the prescribed format (Annexure – II) to the Vice-Chancellor through the Dean (PG &R) covering the following aspects:
- (a) Proposed field of Research
 - (b) Research Topic
 - (c) The name(s) of the Guide(s)
 - (d) Utility of the proposed research programme.
 - (e) Suitability of the applicant to undertake the programme.
 - (f) Availability of infrastructure for undertaking the research programme.
 - (g) Extent of external assistance required (if any)
 - (h) Proposed Doctoral Committee of the Scholar (As per Clause 30)

If all the requirements are met then recommendations along with the proposed Doctoral Committee for the candidate shall be sent to the Dean (PG &R) for his perusal and placement in Technical Council for its approval.

26. (i) Once the Technical Council has approved the Guide(s) and Doctoral Committee, actual executive orders constituting the Committee will be issued by the Registrar.

All concerned will be intimated of the registration of the scholar by the Registrar. **The date of admission to the Ph.D. Programme shall be the date of registration.**

26. (ii) After the candidate is duly registered, normally any change in the department or place or Campus of the guide/internal guide, shall not alter the processing department/Campus and the scholar may continue to work under the supervision of the same guide. However, in case of transfer of guide from Institute one campus to another campus, the scholar may request Chairman DAC/AC to change his/her processing Department/Campus.

26. (iii) **In cases where the guide has supervised the scholar for two years or more, the following shall be taken into consideration.**

- (a) If the sole Guide proceeds on leave for more than six months, it will be his/her responsibility to suggest a suitable internal guide to all scholars registered under him/her in consultation of the concerned scholar. The Doctoral Committee, on receiving a formal request from the scholar, duly endorsed by Guide, should forward the name of Internal Guide/Co-guide to Technical Council through Dean (PG&R) for consideration. In all such cases, the written consent of Internal Guide is mandatory.

However, if the leave is more than one month but less than six months, the Chairman Doctoral Committee or his nominee shall look after the responsibility of the Guide during the absence of the guide, on receiving a formal request from Scholar/Guide.

- (b) A faculty superannuating will continue to be the sole guide if the thesis is submitted within six months after superannuation. However, if the thesis is not ready for submission within six months, a Co-guide must be recommended by the Doctoral Committee, on receiving a formal request from the Scholar/Guide.
- (c) A Guide resigning from the Institute service will cease to be the Sole Guide of the Scholar. Such Guide in consultation with his/her scholar (s) shall suggest an Internal Guide for each scholar to the chairman of concerned Doctoral Committee for approval by the Technical Council. Such Guide may continue as an External Guide provided he/she has guided the scholar at least two years from date of scholar's admission in Ph.D. Programme. However, if the Guide does not comply the same, he/she ceases to be the External Guide as well.

26. (iv) **In case, where guidance has been given for less than two years, the following shall be taken into consideration.**
- (a) When a person proceeds on leave for more than six months but not more than one year, a joint guide be appointed by the Doctoral Committee. However if the leave is more than one year the person shall cease to be a guide.
26. (v) In case of superannuation or demise of guide/external guide the following will be taken in to consideration.
- (a) A person superannuating from the Institute services will continue as the guide if thesis is submitted with in the six months. However, if the submission of thesis needs more than six month and the person has guided the scholar for more than two years, he may be considered as external guide.
- (b) A person joining the Institute as an professor Emeritus/Scientist or in any other capacity after superannuation from the service of this Institute, he may continue to be sole guide or as joint guide or co-guide for the scholar already registered under him/her till the end of his/her re-employment period.
- (c) In case of demise of the Guide/External Guide of Ph.D. scholar, the Doctoral Committee shall recommend a suitable Guide on receiving a formal request from the scholar to the Technical Council for approval.
26. (vi) Any Faculty who has less than or equal to three years of service left from the end of the academic session in the month of June/December of the year he/she superannuates cannot be appointed a sole guide.
26. (vii) Persons from outside the Institute (joining as Emeritus Scientists or Chair Professor) having more than two years of service left, can be appointed as joint guide for new scholars.
- Note: The above points are guidelines. The recommendation of the Doctoral Committee of a scholar shall be given due consideration in making a decision in a particular case.
- 26 (viii) The scholar/guide(s) should intimate the Institute regarding any change of his/her employment status, if any.
27. The Registration for Ph.D. Programme will normally be valid for a duration of six years. In case the candidate fails to submit his/her work within 6 years, he/she would be required to make an application for re-registration. However, the submission of thesis for such candidates may be done at any time after re-registration, but within a maximum period of two years. No further extension shall be permitted.

The date of admission to the Ph.D. Programme shall be the date of registration.

Pre-Ph.D. Qualifying courses:

28. Pre-Ph.D. Qualifying Course Work:

A scholar immediately after provisional admission in the Ph.D. programme has to undertake course work as prescribed by the Departmental Academic Committee/Academic Committee of the scholar. The following will be taken into consideration while assigning the course work.

(A.1) All Ph.D. Scholars who have passed the M.E./M.Tech./M.Pharm/M.Arch/M.Planning/ MBA (after B.E/B.Tech/M.Sc./M.A./M.Com. or equivalent)/MCA (six years study course at graduate and postgraduate level) not earlier than three years from the date of his/her registration will be required to complete the following courses in one semester.

Semester – 1:

Type of Course	Credit
i) Theory courses related to the discipline of research	3.0 (atleast)
ii) Term papers	
Term Paper – 1 (Research Methodology)	3.0
Term Paper – 2 (Literature Review in the domain of Research)	3.0
iii) Optional Course (This course may be a theory type course or term paper depending on requirement of the scholar)	3.0

Total Credit - 12

(A.2) All Ph.D. Scholars who have obtained the qualification mentioned in 28(A.1) earlier than 3 years from the date of his/her provisional admission the Ph.D. programme will be required to complete the following course in one semester.

Semester – 1:

Type of Course	Credit
i) Theory courses related to the discipline of research	6.0 (at least)
iii) Term papers	
Term Paper – 1 (Research Methodology)	3.0
Term Paper – 2 (Literature Review in the domain of Research)	3.0
iii) Optional Course (This course may be a theory type course or term paper depending on requirement of the scholar)	3.0

Total Credit - 15

- (B.1) All Ph.D. Scholars who have passed MBA (after B.A./B.Sc./B.Com. or equivalent) / M.Sc./MCA or equivalent qualification will be required to complete the following courses in one semester provided he/she has obtained these qualifications not earlier than three years from the date of his/her provisional registration in the Ph.D. programme.

Semester – 1:

Type of Course	Credit
i) Theory courses related to the discipline of research	6.0 (atleast)
iv) Term papers	
Term Paper – 1 (Research Methodology)	3.0
Term Paper – 2 (Literature Review in the domain of Research)	3.0
iii) Optional Course (This course may be a theory type course or term paper depending on requirement of the scholar)	3.0

Total Credit - 15

- (B.2) All Ph.D. Scholars who have passed MBA (after B.A./B.Sc./B.Com. or equivalent) / M.Sc./MCA or equivalent qualification will be required to complete the following courses in one semester if he/she has obtained these qualifications earlier than three years from the date of his/her provisional registration in the Ph.D. programme.

Semester – 1:

Type of Course	Credit
i) Theory courses related to the discipline of research	9.0 (at least)
v) Term papers	
Term Paper – 1 (Research Methodology)	3.0
Term Paper – 2 (Literature Review in the domain of Research)	3.0
iii) Optional Course (This course may be a theory type course or term paper depending on requirement of the scholar)	3.0

Total Credit - 18

- (C) All Ph.D. Scholars with B.E/B.Tech./B.Pharm/B.Arch/M.B.B.S. will be required to complete the following courses in one year (two semesters) after registration to the Ph.D. Programme.

Semester – 1:

Type of Course	Credit
i) Theory courses related to the discipline of research	6.0 (at least)
vi) Term papers	
Term Paper – 1 (Research Methodology)	3.0
Term Paper – 2 (Literature Review in the domain of Research)	3.0
iii) Optional Course	3.0
(This course may be a theory type course or term paper depending on requirement of the scholar)	

Total Credit - 15

Semester – 2 :

Type of Course	Credit
i) Theory courses related to Computational Technique/Scientific Computing/ Data analysis, etc.	6.0
ii) Term paper(s) related to the discipline of research	6.0
iii) Optional Course	3.0
(This course may be a theory type course or term paper depending on requirement of the scholar)	

Total Credit - 15

28. (D) The maximum duration for completion of the course programmes will be one year for categories 28.(A) & (B) and two years for category 28.(C).
28. (E) The theory courses shall be offered through class room instructions/ directed studies.
28. (F) The course work assigned 28 (A), 28 (B) and 28 (C) will be evaluated as per examination regulations for postgraduate programme in the Institute. The minimum qualifying grade of each course will be 'B'.

28. (G) The above course work is the minimum requirement for submission of the Ph.D. thesis for evaluation. However, the Doctoral Committee may assign additional course work to the scholar if it feels necessary for the Ph.D. programme of the scholar.

Note : The scholar shall present a Seminar and submit two copies of each Term Paper to the Doctoral Committee for Evaluation. The Doctoral Committee will submit the evaluation marks to the examination office for processing the result.

29. (a) Scholars will be encouraged to take up a foreign language such as French/ German/Russian/English, etc. as a Non-credit course during the programme.
29. (b) A scholar of the Ph.D. Programme may be advised to take appropriate/ audit courses at the postgraduate levels at the Institute to make up for his/her deficiencies or as a help in preparation for the written qualifying courses.
29. (c) However, in case of a teacher of this Institute pursuing the Ph.D. programme, the Doctoral Committee may exempt the scholar from taking the written qualifying examination in the courses, provided he/she has been teaching the courses at the postgraduate level for a minimum of two years.

Doctoral Committee

30. (i) The Doctoral Committee for a scholar in any Department of the Institute shall consist of normally six members as given below:
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|-----|---|---|------------|
| (a) | The Head of the concerned Department | - | Chairman |
| (b) | The Guide(s) | - | Member (s) |
| (c) | Two teachers of the Department | - | Member |
| | (One related to the domain of research and another related to discipline of research) | | |
| (d) | Two experts from the Allied Departments related to the domain of research | - | Member(s) |
30. (ii) For Extension Campus/International Campus, the Doctoral Committee shall consist of the following members:
- | | | | |
|-----|--|---|-----------|
| (a) | The Director/Coordinator | - | Chairman |
| (b) | The Guide(s) | - | Member(s) |
| (c) | Atleast one teacher of the Campus | - | Member |
| (d) | Two faculty members nominated by the Vice-Chancellor | - | Members |

30. (iii) For research in emerging and interdisciplinary areas the case shall be referred to the Dean (PG& R) for specific actions.

All members of the Doctoral Committee should normally possess research degree/research experience of proven merit.

In case, the Head of the Department / Director / Coordinator does not possess the qualification as per Clause (16) of the regulation, the Dean(PG&R) in consultation with V.C. shall nominate a faculty member of the level of Professor /Associate Professor qualifying the Clause (16) as the Chairman Doctoral Committee.

Function of the Doctoral Committee

31. After the registration of the scholar for the programme, the Doctoral Committee shall perform the following functions:
- (a) Shall make at least yearly review of the scholar in his/her research work, in association with the guide/guide and co-guide/internal & external guides, if any, as may be feasible.
 - (b) Shall forward annual report to the Vice-Chancellor, through Dean (PG & R) on the progress of scholar's research programme in the prescribed format (Annexure IV).
 - (c) Suggest suitable remedial action to the appropriate authority if the scholar's progress is not satisfactory for any reason.
 - (d) Shall organize a Pre-Ph.D. submission Seminar after the completion of the research work of the scholar where the candidate should submit the complete text of his/her thesis in **typed and unbound form** and present the seminar. The Doctoral Committee shall submit its recommendation on the seminar in the prescribed format (Annexure – V) through the Dean (PG & R), to the Vice Chancellor.
 - (e) When scholar submits his/her thesis, the Doctoral Committee, after due verification of the compliance requirements under clause 32, shall recommend names of examiners for the evaluation of the Thesis. These names shall be in the form of a panel, and this shall be submitted through Dean (PG & R) to the Vice-Chancellor for approval.
 - (f) On receipt of the observations/recommendation of the examiners of the thesis, shall submit these with the Committee's recommendations to the Vice-Chancellor through the Dean (PG & R) for further necessary action. In the event, the reports of the examiners are favourable to the scholar as provided for in clause 40, then the Doctoral Committee would also recommend names for the Viva-voce Board of the Scholar.

Compliance Report:

32. **Prior to the submission of the thesis, the scholar registered for the Ph.D. Programme either at the Institute or its Extension Campus should have complied with the following requirements:**
- (a) He/she must have carried out the research work for a minimum period, counted from the date on which the admission fee has been deposited, as specified below, after his/her registration for Ph.D. programme.
 - (i) Master's degree holder – Two years
 - (ii) Bachelor's degree holder or equivalent – Three years
 - (iii) Teacher of the Institute permitted to work independently for Ph.D. degree – Two years
 - (b) He/She should have satisfied the minimum residence requirement, if applicable, as provided for in Clause 22 of these Regulations.
 - (b) He/She should have taken and passed the prescribed qualifying examination and course works as provided for in Clauses 28 and 29. (a & b) of these Regulations, if so decided by the Technical Council.
 - (d) He/She must have published at least one research paper in a referred journal of repute.
 - (e) He/She must have made Pre-Ph.D. thesis submission seminar presentation of his/her thesis work in the concerned Department of the Institute at the main campus. However, for International Campus, the Doctoral Committee shall decide the venue of presentation.

Organization of the Thesis:

33. The thesis shall be a factual record of the scholar's research work characterized by discovery of facts, or fresh interpretation of facts and theories, or an independent design or development of new product. It should bear evidence of the scholar's judgment and ability to carry out independent investigation, design or development work.
34. The thesis must contain besides the text and common matters like Bibliography/References and summary/Conclusions:
- (i) A Preface/Introduction in which the scholar shall state whether the thesis is based on discovery of new facts or new interpretation of established facts by others, or based on exhaustive study and critical analysis of published work of others, or design, or development work undertaken;

- (ii) The scholar shall further furnish a statement indicating the sources from which the information has been derived, and the extent to which he/she has based his/her work on the work of others, and shall indicate which portion of the thesis is claimed as original. The scholar shall furnish a declaration in the thesis as given in Annexure VI.
- (iii) An Abstract of the thesis (about 500 words) with key words (about 10);
- (iv) References

References in the thesis should be as per standard of International Journals (e.g. Springer, Elsevier, etc. journals) but they must be uniform throughout the thesis.

- (v) A Certificate (in standard format, Annexure VII) from the Guide(s) that (a) the work has been carried under his/her/their supervision, (b) the candidate has fulfilled all prescribed requirements and (c) the thesis which is based on candidate's own work has not been submitted elsewhere for a Degree/Diploma.
 - (vi) The cover page of the thesis shall be sky – blue in colour and in the standard format as given in Annexure VIII.
 - (vii) The text in the thesis shall be Times New Roman font size 12. All Figures and Tables shall have appropriate legend.
35. The Thesis submitted for the Ph.D. degree shall not be one for which a degree or diploma had already been awarded other than that submitted for the course works in the Ph.D. programme at the Institute.
36. Nothing contained in these regulations, shall preclude a scholar from publishing either independently or jointly with his/her supervisor(s), the results of the work incorporated in the thesis, at any time before the submission of the thesis.

Adjudication of Thesis:

37. On successful completion of his/her research programme, the scholar shall submit FOUR (FIVE in case of joint supervision) hard copies and one soft copy in CD of his/her thesis and synopsis to the Chairman of the Doctoral Committee through his/her guide(s) after paying examination fees as decided by the Institute from time to time.

38. The Evaluation of the thesis submitted by a scholar for the Ph.D. degree shall be carried out by a Board of Examiners appointed for the purpose by the Technical Council. The Doctoral Committee shall submit a panel of examiners for this Board.

The Board of Examiners shall normally consist of the following experts:

- (a) The Guide/Guide and Co-guide/Internal Guide and External guide for scholar
 - (b) Two external experts, one from within the country and the other from outside the country
39. Correspondence with the Examiners will be undertaken only by the Vice- Chancellor or by any other officer of the Institute specifically delegated with the power. Each examiner shall be required to examine the thesis independently and forward his/her report with his/her recommendations directly addressed to the Vice-Chancellor. All the reports, so received shall be considered by the Doctoral Committee which will then forward these reports with its own observations/recommendations to the Vice-Chancellor through the Dean (PG & R).
40. If all these reports are unanimously favorable to the scholar, the Doctoral Committee will also submit to the Vice-Chancellor through Dean (PG & R), its recommendations for the constitution of the Viva-voce Board for the scholar. The Viva voce board shall be approved by the Technical Council.
41. If there is no unanimity in the recommendation of the Board of Examiners, and if the majority of them do not recommend outright rejection of the thesis, the Technical Council may permit resubmission of the thesis after revision within two years from the date of the Technical Council's decision. The revised thesis will then be sent to the same set of examiners for their opinion. If, however, any of the previous examiners decline to examine the resubmitted thesis the same will then be sent to another examiner of the same category.
42. Also, if there is no unanimity in the recommendation of the examiners of the Board but the majority of them have submitted recommendations favourable to the Scholar, the Vice-Chancellor may send the thesis along with the observations of the examiners (but without disclosing the name of the examiners) to an eminent person in the field, for his opinion on the thesis. His opinion shall be final and binding.
43. For unanimous/majority rejection of the thesis, the scholar shall be dropped automatically from the Ph.D. programme.

Viva-voce Board

44. In the event, the Technical Council is satisfied with the recommendations of the Board of Examiners setup for adjudication of the thesis, the Technical Council will appoint a Viva-voce Board as per the recommendations of the Doctoral Committee, composed as under.

- | | | |
|---|---|-----------|
| (a) Chairman (Doctoral Committee) | : | Chairman |
| (b) One external examiner preferably
from within the country | : | Member |
| (c) All members of the Doctoral Committee | : | Members |
| (d) Guide(s) | : | Member(s) |
| (e) Dean (PG & R) | : | Observer |

45. The Viva-voce Board shall conduct an oral examination of the scholar normally in the Institute with a view to test the scholar's insight and power of comprehension in his/her field of research , and his/her understanding of the allied fields. The Viva-voce Board shall submit its report(s) / recommendation(s) to the Vice Chancellor. The Vice Chancellor, in turn, will submit the document to the Technical Council which may recommend the award of the Ph.D. degree to the scholar if the recommendations are favourable to the scholar. If, for any reason, the recommendations of the Viva-voce Board are not favourable to the scholar, he/she will be permitted to appear before the Viva-voce Board again, within a period of one year from the date of the previous meeting of the Board.

46. In the case of a teacher permitted to work independently without any guide as per clause 19 for his/her Ph.D. degree, the Board of Examiners and the Viva-voce Board shall include a senior teacher of the Institute in the field of specialization or allied field or an outside expert appointed by the Technical Council on the recommendations of the Doctoral Committee.

47. Transfer from Full-Time to Part-Time Scholar and Vice versa.

A Full-Time category research scholar may be considered for Part-Time category research scholar on request provided that he/she has fulfilled the residential requirement and has qualified the prescribed course work. In all such cases, the waiver in the semester fee as well as fellowship awarded to him/her will be withdrawn. The Institute may also permit a Part-Time research scholar to switch over to Full-Time scholar provided his/her guide has vacant seat to accommodate him/her.

48. **Discipline**

- i) Notwithstanding the provision contained in the clauses of the regulation, the Technical Council may cancel Ph.D. registration of any scholar at any time without assigning reason(s), if it is so satisfied.
- ii) Scholars are expected to observe disciplined behavior/manners inside and outside of the Institute/Campus so as to enhance the image of the Institute/Campus. Any act which may be considered derogatory shall not be acceptable.

Award of the Ph.D. Degree

- 49. The **basic discipline** of the scholar (Science/ Technology/ Engineering/ Architecture/ Pharmacy/Medical Sciences/Management/Humanities or any other discipline approved by the Technical Council) and his/her **domain of research** will jointly determine the discipline in which the Ph.D. degree will be awarded.

Annexure – I

BIRLA INSTITUTE OF TECHNOLOGY Mesra, Ranchi – 835215

Grouping* of candidates who can apply for the Ph.D programme

Sl. No.	Nature of candidates	Full-time/ Part-time	Remarks	Selection procedures
A	CSIR-NET/BRNS/NBHM qualified candidates etc.	Full-time	Fellowship as per norms from agency	As given in web notification through Test & Interviews, etc.
B	Institute fellowship	Full-time	Fellowship from Institute	-----do-----
C	Without fellowship	Full-time	Self financed	-----do-----
D	Already working in project as JRF/RA in any Department or Appointed later in project as JRF/RA in any Department	Full-time Part-time	Fellowship as per norms from assigned project	-----do-----
E	Faculty/Staff of other Institutes/Labs (QIP)/Govt. Departments/Industry, etc.	Full-time	Sponsored	-----do-----
F	Faculty/Staff of other Institutes/Labs/Govt. Departments/Industry, etc.	Part-time	Sponsored/Self financed	-----do-----
G	Faculty/Staff of Institute + BIT Extension Campuss + BIT International Campuss	Part-time	Sponsored	-----do-----
H	a) NRI candidates b) Foreign Nationals**	Full-time Part-time	Sponsored/Self financed **	-----do-----

* This tentative grouping is merely intended to provide guideline to candidates for filling the Form. For any queries please consult the Head of Department/Dean Doctoral Research (Contact details on website)

ANNEXURE – II

MINUTES OF THE DEPARTMENTAL ACADEMIC COMMITTEE (DAC) / ACADEMIC COMMITTEE (AC) FOR EXTENSION CAMPUS MEETING

1. **Date of DAC Meeting**
2. **Name of the Department:**
3. **Name of the candidate and Roll No.**
4. **Affiliation :**
5. **Contact Address:
Telephone / Mobile No./Email Id :**
6. **Permanent Address :**
7. **Qualification of the candidate** (Degree with specialization, Year of passing, % marks and University)
8. **Details of Guides** (Guide, Co-guide, Internal Guide, External Guide as applicable)
 - (a) Name
 - (b) Designation
 - (c) Qualification and Experience
 - (d) Contact Address
 - (e) No. of current Ph.D. scholars under his/her supervision
8. **Research Topic**
9. **Recommendation of DAC [Clause 25]:**
 - (a) Utility of the proposed research programme
 - (b) Suitability of the applicant to undertake the programme
 - (c) Availability of infrastructure for undertaking the research programme
 - (d) Extent of External assistance required (if any)
 - (e) Recommendation for Ph.D. registration
 - (f) Details of Qualifying courses assigned to the scholar: [Clause 28]

S.No.	Course No.	Course Title	Credit
-------	------------	--------------	--------

[Attach syllabus for approval of Technical Council, if not approved]
 - (g) Doctoral Committee for the Scholar
10. **Any other Comments:**
11. **Signatures of the DAC Members.**

ANNEXURE – III

MINUTES OF THE 1ST MEETING OF THE DOCTORAL COMMITTEE

1. Date of Doctoral Committee Meeting:
2. Name & Affiliation of Candidate:
3. Registration No. & Roll No.
4. T.C. Date:
5. Receipt No. & date of submission of Registration Fees: [Mandatory for conducting the meeting]
6. Research Topic:
7. Guides (Guide, Co-guide, Internal Guide, External Guide as applicable):
8. Recommendation of Doctoral Committee:
 - (a) Details of any Additional /Audit course if recommended [Clause 28 (g) & 29]
 - (b) Justification for exemption of Qualifying Examination.
 - (c) Any other comments:
9. Signature of the Members of the Doctoral Committee:

ANNEXURE – IV
ANNUAL PROGRESS REPORT

1. Name of the Candidate and affiliation:
2. Date & No. of Annual Progress Presentation:
3. Registration Number & Roll No.
4. Date of submission of Registration Fees:
5. Receipt No. & Date of submission of Annual Fees: [**Mandatory for conducting Seminar**]
6. Date of Seminar
7. Title of Ph.D. Thesis:
8. Status of Qualifying Examination (Clause 28)
9. Details of audit courses, if any (Clause 29)
10. Progress of Research Work including Publication if any:
11. Comments of the Doctoral Committee
12. Signature of the Members of the Doctoral Committee:

ANNEXURE – V

MINUTES OF THE MEETING OF THE DOCTORAL COMMITTEE ON PRE-PH.D. THESIS SUBMISSION SEMINAR

1. Date of Pre-Ph.D. Thesis Submission Seminar Presentation:
2. Name of the Department :
3. Name and Roll No.
4. Affiliation of Candidate :
5. Receipt No. & date of submission of Registration Fees: (Mandatory for conducting the meeting).
6. Title of the thesis:
7. Guides (Guide, Co-guide, Internal Guide, External Guide as applicable):
8. Comments of the Doctoral Committee:
 - (i) Does the title of the thesis require any modification : (If yes, state reason)
 - (ii) Organisation of the thesis :
 - (iii) Corrections in punctuation, grammar, spelling, typing or language:
 - (iv) Whether the thesis is acceptable for submission in its present form:
 - (v) Whether the thesis requires any modification/improvement prior to its final submission:
 - (vi) If the thesis requires modification/improvement, please specify:
(please attached separate sheet if required).
9. Recommendation of the Doctoral Committee:
10. Signatures of the members of the Doctoral Committee:

Annexure - VI

DECLARATION

I certify that

- a. The work contained in the thesis is original and has been done by myself under the general supervision of my supervisor(s).
- b. The work has not been submitted to any other Institute for any degree or diploma.
- c. I have followed the guidelines provided by the Institute in writing the thesis.
- d. I have conformed to the norms and guidelines given in the Ethical Code of Conduct of the Institute.
- e. Whenever I have used materials (data, theoretical analysis, and text) from other sources, I have given due credit to them by citing them in the text of the thesis and giving their details in the references.
- f. Whenever I have quoted written materials from other sources, I have put them under quotation marks and given due credit to the sources by citing them and giving required details in the references.

Signature of the Student

Name

Roll No.

ANNEXURE – VII

APPROVAL OF THE GUIDE(S)

Recommended that the thesis entitled “
.....” prepared by
Mr/Ms under my/our supervision and guidance be accepted as
fulfilling this part of the requirements for the degree of Doctor of Philosophy.

To the best of my/our knowledge, the contents of this thesis did not form a basis
for the award of any previous degree to any body else.

Date:

Signature
(Name of the External Guide/Co-guide, if any)
Affiliation

Signature
(Name of the guide)
Affiliation

ANNEXURE – VIII

COVER PAGE

Margins:
Top: 1.25", Bot: 0.86"
Left: 1.5", Rt.: 1"
1.5 Line spacing throughout

18, Arial Black
Bold Upper Case

**HYDRO JET SYSTEM FOR MINING
UNDER INDIAN ENVIRONMENT**

2 Blank Lines, 14 font

22, Minotype Corsiva

A Thesis

14, Arial, Bold Italics

SUBMITTED TO

16, Arial Black, Bold

BIRLA INSTITUTE OF TECHNOLOGY

1 Blank Lines, 14 font

1"x1" Logo



1 Blank Lines, 14 font

14 Arial Black, Bold

**FOR THE AWARD OF THE DEGREE OF
DOCTOR OF PHILOSOPHY**

14 Arial, Bold

in

ENGINEERING

1 Blank Lines, 14 font

14 Arial, Bold

By

14 Verdana, Bold

VINAY SHARMA, M.E.

2 Blank Lines, 14 font

16 Arial, Bold

**DEPARTMENT OF PRODUCTION ENGINEERING
BIRLA INSTITUTE OF TECHNOLOGY
MESRA: RANCHI, INDIA**

2011