

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING

Rules and Regulations for Ph.D. Programme

1. INTRODUCTION

Under academic authorization of Tribhuvan University (TU), all the Departments of the Institute of Engineering (IOE) are eligible to offer study and research program leading to the award of the degree of Doctor of Philosophy (Ph.D.).

The award of the Ph.D. degree is in recognition of high achievement in independent research and application of the knowledge. The key requirement is preparation, submission and defense of a dissertation. The dissertation shall be report of a research work characterized by either discovery of new facts or a new interpretation of known facts and theory or an independent design and development or development of a new instrument or technology.

2. ELIGIBILITY FOR ADMISSION AND DURATION OF STUDY

The minimum qualification required of students seeking admission to Ph.D. program of study is a Master's degree or equivalent in the related field from TU or other institutions of higher education recognized by TU. A working candidate must submit leave acceptance letter from respective authority for study period. Doctoral study is normally of **three years duration** of full time enrollment. The candidate has to be full time residence of minimum of two years in the campus...

3. APPLICATION FOR ADMISSIONS

Institute of Engineering will **annually** invite applications for entry to the Ph.D. research study degree program along with other graduate program through a public notification that will include the list of departments, where students may undertake Ph.D. research.

Only those students who meet all the requirements of the university, institute and the departments as set forth in the notice may apply. Applications for enrolment must be made in the official form issued by the Institute for the purpose for the particular academic year.

Along with the application in the approved forms, the applicants to Ph.D. Degree must also submit the following documents:

- i. A preliminary research proposal*: The research proposal shall outline the research that the student is proposing to undertake for the doctoral degree. It should consist of an introduction, topic definition, purpose of research, importance of research and research originality, research problem and research questions, a short literature review to indicate validity of research purpose and research questions and state of

* Detailed Instructions to be provided to students, See Annex-A

research works on the issue at local, regional and global levels, hypothesis of problem solutions if any, proposed methodology/field and laboratory needs, synopsis/state of research if already embarked upon, expected output in terms of discoveries, theories or interpretations and or possibilities, references and bibliography. A calendar of activities that needs to be undertaken so as to achieve the research proposal (spread over about two and half years) shall also be included. The research proposal shall be presented in about 2000 words.

- ii. A portfolio of works, list of published and unpublished research reports with synopsis and copies of at least one and not more than three of such publications/unpublished research reports that give an idea of research achievement of the past or are otherwise felt as important contributions.
- iii. Two letters of recommendations from referees, one of which shall be preferably from academic faculty from previous institution. These shall be in the format/forms provided in the official admission document.
- iv. The statement of purpose: These shall be statement of the student's purpose in applying for graduate study, the particular area of specialization within the major field, plans for future occupation or profession, and additional information that may assist the selection committee in evaluating the preparation and aptitude for graduate study.

Students are reminded that the major basis of selection will be the evaluation of research proposal submitted by the applicant and presentation to DRC. If the proposed research area of the students fit into the broad topical framework of research identified for the concerned department under their research inter-linkage programs and have a strong national relevance, the chances of acceptance for admission would be better. Prospective students are encouraged to consult with faculty members and potential research supervisors prior to submitting applications.

Students are encouraged to review the research interest of faculty of regional and international co-operating institutions which has MOU with IOE as IOE may also offer 'sandwich' option under which students may do part of their research study in those institutions also. Any course or research component completed in such cooperating institutions can be eligible for credit with prior approval of the Subject Committee. Students may also avail of international scholarship/fellowship grants for study as well as other necessary supports such as book grant, field research grant, travel grant, etc. during such 'sandwich' periods. The conditions of award of such grants will be a matter between the student and the sponsor but shall not compromise the Departmental requirements in any way. For grants made available through the Institute of Engineering, the Departments shall require the candidates to teach or assist in teaching courses or laboratories for a maximum of 6 hours per week for two semesters within the period of residency requirement. Such teaching assistantship requirement is also applied to a student, who is not a member of faculty in the Department.

4. FEES & PAYMENTS

The fee structure for the Ph.D. Programme is as follows:

S.N.	Description	Fee (Rs.)	Fee (Rs.) for Six Semester
1	Application form	2,000	2,000
2	Application Registration	3,000	3,000
3	Institutional Overhead	15,000*	90,000
4	TU Registration	600	600
5	Tuition Fee	35,000	2,10,000
6	Thesis Defense	50,000	50,000
7	Identity Card	175	175
8	Student Union	20	20
9	Library	3,000	3,000
10	Sports per Semester	100	600
11	Internet per Semester	1,800	10,800
12	Student Welfare	100	100
13	Laboratory	6,000	36,000
14	Sport Development Fund	100	100
15	Library Deposit (R)	5,000	5,000
16	Laboratory Deposit (R)	10,000	10,000
17	Campus Deposit (R)*	10,000	10,000
18	Campus Development Fund	3,000	3,000
19	Campus Maintenance Fund	3,000	3,000
20	Course Fee per Credit Hour	2,000	-
	Total		4,37,395

A special fee structure may be set by IERC for Sponsored/Foreign Student.

R : Refundable

R* : Refundable only after the completion of the course

* - should be paid in each semester till the student graduate.

The fee structure can be revised by the Institute of Engineering whenever necessary. The fee does not include the funds necessary for the research works. The students should find the sponsorship or arrange the fund themselves as necessary for the research works.

If the student does not complete the programme within six semesters, the student would be required to register and pay the tuition fee every additional semester.

5. REVIEW OF APPLICATIONS AND ADMISSION

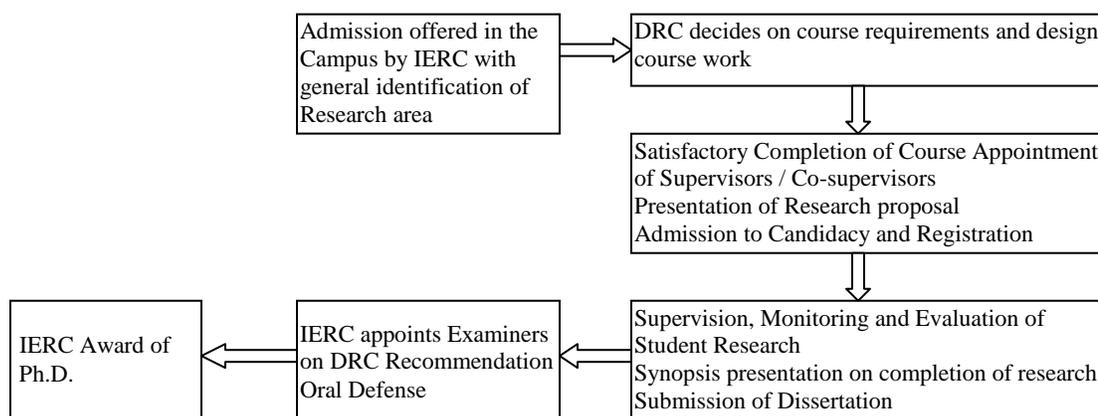
Application documents, publications, presentation and preliminary research proposals will be reviewed by respective Departmental Research Committee (DRC). The DRC would appoint subject specialists* from within IOE or other co-operating academic institutions#, to review and evaluate publications and preliminary research proposal and make necessary recommendations on them. Applicants with research proposals not recommended for admission by two subject specialist/s will be excluded from further processing. The DRC will review other documents along with the specialist recommendations and interview the candidates under the general guidelines and standards for review and evaluation of applications as approved by (IERC).

The scrutiny and evaluation of application will be based on past academic performance, research publications, relevance of proposed research and the results of the interview and DRC will make recommendation to IERC for admission or otherwise. IERC may direct DRC, from time to time and through specific regulations, to review existing criteria.

IERC has the formal authority to accept students for doctoral studies. The accepted applicants will be offered admission in the related Departments in Central Campus Pulchowk.

6. COURSE REQUIREMENTS

Depending upon the applicant deficiencies and the area of research, the DRC in consultation with Supervisor will design and assign a package of course works to each candidate at the time of admission. Such a package will constitute of a minimum of 3 courses with total 12 credit hours+ from among Pre-Ph.D./M. Sc. courses applicable to the subject area and additional 1 course with 4 credit hours on research methodology. Altogether the candidate has to take courses of minimum 16 credit hours.



* These would be from among the potential supervisors as available on the research focus area and are as recommended and identified by the related DRC.

These would be potential for appointment as 'co-supervisor' of the student research later.

+ A course of 1 credit hour would generally mean a course lasting a semester with 1 hour of direct faculty-student contact. It will require an additional 2 hours of self-study (in library, laboratory, etc.).

Normally the course works should be completed within the first three semesters of registration into the program and a minimum attendance of 75% **and a score of 50% of marks** or an equivalent performance standard must be achieved but the student has to maintain a score of **65%** or equivalent in aggregate*. Candidates, who fail to meet the performance standards prescribed for the courses, may be offered an additional chance of remedy, through performance in other similar courses or a repetition of the same course, by DRC, within five semesters of registration, failing which the candidate would be severed from the program.

Appointment of supervisor

DRC will appoint a Supervisor from IOE for every student admitted to the Ph.D. program within six months of admission to monitor the candidate's progress in research, conduct seminars and recommend names of examiners for evaluating the dissertation to IERC. Visiting professors from other cooperating institutions may be called in to participate in as co-supervisors.

During the period of research, DRC will specify necessary regular means of contact/supervision to assure itself that the student is in satisfactory attendance and performance as per normal IOE regulations. This shall be done also while the student may be at cooperating institutions or field and outside laboratories as per the approved research program of each candidate.

7. ENROLLMENT

The admission to Ph.D. program is made for particular semesters and students must enroll at the Central Campus Pulchowk at the beginning of the specified Semester with payment of prescribed fees. The date of joining the program is the date of enrollment. Students will be required to renew his/her enrollment in each semester till the completion of the study.

The student will attend to the prescribed courses and other requirements as set out by the DRC in the conditions of admission and complete those within the stipulated semesters. The student will, on advice of supervisor, present the dissertation research proposal to the DRC in an open forum for departmental scrutiny, and obtain approval of DRC within the first two semesters of enrollment. On formal approval of the proposal by the DRC, the student will start the research works.

8. SUBMISSION OF DISSERTATION

A minimum residency requirement of two years is required for the submission of dissertation for a PhD degree. A candidate is expected to submit his dissertation within **three years** from the date of enrollment. IERC may extend, one year at a time to a maximum period of six years on the recommendation of DRC for the completion of remaining works. The period may be extended only in special cases by the IERC to a final period of seven years on

* For Directed Research/Study or other courses which do not have a course end examination, a satisfactory standing/ rating of outputs (papers/presentations) is required.

recommendation of DRC. Should the student fail to submit his/her dissertation within the period fixed by IERC, the registration shall stand cancelled automatically.

Prior to submission of the dissertation, the candidate will submit a draft copy of dissertation to the department and present it to an open departmental seminar organized by DRC. Should DRC not be satisfied with the quality of the works or presentation, the candidate shall be allowed to resubmit the amended draft and present it within three months. The final dissertation must be submitted to IERC within following three months of the approval of DRC.

A candidate shall submit five hard copies of the final dissertation, printed and bound and presented in a prescribed format. It should be accompanied by five copies of synopsis about 3000 words of the dissertation.

9. EXAMINATION OF DISSERTATION

Based on submitted dissertation in an open departmental seminar in presence of DRC, the DRC shall recommend to IERC a panel of maximum six examiners, with at least one examiner from abroad. The examiners will assess the written dissertation report. Each examiner will submit a detailed assessment of the dissertation in a format prescribed by **IERC and may recommend either (a) an acceptance of dissertation in the form as presented and recommend for oral defense, or (b) that the dissertation be accepted with revisions that are to be advised to the candidate and then recommend for oral defense, or (c) the dissertation be rejected.** In the special circumstances, if necessary IERC may appoint a second panel of examiners.

The candidate's oral defense of dissertation will be conducted by the IERC with the presence of at least one internal within TU and one external examiner (outside TU, preferably from abroad). If the foreign external examiner is not available for the oral defense, IERC may appoint external examiner from within Nepal. The oral defense will be open to participation of all students and faculties and the notice to that effect shall be issued at least one week in advance. On conclusion of oral defense, the IERC shall (a) accept the dissertation in the form as presented and award the degree, or (b) accept the dissertation with minor revision, which are specified in detail by it, and award the degree.

10. AWARD OF DEGREE

The award of the Ph.D. degree is in recognition of high achievement in independent research and application of knowledge presented in the form of a dissertation. The dissertation shall be the report of research work and shall be characterized by either discovery of new facts or a new interpretation of known facts and theory or an independent design and development or development of a new instrument or technology. The award is made on the basis of (i) a satisfactory performance of a candidate in prescribed course work/s, (ii) acceptance/publication of at least one original research paper on the findings of the Ph.D. works for publication in journal of standard acceptable to DRC (DRC will prepare list of such journals and get approval from IERC prior to implementing this rules and regulation) *, (iii) submission of a satisfactory dissertation, and (iv) a successful viva voce/defense of the dissertation.

* Publication acceptance is based upon the list prepared by IERC and DRCs.

The degree of Doctor of Philosophy of the Institute of Engineering is awarded on conclusion of the oral defense and on acceptance by IERC.

Details of Institutional Arrangements, Regulations and TOR for Supervisors and the process for the evaluation of research proposal are given in annexes B, C and D respectively.

Annex – A INSTRUCTIONS FOR WRITING RESEARCH PROPOSAL

The importance and role of the research proposal in research/study for Ph.D. degree should be obvious to students applying for admission to this program as the major criteria of selection of the student would be based on the results of evaluation of the proposal. The research proposal also determines the individual program of research/study, selection of advisors, prospect and possibility of the research in relation to available academic facility etc. The students are expected to submit a preliminary research proposal along with the application. This proposal will be refined and developed during the first two semesters. The research proposal shall outline the research that the student is proposing to undertake for the doctoral degree. The proposal may be written as per the following outline.

INTRODUCTION

Here the area of proposed study is introduced and located in the problem field. Some of its interesting and problematic aspects of concern are presented. It will also act as a background to the justification of carrying out the research study that will be defined in the next paragraph/section.

NEED AND IMPORTANCE OF THE RESEARCH

In these paragraphs, the area of research field/problem is further elaborated and clearly defined.. It should be sufficiently focused and clearly identify the areas and nature of incomplete knowledge/method of application of knowledge or gaps that the students expects to fill up partially/fully through the research study. It should also explicitly state the need and importance of the research and potentials of originality.

PROBLEM STATEMENT

This section of the research proposal elaborates the problem in real life that makes the background to the focus of your research. It seeks to establish the area where the practical application of the research could be made and thereby its relevance to the development of the applied field or the nation. The section should lead to and include the statements on development objectives of the research.

RESEARCH PURPOSE

A short narrative statement of the goals of the research is drawn from the above problem statement and the research problem is defined here. This may take the form of general objectives of the research. The scope and limitations of the research is then clearly summarised and stated in the form of either research objectives or research questions or hypothesis. The research questions are those questions that the proposed research in your area and topic will definitely seek to answer. The research questions should preferably be posed in simple and straight forward manner and must avoid ambiguity. The limitations of the proposed research program could also be clarified through research questions. If your research is expected to have measureable outcomes, the research questions may be stated in the form of specific objectives. If you already have some hypotheses or proposed responses to the research question or solutions to the research problem, these may also be presented here, in such a case, your research purpose could be stated in the form of a hypothesis, which would be either tested /proved or disproved through your research.

VALIDITY OF RESEARCH AND PURPOSE

Here a short literature review to indicate validity of research purpose and research questions is made. This section essentially elaborates the state of the knowledge and state of research works on the issue at local, regional and global levels and through the elaboration and validates the need for further research. If you have already started works in the research, you may also add a synopsis/statement on the status of research here.

CONCEPTUAL FRAMEWORK OF RESEARCH AND METHODOLOGY

In this section, you will present a research design proposed for approaching to answer the research questions or meet specific objectives or test hypothesis/propositions. It will contain the conceptual framework of the organization of your research study including paradigmatic and methodological consideration. Methodology should address all aspects of your research such as research set up, data collection, analysis of data or results, and drawing conclusions. This actual Quantitative (experiments, models and field survey, etc.) or Qualitative (ethnography, case studies, etc) or mix of methodologies used needs to be identified here.

If there are specific field and laboratory needs for the research methodology proposed, they should be included here.

EXPECTED OUTPUTS

In this section, state the expected output in terms of discoveries, theories or interpretations and or possibilities there of making new applications of extant knowledge. Whatever new contributions in terms of development and/or application of knowledge are expected out of the research should be presented here. Also describe how the research output helps in moving towards achieving the development objective here.

SCHEDULE

A calendar of activities to achieve the research proposal over about two and half years shall also be included.

REFERENCES

At the end of the proposal present a brief list of references and bibliography. References should be listed in alphabetical order and include the name of the author, date, title, place of publication and name of publisher, city of publication of the works cited in the proposal.

The research proposal shall be presented in about 2000 words.

Annex – B DETAILS OF INSTITUTIONAL ARRANGEMENT

B1. INSTITUTE OF ENGINEERING RESEARCH COMMITTEE (IERC)

1. The IERC will be the apex authority for all the research/study programs at the Institute of Engineering. The Ph.D. program of IOE shall be regulated by the IERC constituted under the chairmanship of the Dean of the Institute of Engineering in accordance with the rules and regulations of the Tribhuvan University. The planning division of Dean's Office will function as secretariat of IERC.
2. The Institute of Engineering Research Committee (IERC) will frame operating guidelines for Ph.D. programme.
3. The IERC have the overall policy responsibility for the design, management and implementation of research/degree study programs and their standards. It will be responsible for the examination of their performance. The IERC will design and approve standard, rules, regulations admission, study/research, examination and other processes for all research/degree programs.
4. The IERC will set students for admission on the recommendation of DRC, the member-secretary will oversee and coordinate the research study programs leading to Doctoral degrees.

B2. DEPARTMENTAL RESEARCH COMMITTEE (DRC)

5. For each Department offering doctoral research study programs, a Departmental Research Committee will be constituted under the chairmanship of the Head of the Department. The structure of DRC will be as follows:
Chairperson: Head of Department*
Members: 3 Senior Faculties of the Department
Member: Campus Chief
Related PhD supervisors will be 'invited members' of the committee.
All the members of DRC are appointed by the Dean on recommendation of the chairperson. The chairperson will appoint one of the members as member secretary.
6. The committee, apart from management, supervision and execution of the research program at the departmental level as per policies, rules and regulations setup by IERC, will also be responsible for reviewing the applications and making appropriate recommendations.
7. The member/s, under clause 6 above, will be inducted by the Chairperson after having obtained approval from the IERC. Such members may be drawn from within IOE's department or from other cooperating institutions.

* In the event, when a HOD does not have a Ph.D. degree, a senior professor in the Department will be appointed by the Dean to chair the DRC.

8. The chairman shall identify the specialists to review and evaluate research publications and preliminary research proposals and for supervision of the research study.
9. The DRC will be responsible for design and implementation of individual package of course works required for each candidate admitted to Doctoral study programs.
10. The DRC also appoint Supervisor and Co-supervisor for each Ph.D candidate admitted.
11. The DRC shall meet at least once in three months to review the progress of candidate's research and orally examine if necessary and recommend necessary steps to improve his/her performance.
12. For the evaluation of dissertation of each candidate, DRC shall recommend to IERC a list of six examiners.
13. DRC may form Supervising Committee as per requirement.
14. After the approval of research proposal a candidate is required to present his research work in open departmental forum at the end of each semester (3rd, 4th, 5th etc.) as required by academic regulation.

Annex – C REGULATIONS AND TOR FOR SUPERVISORS

1. For every student admitted to the Ph.D. program and within six months of admission, the DRC will appoint a full-time member of faculty of Institute of Engineering as Supervisor to guide the research works and its conduct.
2. In cases where the candidate's research area require additional academic/professional supervision, a competent member of faculty of co-operating other national, regional/or international institute of university of competent professional in an industry may also be appointed as 'co-supervisor' to assist the Supervisor in his duties. Visiting professor from other cooperating institutions may also be called in to participate as co-supervisors.
3. The Supervisor, with co-supervisor, shall guide, supervise and monitor the candidate's program, process, progress and conduct of research/study and preparation and presentation of the dissertation.
4. On satisfactory completion or expected completion of the assigned required coursework, the student will, on advice of the supervisor, present the dissertation research proposal and program to the DRC in a forum open for departmental scrutiny.
5. Candidates will be required to submit reports of progress at the end of each semester to the supervisor and the DRC. The Supervisor/Co-supervisor shall conduct dissertation research seminars with the DRC at the end of each semester and as required by academic regulations. The supervisor will require the candidate to submit a written progress report before each of such seminars and shall submit a copy to the Head of the Department/Chairman of the DRC.
6. Prior to submission of the dissertation, the candidate will submit a synopsis and present to an open departmental seminar in the presence of DRC. The actual submission shall be made only on approval of supervisor. Should supervisor not be satisfied with the quality of the works or presentation, the candidate shall be allowed to make a second presentation within six months. The dissertation must be submitted within three months of the approval of the supervisor.
7. The Supervisor will satisfy itself and certify that (a) the work has been carried out under its supervision, (b) the candidate has fulfilled all other prescribed requirements, and (c) the dissertation is based on candidate's own works and has not been submitted elsewhere for a degree of diploma. This certification shall form part of the submission of dissertation.
8. The Supervisor shall have full responsibility towards the candidates research program and 'co-supervisor' shall act appropriately to assist the supervisor.
9. The Supervisor/Co-supervisor along with an additional external examiner will form the viva voce examination body. Supervisor in consultation with DRC, shall recommend names of a panel of three examiners, with at least one examiner drawn from abroad for evaluating the dissertation to IERC. This shall be done on successful acceptance of a candidate's presentation of synopsis in an open departmental seminar.

Annex – D PROCESS FOR EVALUATION RESEARCH PROPOSAL

The application of students will include (a) a statement of purpose, (b) a set of three selected earlier published articles of researched materials, and (c) the research proposal. All these are to be evaluated to formulate the main basis of recommendation for admission or otherwise.

Application documents, publications, presentation and preliminary research proposals will be reviewed by respective Departmental Research Committee (DRC). The DRC would appoint subject specialists¹ from within IOE or other co-operating academic institutions², to review and evaluate publications and preliminary research proposal and make necessary recommendations on them. Any proposal not recommended for admission by the subject specialist will be excluded from further evaluation by the DRC. The DRC will review other documents along with the specialist recommendations and interview the candidates under the general guidelines and standards for review and evaluation of applications as approved by (IERC).

The scrutiny and evaluation of application will be based on past academic performance, research publications, relevance of proposed research and the results of the interview and DRC will make recommendation to IERC for admission or otherwise. IERC may direct DRC, from time to time and through specific regulations, to review existing criteria.

IERC has the formal authority to accept students for doctoral studies. The accepted applicants will be offered admission in the related Departments in Central Campus Pulchowk.

¹ These would be from among the potential supervisors as available on the research focus area and are as recommended and identified by the related DRC.

² These would be potential for appointment as 'co-supervisor' of the student research later.