

Graphic Era University Dehradun



Ordinances & Regulations

Ph.D. Programme



Graphic Era
UNIVERSITY

(Declared as Deemed-to-be-University under section 3 of UGC Act, 1956)

566/6, Bell Road, Clement Town
Dehradun, Uttarakhand, India
Ph. : 0135-2642727, 2642799, 2643420
Fax : 0135-2644025
www.geitdoon.com
e-mail : geit_appl@rediffmail.com

Ordinances & Regulations for the Degree of Doctor of Philosophy

PREAMBLE

Graphic Era University offers postgraduate programs leading to the award of the Degree of Doctor of Philosophy, (PhD). The award of PhD Degree is in recognition of high academic achievements, independent research and application of knowledge to the solution of technical and scientific problems in Engineering, Technology, Computer Applications, Management and Applied Sciences . Creative and productive inquiry is the basic requirement underlying the research work.

The academic program leading to the PhD Degree is broad-based and may involve course credit requirements and a research thesis . The University also encourages interdisciplinary areas through a system of co-supervision through its academic departments and approved research centers and provides excellent opportunities for such programmes. The University 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 (PhD) is granted for research work in areas recognized by the Academic Council of the University. 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 equipment making a distinct advance in instrument technology. It shall evince the candidate's capacity for critical examination and sound judgement and shall represent original contribution to the existing knowledge.

The Degree of Doctor of Philosophy (PhD) of the Graphic Era University shall be conferred on a candidate who fulfils all the requirements specified in these Ordinances and Regulations. The degree of Doctor of Philosophy will be awarded on the research work carried out by the candidate.

ORDINANCES

1. DEFINITIONS

- (i) **“GEU”** shall mean the Graphic Era University, Dehradun.
- (ii) **“Research Scholar”** shall mean a person who is registered for the Ph.D. programme in a Department of the GEU.
- (iii) **“Management”** shall mean Board of Management of GEU.
- (iv) **“Supervisor”** shall mean a member of the academic staff of the GEU, appointed by the DRC to guide/supervise the Ph.D. research/ academic work of the scholar.
- (v) **“Co-Supervisor”** shall mean another supervisor as approved by the DRC .
- (vi) **“Caretaker Supervisor”** shall mean a supervisor appointed to look after the scholar’s research interests in the absence of the regular supervisor when the synopsis of the thesis has been submitted. The caretaker supervisor also must have the academic and research qualifications as prescribed for a supervisor.
- (vii) **“Educational Institute”** shall mean those institutes/colleges which run fulltime Bachelor’s, or higher degree programmes.
- (viii) **“ORG”** shall mean a PSU/ Govt. Deptt. / R&D Unit.
- (ix) **“Registration Period”** shall mean the length of the time span for which a person remains a research scholar.
- (x) **“Minimum Registration Period”** shall mean the minimum period for which a scholar must be registered to complete the requirements for the degree of Ph.D.
- (xi) **“Degree”** shall mean the Degree of Doctor of Philosophy (Ph.D.) of the GEU.
- (xii) **“Dean”** shall mean the Dean (Research) of the GEU.
- (xiii) **“COE”** shall mean the Controller of Examinations of the GEU.
- (xiv) **“DRC”** shall mean the Departmental Research Committee of a Deptt. of the GEU.

(xv) “**BOS**” shall mean the Board of Studies of a Deptt. of the GEU.

NOTE: ‘He’ & ‘His’ imply ‘he’/ ‘she’ and ‘his’/ ‘her’ respectively in the whole of this document.

2. CRITERIA AND PROCEDURE FOR ADMISSION TO PhD PROGRAM

2.1. Minimum Qualifications :

(i) Regular (Not distance mode) M.Tech./MCA/M.Sc.(I.T)/M.Sc. (C.S.) Degree for Ph.D. in Engineering / Technology in respective branch with 55% Aggregate Marks or equivalent .

Or

(ii) Master’s Degree for Ph.D. in Sciences / Humanities / Social Sciences / Management with 55% Aggregate marks or equivalent.

2.2 Admission

Admission is based on

(i) Satisfying the requirements of minimum qualifications as laid down in 2.1.

(ii) Performance in Interview for those who have qualified in GATE / SLET / UGC / CSIR (JRF)/M.Phil.examinations.

(iii) Performance in

- (a) the PhD Entrance Test to be conducted by GEU, Dehradun for all those who are not qualified in any of the examinations mentioned in 2.2.(ii) and
 - (b) the subsequent Interview.
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- (iv) Candidates are required to discuss their research interests and proposed research work at the time of Interview.
 - (v) GEU would decide the number of Scholars to be admitted before the selections every time.
 - (vi) Due attention will be given to the National/ State Reservation Policy in vogue.
 - (vii) The students admitted to the PhD Program will be required to register themselves for the specific Program. The registration will be renewed every semester on satisfactory progress.
 - (viii) The fee structure will be decided by the Board of Management.

2.3 Eligibility for University Scholarship

- (i) The University will declare from time to time, a number of Research Scholarships. Only full-time Ph.D. research scholars are eligible for the award of the Institute scholarship. A candidate/scholar is required to apply for scholarship. In a particular department, scholarships will be awarded only if these are available in that department.
- (ii) Those who are awarded scholarship from any other source will not be eligible for the University scholarship.

- (iii) The scholarship, if available in the department, will be awarded by the Research Committee on the recommendation of DRC.
- (iv) In case the semester research progress is unsatisfactory, the scholarship shall be discontinued/ stopped.
- (v) A Ph.D. research scholar receiving scholarship is required to devote at least eight hours per week towards the departmental or Institute work assigned to him/her by the Dean of the Faculty.
- (vi) In allotment of the scholarships due attention will be given to the National/ State Reservation Policy in vogue .

3. RELAXATION

3.1 The eligibility requirement of marks may be relaxed by 5% for the SC/ST/physically handicapped/ freedom fighters etc. as adjudicated by the Management. Cognignence will be given to the Government of India / State Govt. directives in this regard.

3.2 The eligibility requirement of marks may be relaxed in the following cases:

- (i) The applicant is a regularly appointed teacher with at least five years standing in the University or in any recognized University or Institution or Institute and has obtained at least fifty percent (50%) marks in the concerned postgraduate examination or has an Industry experience of five years.

or

- (ii) Has submitted, at the time of registration/admission appropriate proof of Standard research work and published research work in referred journals. His /Her application

may be entertained if he has got at least fifty percent (50%) marks in the concerned post-graduate examination.

Or

- (iii) (a) Has done defense courses in Defense Technical Institutions (CME, MCTE and MCEME) at par with M.Tech. and is drawing PG allowance from CDA.
- (b) Due relaxation in P.G. qualifications may be given to the Scientists/Engineers from reputed National/State Research Departments with outstanding research contribution/technology transfer.

4. PhD THESIS SUPERVISOR(S), THEIR ELIGIBILITY CRITERIA AND ALLOCATION

4.1 For every PhD student, a PhD Supervisor will be decided considering available specializations of the faculty members and research interests of the student.

There will be a Doctoral Program Monitoring Committee (DPMC) for every Research Department. The DPMC will consist of the Dean - Research (Chairman), respective Supervisor(s), Head of the Department and three Senior Faculty members (including one from an allied discipline) to be nominated by the Vice-Chancellor.

4.2 The Supervisor shall be himself / herself a PhD degree holder or an eminent person of the Field with at least ten research papers published in referred research Journals and had supervised at least five research scholars.

4.3 The DPMC may permit a Co-Supervisor from within or outside GEU.

4.4 If a faculty member of some recognized institute other than GEU is interested in guiding the research and applies to the Vice-Chancellor of GEU, then on the recommendation of DPMC, Vice-Chancellor may permit to guide him research,

provided the institution in which he is working has all the required facilities required for the research in his subject. He will then be termed as the registered supervisor of the University and his Institute will be termed as University Institute for the purpose of Research. The so registered Institute may charge its fee in terms of utilization fee from the research scholar on registration.

4.5 Appointment of alternative Supervisor

A faculty member appointed as Ph.D. supervisor is normally expected to be available to the research scholar in the institute till the thesis is submitted. However, under unavoidable circumstances, such as long leave, resignation, retirement, or death; an alternative supervisor may have to be appointed. In such special cases, the appointment of the supervisor will be regulated as under:

4.6 A Supervisor proceeds on leave of one month or more

- (i) If the synopsis of the thesis of the scholar has not yet been submitted,
- a) and the supervisor proceeds on leave for one month or more but less than 18 months, then the supervisor should immediately inform the chairman DPMC whether he will continue to guide and supervise the research work of his scholar effectively during his leave period or not. In case he does not inform within five days of the commencement of his leave, or informs that he will not be able to guide effectively, then he ceases to be the supervisor of that scholar.
 - b) and if at any point of time, the total period of long (a month, or greater) leaves of the supervisor of a scholar equals or exceeds 18 months, that supervisor automatically ceases to be his/ her supervisor.
 - c) and if a supervisor proceeds on leave for 18 months or more, he ceases to be the supervisor.
 - d) and once a supervisor ceases to be the supervisor, he can not again become the supervisor of that scholar.

In above cases a), b), c) and d), when a supervisor ceases to be the supervisor, the co-supervisor will act as the supervisor; and if there is no co- supervisor, the DPMC shall immediately appoint alternative supervisor for the scholar.

- (ii) If the thesis/ synopsis of the thesis has been submitted before the supervisor proceeds on leave,
- and he consents to continue to be the supervisor, then he can continue to be so. If he declines, and there is no co-supervisor (of GEU), a caretaker supervisor will have to be appointed.

Further, if major revision becomes necessary, and the co-supervisor or the caretaker supervisor provides the required help in carrying out the major revision, he will automatically be treated as a supervisor of that candidate.

4.7 A Supervisor retires/resigns/expires

Alternative/ caretaker supervisor be appointed by the DPMC.

- 4.8** At any given point of time, no Supervisor will have more than 6 PhD students. In very special cases, however, the Vice-Chancellor may further allow not more than 2 additional PhD students to a Supervisor.

5. COURSE WORK

- 5.1 Every student admitted to the PhD Programme will have to register for a minimum of
- (i) 9 credits of course work to be recommended by the Supervisor(s), if the candidate possesses qualifications mentioned in Clause 2.1 (i).
 - (ii) 12 credits of course work to be recommended by the Supervisor(s), if the candidate possesses qualifications mentioned in Clause 2.1 (ii).
- 5.2 Course work should be successfully completed within the maximum time of first two semesters after registration.
- 5.3. The Research Scholar must obtain a minimum of 50% marks in every registered course/subject.
- 5.4 A Research Scholar will get maximum two attempts for each subject. If he fails in both the attempts, then his registration as research scholar will automatically be ceased.

5.5 Obligatory courses/subjects are

- (i) Research Methodologies including Quantitative Methods and Computer Applications - 3 Credits.
- (ii) Review of published Research Work in the relevant field - 3 Credits.
- (iii)
 - (a) One Advanced Level Course/Subject for Scholars having qualifications mentioned in Clause 2.1 (i) - 3 Credits
 - (b) Two Advanced Level Courses/Subjects for Scholars having qualifications mentioned in Clause 2.1 (ii) - 6 Credits
- (iv) All Courses / Subjects should be relevant to the proposed PhD work. They will be specified by the DPMC on the recommendations of the Supervisor(s).

6. EVALUATION AND ASSESSMENT METHODS

6.1. Residential Requirement

- (i) The registered PhD students are required to work full time throughout the tenure of their PhD Program.

- (ii) However, in special cases of Sponsored students (from recognized Organizations)/Teachers/Defence Officers/Scientists the residential requirement may be relaxed by the Vice-Chancellor on the recommendation of DPMC.
- (iii) They have to report for every Semester Seminars and for all Performance Evaluation Requirements in order to renew their Registration.

6.2. Minimum and maximum duration to qualify for the award of the PhD Degree

	Minimum Duration	Maximum Duration
(i) For Candidates having qualifications mentioned in Clause 2.1 (i)	Three Years	Six Years
(ii) For Candidates having qualifications mentioned in Clause 2.1 (ii)	Three years	Six years

- (a) Maximum duration may be extended by one year by the Vice-Chancellor for genuine reasons but the maximum duration will not be beyond seven years.
- (b) In case, a PhD scholar is not able to successfully complete the PhD within the maximum duration as specified above, his/her registration will expire and his PhD Program will be terminated.

6.3 PERFORMANCE MONITORING

- (a) The academic/research progress of each scholar will be monitored by the DPMC. For this purpose, at the end of each semester, a scholar is required to submit through his supervisor the semester progress report, clearly highlighting the work carried out during that semester. The progress report, giving appropriate headings, must cover i) summary of the work done and results obtained before the start of the semester under report, ii) the goal set for this semester, iii) the methodology used in achieving the goal, and iv) the extent of the fulfillment of the goal.

When a DPMC meeting is held for evaluating the progress, or for comprehensive examination/ presentation, the scholar should be present in the Deptt. The DPMC will evaluate the progress reports of the scholars through seminar/ presentation/ interview/ discussion.

- (b) The Chairman DPMC in the Department will coordinate, every semester, the collection of progress reports written and signed by the scholars and forwarded by the supervisor.
- (c) If due to compelling adverse circumstances (as considered so by the DPMC), a scholar is not able to submit his progress report by the stipulated date, or the progress of a scholar is adjudged by the DPMC as unsatisfactory, he, on his request, can be allowed an additional chance for the same. He will progress /improve his work and submit the report again at the close of the following semester (after six months). During this semester, he can be registered provisionally only (the normal semester fees, however, will have to be paid), and the minimum registration period requirement will automatically get extended by six months. Further, if he receives scholarship, his scholarship for these six months will be stopped.
- (d) Only one such chance can be allowed to a scholar during his entire Ph. D programme. If, even on having been granted extension, he does not submit

progress is adjudged as unsatisfactory, his registration shall stand cancelled and he is no more a research scholar of the Institute.

- (e) The cases where some punitive action is taken will be reported to the Vice-Chancellor.

6.4 once the Scholar has

- (i) completed the course work requirement successfully,
- (ii) completed the Research Work,
- (iii) published at least two papers in referred journals and
- (iv) prepared a draft PhD thesis, he/she will be required to
 - (a) submit a draft Synopsis of the PhD work and
 - (b) deliver a Synopsis Seminar, which will be open to all

Faculty Members and Research Scholars.

- 6.5 On the recommendations of the DPMC, the candidate will be required to submit the final PhD Synopsis in the specified format with all suggested modifications included, within one week of the PhD Synopsis Seminar.

- 6.6 The candidate will be required to submit his/her PhD Thesis in 5 copies in the specified format and fulfilling other requirements within two months of the submission of the final PhD Synopsis.

- 6.7 Two Panels each consisting of five Experts having long experience and good standing in the relevant field of the PhD work, will be proposed, one by the Supervisor and other by the Faculty Dean to the Vice-Chancellor. Both the panels will have the experts essentially outside the GEU.

- 6.8 The Vice-Chancellor will finalize the Examiners, one from each Panel, to whom the Thesis will be sent for Evaluation after obtaining their consent. Out of the two Examiners appointed by the Vice-Chancellor at least one must be from outside the State of Uttarakhand.

- 6.9** The approved Examiners will be approached, along with copy of the Synopsis seeking their consent.
- 6.10** The Supervisor(s) is also required to submit an Evaluation Report on the Thesis.
- 6.11** The External Examiners are supposed to give their Evaluation Reports with their Recommendations in a prescribed format within ten weeks of the receipt of the Thesis.
- 6.12** One of the External Examiner will also be the Examiner for the Viva-Voce Examination and he will be appointed by the Vice-Chancellor.
- 6.13** The Recommendations and the Evaluation Reports from all the Examiners including the Supervisor(s) will be placed before the Vice-Chancellor for further action.
- 6.14** If the Vice-Chancellor finds the Recommendations and the Evaluation Reports from both the External Examiners Satisfactory, the date of final Viva-Voce Examination will be decided in consultation with the External Viva-Voce Examiner.
- 6.15** In case, the Report(s) and Recommendations of one of the two External Examiners are not favorable, the Thesis would be sent to another Examiner, from the respective Panel, to be decided by the Vice-Chancellor, for Evaluation.
- 6.16** However, if the Report(s) and the Recommendations from two External Examiners are not favorable, then the Thesis will be rejected and the PhD degree will not be awarded.
The candidate may, however, be allowed to Re-register to continue the PhD work on the same topic and under the same Supervisor(s) for

a minimum period of one year. A fresh Thesis has to be submitted by the candidate within two years. The normal process of the Evaluation will be followed afresh.

6.17 Once the Thesis is accepted, the candidate will be required to defend his/her PhD work and the Thesis in an open Viva-Voce Examination. He/she has to answer satisfactorily the queries of the Examiners at the time of the Viva-Voce Examination where the External Viva-Voce Thesis Examiner shall be present along with the Supervisor (s) and one DPMC member authorized by the Vice-Chancellor.

6.18 On the successful completion of the final PhD Viva-Voce-Examination and evaluation process the report shall be submitted to the VC for approving the award of PhD degree to the candidate. Further, the candidate will be required to submit the final version of the Thesis in the required format, incorporating all the suggestions of the Viva-Voce Board, both in Hard as well as Soft forms .

6.19 After the approval of the Vice-Chancellor, the award of the PhD degree would be announced and a Provisional Certificate would be issued to the candidate.

6.20 The final Degree will be awarded in the Convocation.

6.21 The remuneration of the Thesis examiners will decided by the management.

7 DEPOSITORY WITH UGC

Following the successful completion of Evaluation Process and the announcement of the Award of the PhD Degree, a soft copy of the PhD Thesis will be sent to the UGC within a period of thirty days.

8. Discipline

Every scholar is required to observe disciplined and decorous behavior both inside and outside the campus and should not indulge in any activity, which will tend to bring down the prestige of the University. Any act of indiscipline of a scholar reported to the Dean of the Faculty/ Dean Research/Vice-Chancellor will be referred to a Discipline and Welfare Committee nominated by the Vice-Chancellor /Senate from time to time. The committee will investigate the charges and will recommend suitable punishment if it finds the charges substantiated. The recommendation of the Committee will be considered by the Dean of the Faculty to take appropriate action. Dean of the Faculty will report the action taken to the Vice-Chancellor and VC will report it at the next meeting of the Senate.

9. GENERAL

Notwithstanding anything contained in these Ordinances & Regulations, all the PhD Scholars will be governed by the rules and procedures framed by the Institute in this behalf, and on matters of general discipline and in force from time to time.

Procedure for Admission to Ph.D. Programmes for the Academic session 2010-2011 and onwards

1. There shall be a Combined Admission Test for admission to Ph.D. Courses in every Faculty.

The candidates who obtain 55% marks in aggregate in post-graduate examination shall be eligible to appear at Common Admission test for admission to Ph.D in all faculties .

2. The Combined Admission Test shall consist of two papers, **Paper I and II.**

Paper-I (duration: 2Hours)

- a. It shall contain 100 objective type multiple-choice questions (MCQ's) with no negative marking
- b. The maximum marks shall be 100.
- c. There shall be three sections in Paper-I. The following will be the distribution and weightage of each section.
 - Reasoning (35%)
 - General Aptitude (40%)
 - English Language (25%)

Paper-II (duration:2 hours)

- a. Paper-II shall be of 100 marks containing
 - i) 50 objective type multiple-choice questions (MCQ's) totaling to 50 marks with no negative marking.
 - ii) 10-20 short answer subjective type questions totaling to 50 marks. These questions will be exclusively based on specialization. (For example, if there are three specializations in a department then there will three sets of short answer questions meant for each specialization and the student has to answer only one set corresponding to his choice of specialization)
- b. The questions in this paper will be of post-graduate level.

Students may apply for admission in different departments in different faculties. For such cases the student will be asked to appear in the main department. The marks obtained by the student will be considered in other faculty where he/she will only have to appear for the interview. The Deans of respective faculties will identify the departments within their faculty and outside of their faculty.

3. The cut-off merit shall be decided by the University. The candidate securing marks in accordance with the cut-off merit shall be called for Interview. Final cut off merit shall be decided on the basis of number of research seats available.

4. The final merit list of the candidates appearing at the Admission Test shall be prepared as per the following weightages:

Test Component Weightage

Admission Test : 50%

Interview : 25%

Qualifying Examination : 25%

5. The cut-off marks in the final merit shall be 40% of the aggregate of the above-mentioned three components.

6. Qualifying Combined Admission Test shall not be the guarantee to get admission to Ph.D. Courses. The admission shall be offered to the selected candidates as per the existing Ordinances after the approval of the Board of Studies concerned and the CASR of the Faculty. **The scholarship is not guaranteed to all the admitted students.**

7. Those students who are pursuing M.Phil. or have been awarded M.Phil degree shall have to appear at CAT for admission to Ph.D. program of this University. In case they qualify the test they will have to appear for the interview.

8. The candidates who qualify JRF or NET shall be exempted from appearing at the Combined Admission Test but they will have to appear for the interview. The preference shall be given to JRF qualified students as they will bring with them the scholarship.

9. Foreign candidates are exempted from appearing at the Combined Admission Test and interview. In case of foreign students from non

English speaking countries, the students will have to qualify an English proficiency test. In case the student fails to qualify this test he will have to clear English language course of six months duration.

Syllabus of Combined Test

Paper-I

Reasoning

Verbal reasoning

1. Analogy: A particular relationship is given and another similar relationship has to be identified from the alternatives provided.
2. Classification: Assort the items of a given group on the basis of certain common quality they possess and then spot the odd option out.
3. Series Completion: Given a series of numbers or letters, it is required to : Given a brief passage, it is required to identify the correct or incorrect logical conclusions either complete the series or find out the wrong part in the series.
4. Logical Deduction.

Non-verbal reasoning

1. Pattern Perception: A certain pattern is given and generally a quarter is left blank. It is required to identify the correct quarter from the given four alternatives.
2. Figure Matrix: More than one set of figures is given in the form of a matrix, all of them following the same rule. The candidate is required to follow the rule and identify the missing figure.
3. Rule Detection: Given a particular rule and sets of figures, it is required to select a set of figures which obeys the rule and forms the correct series.

General Aptitude

1. Data Sufficiency.
2. Data Interpretation: Tabulation, Bar diagrams, Pie-Charts, Cartesian Graphs.
3. Set Theory.
4. Binary Numbers.
5. Combinatorics Permutation and combination, Recurrence relations, sum and product rules, principles of exclusion and inclusion, pigeon-hole principle.
6. Probability and statistics Mean, median, mode, basic notion of probability, expectation, variance and standard deviation, discrete and continuous

probability distributions, binomial, Poisson's and normal distributions, conditional probability and Bayes' theorem.

English Language

1. Comprehension: Reading comprehension, Deriving conclusion from the passage.
2. Vocabulary : Synonyms, antonyms, analogy, odd-man out, idioms and phrases.
3. Grammar : Spotting errors, Phrase/Sentence improvement, Arrangement.

Paper-II

The paper-II apropos will be dealt by the Dean and the HOD of the concerned department.