

**ORDINANCE**

**DOCTOR OF PHILOSOPHY**

**FOREST RESEARCH INSTITUTE**

**DEEMED TO BE UNIVERSITY**

**DEHRA DUN**

**1. Short title, Application, and Commencement. –**

- (1) These Regulations may be called University Grants Commission (Minimum Standards and Procedure for Award of Ph.D. Degree) Regulations, 2022.
- (2) They shall apply to every university established or incorporated by or under a Central Act, a Provincial Act, or a State Act, every college, and every institution deemed to be a University under section 3 of the University Grants Commission Act, 1956. (They shall apply to every Ph.D. Research Centre of FRI Deemed to be University)
- (3) They shall come into force from the date of their publication in the Gazette of India i.e. 07-11-2022

**2. Definitions:-** (1) In these Regulations, unless the context otherwise requires,-

- i) “Act” means the University Grants Commission Act,1956 (3 of 1956);
- ii) “Adjunct Faculty” means a part-time or contingent instructor, but not full-time faculty member hired to teach by a Higher Educational Institution;
- iii) “Cumulative Grade Point Average (CGPA)” means a measure of the overall cumulative performance of a student over all semesters. The CGPA is the ratio of total credit points secured by a student in various courses in all semesters and the sum of the total credits of all courses in all semesters. It is expressed up to two decimal places;
- iv) “Credit” means the number of hours of instruction required per week over the duration of a semester. A three-credit course in a semester means three one-hour lectures per week, with each one-hour lecture counted as one credit;
- v) “College” means an institution engaged in higher education and/or research, either established by a University as its constituent unit or is affiliated with it;
- vi) “Commission” means the University Grants Commission established under Section 4 of the UGC Act1956;
- vii) “Course” means one of the specified units which go to comprise a programme of study;
- viii) “Course Work” means courses of study prescribed by the School/Department/ Centre to be undertaken by a student registered for the Ph.D. Degree;
- ix) “Degree” means a degree awarded by a Higher Educational Institution in accordance with the provisions of section 22 (3) of the Act;
- x) “External examiner” means an academician/researcher with published research work who is not part of the Higher Educational Institution where the Ph.D. scholar has registered for the Ph.D. programme;
- xi) “Foreign Educational Institution” means—(i) an institution duly established or incorporated in its home country and offering educational programmes at the undergraduate, postgraduate and higher levels in its home country and (ii) which offers programme(s) of study leading to the award of a degree through conventional face-to-face mode, but excluding distance, online, ODL mode;
- xii) “Grade Point” means a numerical weight allotted to each letter grade on a 10-point scale;
- xiii) “Guide/Research Supervisor” means an academician/researcher recognized by Higher Educational Institution to supervise the Ph.D. scholar for his/her research;
- xiv) “Higher Educational Institution” means a university or institution specified under clause 2 of Regulation 1 of these Regulations;
- xv) “Interdisciplinary Research” means research conducted by a Ph.D. scholar in two or more academic disciplines;
- xvi) “Open and Distance Learning Mode” shall have the same meaning as defined under the UGC(Open and Distance Learning Programmes and Online Programmes) Regulations 2020;
- xvii) “Online Mode” shall have the same meaning as defined under the UGC (Open and Distance Learning Programmes and Online Programmes) Regulations 2020;
- xviii) “Plagiarism” means the practice of taking someone else’s work or idea and passing them as one’s own;
- xix) “Programme” means a higher education programme pursued for a degree specified by the Commission under sub-section (3) of section 22 of the Act;
- xx) “Prospectus” means any document, whether in print or otherwise, issued for providing fair and transparent information relating to a Higher Educational Institution and programmes, to the general public (including to those seeking admission in such Higher Educational Institutions) by the Higher Educational Institutions;

- xxi) “Research Proposal” means a brief write-up giving an outline of the proposed research work which the Ph.D. scholar shall submit along with the application for registration for Ph.D. programme;
  - xxii) “University” means a Higher Educational Institution established or incorporated by or under a Central Act, a Provincial Act, or a State Act, and shall include any institution for higher education deemed to be a University under Section 3 of the Act.
  - xxiii) Academic Council means, Academic Council of F.R.I. Deemed to be University
  - xxiv) Director means, Director of Forest Research Institute University who is also the ex-officio Vice-Chancellor of FRI Deemed to be University
  - xxv) F.R.I. means, Forest Research Institute, Dehradun.
  - xxvi) Head of Division means, Heads of Research Divisions of F.R.I Deemed to be University/ Research Centers.
  - xxvii) Institute means, Forest Research Institute Deemed to be University
  - xxviii) ICFRE means, Indian Council of Forestry Research & Education.
  - xxix) Nodal officer means, Nodal Officer of Ph.D. Research Centers of F.R.I. Deemed to be University.
  - xxx) Research Center means, Ph.D. Research Center created by F.R.I. Deemed to be University
  - xxxi) R.A.C. means, Research Advisory Committee.
  - xxxii) R.D.C. means, Research Degree Committee.
  - xxxiii) Registrar means, Registrar, Forest Research Institute Deemed to be University
  - xxxiv) Dean means Dean (Academics), FRI Deemed to be University
  - xxxv) UGC means, University Grants Commission.
  - xxxvi) In-service candidate means employed permanently in a graded pay scale in a government organization/statutory autonomous body. The In-service candidate is required to submit a ‘No Objection Certificate’ from his/her employer to pursue research in the institute (FRI Deemed to be University).
2. Words and expressions used and not defined in these Regulations but defined in UGC Act and not consistent with these Regulations shall have the meanings assigned to them in that Act

**3. Eligibility criteria for admission to the Ph.D. Programme.-The following are eligible to seek admission to the Ph.D. programme:**

(1) Candidates who have completed:

- i. A 1-year/2-semester master's degree programme after a 4-year/8 semester bachelor's degree programme or a 2-year/4-semester master's degree programme after a 3-year bachelor's degree programme or qualifications declared equivalent to the master's degree by the corresponding statutory regulatory body, with at least 55% marks in aggregate or its equivalent grade in a point scale wherever grading system is followed

or equivalent qualification from a foreign educational institution accredited by an assessment and accreditation agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country to assess, accredit or assure quality and standards of the educational institution.

A relaxation of 5% marks or its equivalent grade may be allowed for those belonging to SC/ST/OBC (non-creamy layer)/Differently-Abled, Economically Weaker Section (EWS) and other categories of candidates as per the decision of the Commission from time to time.

Provided that a candidate seeking admission after a 4-year/8-semester bachelor's degree programme should have a minimum of 75% marks in aggregate or its equivalent grade on a point scale wherever the grading system is followed. A relaxation of 5% marks or its equivalent grade may be allowed for those belonging to SC/ST/OBC (non-creamy layer)/Differently-Abled, Economically Weaker Section (EWS) and other categories of candidates as per the decision of the Commission from time to time.

- (2) Candidates who have completed the M.Phil. programme with at least 55% marks in aggregate or its equivalent grade in a point scale wherever grading system is followed or equivalent qualification from a foreign educational institution accredited by an assessment and accreditation agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country to assess, accredit or assure quality and standards of educational institutions, shall be eligible for admission to the Ph.D. programme. A relaxation of 5% marks or its equivalent grade may be allowed for those belonging to SC/ST/OBC (non-creamy layer)/Differently-abled, Economically Weaker Section (EWS) and other categories of candidates as per the decision of the Commission from time to time.
- (3) **Candidate who meets the requirement mentioned above may select a field of study out of disciplines given below to pursue Ph.D. to be awarded in Forestry only:-**

Sl. No.	Discipline (Subject of study)	Qualification for admission in doctoral program in the light of clause 3(1) above i.e. A 1-year/2-semester master's degree programme after a 4-year/8 semester bachelor's degree programme or a 2-year/4-semester master's degree programme after a 3-year bachelor's degree programme or qualifications declared equivalent to the master's degree by the corresponding statutory regulatory body, with at least 55% marks in aggregate or its equivalent grade in a pointscale wherever grading system is followed. or equivalent qualification from a foreign educational institution accredited by an assessment and accreditation agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country to assess, accredit or assure quality and standards of the educational institution.
1.	<b>Silviculture</b>	Master's Degree in Forestry/Agriculture/Botany
2.	<b>Forest Seed Tech.</b>	Master's Degree in Forestry/Agriculture/Botany
3.	<b>Forest Genetics</b>	Master's Degree in Botany, Agriculture or Forestry with specialization in Genetics
4.	<b>Forest Botany</b>	Master's Degree in Botany with specialization in Systematic Botany/Plant Physiology/Wood Anatomy/Biodiversity Conservation/Ethno Botany or Master's Degree in Agriculture with specialization in Plant Physiology or Post-graduate degree in Forestry
5.	<b>Forest Pathology</b>	Master's Degree in Botany/Forestry/Wood Science & Technology/Agriculture, with specialization in Plant Pathology/Microbiology or Project work/dissertation in Forest Pathology/Plant Pathology Or Master's degree in Microbiology with specialization or Project work/dissertation in Forest Pathology/Plant Pathology Or Master's degree or Bachelor's Degree in Plant Pathology/Mycology/Plant Pathology
6.	<b>Forest Entomology</b>	Master's Degree in Forestry or Master's Degree in Zoology with specialization in Entomology or Master's Degree in Agriculture with specialization in Entomology
7.	<b>Soil Science</b>	Master's Degree in Chemistry, Microbiology Geology, Soil Science or Agriculture (with specialization in Agricultural Chemistry, Soil Science)
8.	<b>Forest Ecology &amp; Environment</b>	Master's Degree in Biological Science/ Life Science/Environmental Science/Forestry/ Marine Biology/ Environmental Engineering /Aquatic Biology Candidate must have studied ecology as one of the subjects in above Master's degree courses

9.	<b>Forest Management</b>	Master's Degree in Mathematics/Statistics/Computer Application/Forestry/Agriculture Forestry
10.	<b>Wood Science &amp; Technology</b>	Master's Degree in Physics/Chemistry/Engineering or Botany with specialization in Wood Anatomy or Post Graduate Degree in Wood Science & Technology
11.	<b>Chemistry of Forest Products</b>	Master's Degree in Chemistry (preferable organic specialization), Master's degree in Analytical Chemistry, Pharmaceutical Chemistry, Industrial Chemistry, Medicinal Chemistry, Natural Products Chemistry, Biochemistry, Agricultural Chemicals, Polymer Chemistry, MD in Pharmacology or equivalent in Indian System of Medicine, Masters in Pharmacy, M. Tech in Chemical technology/Chemical Engineering, M.Sc.(Tech) in Pharmaceutical Chemistry
12.	<b>Pulp &amp; Paper Technology</b>	Master's Degree in Chemistry, Chemical Engineering or Paper Technology
13.	<b>Forestry Extension</b>	Master's Degree in Agriculture Extension/Forestry
14.	<b>Non Wood Forest Products (NWFP)</b>	Master's Degree in Botany/Forestry, Organic Chemistry, Agriculture with specialization in cultivation of medicinal plants, MD in Pharmacology or equivalent in Indian System of Medicine
15.	<b>Forest Biotechnology</b>	Master's Degree in Biotechnology or Post graduate degree in life sciences with specialization in Biotechnology or Post Graduate degree in Biochemistry/Molecular biology/ Microbiology
16.	<b>Forest Bioinformatics</b>	Master's Degree in Bio informatics or Post graduate degree in Forestry/Botany with minimum one year PG Diploma in Bio informatics from a recognized institution or Post Graduate Degree in Computer Science or Post Graduate Degree in Information Technology or Post Graduate Degree in Maths/Physics/Statistics with P.G. Diploma in Computer Science.
17.	<b>Environment Management</b>	Master's Degree in Environment Management/ Environmental Science or M. Tech Environmental Engineering or Post Graduate degree in Chemistry with specialization in Environmental Chemistry.
18.	<b>Wildlife Science</b>	Master's Degree in Forestry/Wildlife Science/Zoology/Botany/Environmental Management/Biodiversity & Conservation or Master's degree in any science subjects with recognized Postgraduate Diploma in Wildlife Management.
19.	<b>Forest Geo-informatics</b>	M. Tech in Remote Sensing & GIS Or Master's Degree in any Science subject with Master's Diploma in Remote Sensing/GIS Or Master's degree in Geo-informatics Or Master's Degree in any Science subject but candidate must have studied Remote Sensing-GIS as one of the paper Or Master's Degree in any Science subject but candidate must have undergone minimum 6 months specialized training in Remote Sensing-GIS."
20.	<b>Forest Hydrology</b>	Master's Engineering Degree in Hydrology/Water Resource Engineering/Civil Engineering, Post Graduate Degree in Forestry, and Environment Management/Sciences with specialization in GIS/Remote Sensing/Watershed Management/ Master's Degree in Soil and Water Conservation Engineering/ Post Graduate Degree in Irrigation and drainage Engineering
21.	<b>Plant Physiology</b>	Master's Degree in Plant Physiology, Post Graduate Degree in Botany with specialization in Plant Physiology.

22.	<b>Application of Information Technology in Forestry</b>	Master's Degree in Forestry with at least one year P.G Diploma in Information Technology/Computer Science from recognized institution.
23.	<b>Climate Change &amp; Forest Influence</b>	Master's Degree in Physical Sciences/ Biological Science /Life Science/ Environment Science /Environment Management/Forestry/ Botany/Physics/ Chemistry/Agriculture/Climate Change/Natural Resource Management/Marine Biology/Soil Science OR M. Tech. in Remote Sensing & GIS/M.Tech. in Environmental Engineering
24.	<b>Conservation Social Science</b>	Master's Degree in Forestry/Wood Science & Technology/Environment Management/Cellulose and Paper Technology/Wildlife Sciences/Life Sciences/Bio Sciences/Sociology/Social Sciences /Geography/ Economics/Natural Resource Management/Rural Development/Physical Sciences

#### 4. Duration of the Programme.-

- (1) Ph.D. Programme shall be for a minimum duration of three years, including course work, and a maximum duration of six (6) years from the date of admission to the Ph.D. programme.
- (2) A maximum of an additional two (2) years can be given; provided, however, that the total period for completion of a Ph.D. programme should not exceed eight (8) years from the date of admission in the Ph.D. programme.

Accordingly, In case a Research Scholar does not submit his/her thesis within Six calendar years from the date of admission unless the term is extended by the Research Degree Committee on the recommendation of the Research Advisory Committee for a period of 1 calendar year, his/her registration shall lapse.

Provided that Research Degree Committee on the specific recommendation of Research Advisory Committee concerned may extend the term of registration of a research scholar for one more year.

Provided further that, female Ph.D. scholars and Persons with Disabilities (having more than 40% disability) may be allowed an additional relaxation of two (2) years; (maximum upto 1 year at a time) however, the total period for completion of a Ph.D. programme in such cases should not exceed ten (10) years from the date of admission in the Ph.D. programme.

The recommendations of the R.A.Cs for extension of term of registration must reach this office before expiry of the term of registration. Due fees would be charged as per University rules for each extension.

- (3) Female Ph.D. Scholars may be provided Maternity Leave/Child Care Leave for up to 240 days in the entire duration of the Ph.D. programme with the approval of Vice Chancellor on the recommendation of Supervisor/Head of Division/Nodal Officer of the Research Centre concerned, however, such leave would not be reckoned for calculation of minimum requirement of 36 months for submission of Ph.D. thesis and in such a situation, requirement of full 36 months needs to be completed.

#### 5. Procedure for admission. –

- 5.1 The admission shall be based on the criteria notified by the institution, keeping in view the guidelines/norms in this regard issued by the UGC and other statutory/regulatory bodies concerned, and taking into account the reservation policy of the Central Government from time to time.

**5.2 Admission to the Ph.D. programme shall be made once in a year using the following methods:**

**5.2.1 The university shall admit candidates by two stages process:** The University shall invite applications for both stages at once. After conducting entrance examination, the interviews of candidates of both stages as prescribed in Clause 5.2.1(A) and 5.2.1(B) will be conducted together, as prescribed under clause 5.2.2 of these ordinances

**5.2.1 (A) On interview basis for students qualify for fellowship/scholarship only in UGC JRF-NET/UGC-CSIR JRF-NET/DBT-JRF/CEED and similar National level tests.**

At first stage the university shall admit students who qualify for fellowship/scholarship in **UGC JRF-NET/UGC-CSIR JRF-NET/DBT-JRF/CEED and similar National level tests with fellowship based on an interview preferably during the month of August/September**, for published seats. The applicant should have been cleared the exam during previous two years from the last date of submission of the form in the University.

At first stage the seats shall be filled **by the candidates** who qualify for fellowship/scholarship in **UGC JRF-NET/UGC-CSIR JRF-NET/DBT-JRF/CEED and similar National level tests with fellowship** and the candidates will be called for interview merit-wise that will be prepared on the basis of score secured in said examination in a ratio of 1:5 with respect to seats and category. The interview will be conducted discipline-wise by the Head of Division concerned/Nodal Officer of respective research centres to discuss their research interest/area. The marks of candidates appeared in the interview will be sent to the Registrar, FRI Deemed University, who will prepare the list of selected candidates as per merit on the basis of marks obtained in **UGC JRF-NET/UGC-CSIR JRF-NET/DBT-JRF/CEED and similar National level tests with fellowship** and in interview applying reservation policy, provided that for selection of candidates, a weightage of 70% to the **UGC JRF-NET/UGC-CSIR JRF-NET/DBT-JRF/CEED and similar National level tests with fellowship** score (they shall have to provide score-card of the marks obtained in the exam, percentile score shall not be considered) and 30% to the performance in the interview/viva-voce shall be given. The list prepared by the Registrar, FRIDU would be placed before Joint Admission Committee constituted by Vice Chancellor, FRIDU. The Joint Admission Commission shall examine the list of selected candidates keeping in view all aspects and shall approve the list and finally be approved by the Director, FRI/VC, FRIDU and would be uploaded on the website.

**5.2.1 (B) On entrance test basis followed by interviews for all students either qualified UGC-NET/UGC-CSIR NET/GATE/DBT/CEED and similar National level tests or not:**

In second stage for remaining vacant seats, the university shall admit students (**either qualified UGC-NET/UGC-CSIR NET/GATE/DBT/CEED and similar National level tests or not**) through an Entrance Test conducted at the level of the university followed by Interview. The Entrance Test syllabus shall consist of 50% of research methodology and 50% shall be subject-specific. The Entrance Test shall be conducted preferably during the month of June/July conducted by the FRI Deemed to be University once in a year followed by an Interview of the candidates who will qualify the entrance test. The candidates shall be invited for interview as per clause 5.2.5(i) of this ordinance.

**5.2.2** The University shall invite applications for both stages **at once**, the candidate shall apply for admission to the Registrar FRI Deemed to be University or through Nodal Officers of the recognized centers of the FRI Deemed to be University on the prescribed form as given in Appendix-1 along with the prescribed fee. The notification and application form will be made available on website sufficiently in advance.

**After conducting entrance examination, the interviews of candidates of both stages as prescribed in Clause 5.2.1(A) and 5.2.1(B) will be conducted together. And then while preparing the result the university will first fill the seats by the students of Clause 5.2.1(A) and then by the candidates of Clause 5.2.1(B) and same shall be reflected in the admission notification also.**

**5.2.3** The application form shall be accompanied by the documents as may be prescribed in the application form.

**5.2.4 Guidelines for holding of the Entrance Test of FRIDU**

- a) The syllabus of the Entrance Test shall consist of 50% of research methodology and 50% shall be subject specific.
- b) The Entrance Test shall be conducted at the Centre(s) notified in advance (changes of Test Centres, if any, also to be notified well in advance) at the level of the University.
- c) Students who have secured 50 % marks in the entrance test are eligible to be called for the interview.
- d) A relaxation of 5% marks will be allowed in the entrance examination for the candidates belonging to SC/ST/OBC/differently-abled category, Economically Weaker Section (EWS), and other categories of candidates as per the decision of the Commission from time to time.
- e) The candidate must apply through the Research Centre where he/she want to carry out his/her research work. The applicant will be considered only for the centre concerned through which the application has been forwarded. In exceptional cases, the Director FRI may consider the change of research centre subject to availability of the vacancy.
- f) **The question paper will have following sections and their proportional weightage shall be as follows:**

**Section-A** - Research Methodology - **100 questions**

**Section-B** - 1. General Forestry: **40 questions**

2. Subject/discipline specific (as per the discipline applied for) : **60 questions**

<b>Sl. No.</b>	<b>Discipline applied for</b>	<b>Subject to be attempted compulsorily as per discipline applied for</b>
1.	Silviculture/ Forest Seed Technology/ Forest Management/ Non Wood Forest Products / Forestry Extension.	Forestry
2.	Forest Genetics/Forest Botany/Plant Physiology/ Forest Pathology/ Forest Entomology/ Forest Ecology & Environment/ Forest Biotechnology/ Environment Management/ Wildlife Science/Soil Science/ Conservation Social Science	Life Sciences or Environmental Sciences or Forestry
3.	Wood Science & Technology/ Forest Geo-informatics/ Forest Hydrology/Climate Change & Forest Influence	Forestry or Physics or Wood Science & Technology or Environmental Sciences
4.	Chemistry of Forest Products/ Pulp & Paper Technology.	Chemistry or Pulp & Paper Technology
5.	Forest Bio-informatics/Application of Information Technology in Forestry	Life Science or Mathematics

- g) The candidates securing minimum 30% and above marks in Section-B will only be considered for qualifying Entrance Test.
- h) Each multiple choice question contains 1 number and there shall be no negative marking
- i) The duration of Ph.D. Entrance Test shall be of 2.30 hours.



### **5.2.5 Guidelines for holding Interview of candidates mentioned at clause 5.2.1(B):-**

**5.2.5(i)** A combined merit list will be prepared for interview of the candidates mentioned at clause 5.2.1(B). The candidates will be called for interview merit wise for appearing in Ph.D. Interview in a ratio of 1:5 (05 candidates against 01 published seat) from combined merit list with respect to seats and category which will be conducted discipline-wise by the Head of Division concerned/Nodal Officer of respective research centres to discuss their research interest/area.

The marks of candidates appeared in the interview will be sent to the Registrar, FRI Deemed University, who will prepare the list of selected candidates as per merit on the basis of marks obtained in entrance test/ **UGC-NET/UGC-CSIR NET/GATE/CEED and similar National level tests** and in interview applying reservation policy, provided that for selection of candidates, a weightage of 70% to the entrance test/ **UGC-NET/UGC-CSIR NET/GATE/CEED and similar National level tests** and 30% to the performance in the interview/viva-voce shall be given. The list prepared by the Registrar, FRIDU would be placed before Joint Admission Committee constituted by Vice Chancellor, FRIDU. The Joint Admission Commission shall examine the list of selected candidates keeping in view all aspects and shall approve the list and finally be approved by the Director, FRI/VC, FRIDU and would be uploaded on the website.

**5.2.5(ii)** The successful candidates admitted through both stages shall be directed to report to the Registrar FRI Deemed to be University/Nodal Officers of research centres concerned for compulsory course work of six months duration as per Ph.D. Ordinance, which would be organized only once from the month October/November of the year of Entrance Test and Interview.

**5.2.5(iii)** Merely qualifying the entrance test and interview does not mean that the candidate will be registered for Ph.D. Programme. The registration in the Ph. D. Programme shall be subject to the condition defined in Ordinance, passing of pre-Ph.D. compulsory course work, submission of synopsis duly approved by Research Advisory Committee, availability of suitable supervisor and the approval of Director FRI/ Vice Chancellor FRI Deemed to be University

**5.2.6** For admit students the Pre-Ph.D. Compulsory Course would be organized once in a year and would start from the month October/November of the year of Entrance Test & Interview. A Ph.D. scholar must obtain a minimum of 55% marks or its equivalent grade in the UGC 10-point scale in the course work to be eligible to continue in the programme. The Pre-Ph.D. Compulsory Course shall be commenced in the month of October/November, and period of admission in Doctor of Philosophy in Forestry Programme shall be counted from September of that year (in which candidate will appear for the entrance test/interview) irrespective of date of admission and commencement of Pre-Ph.D. compulsory course work. The date of registration (after passing of 6 months Pre-Ph.D. compulsory course and submission of synopsis approved by Research Advisory Committee) shall be 1<sup>st</sup> March of the following year. The scholar will normally be required to submit synopsis duly approved by Research Advisory Committee by the end of August for registration from 1<sup>st</sup> March of the following year of entrance test. On cogent reasons, Vice Chancellor may grant extension i.e. up-to October for submission of approved synopsis, but in that case a fine of Rs.2000/- shall be charged and registration will be done w.e.f. 1<sup>st</sup> September of the following year of entrance test.

**5.2.7** On successful completion of the Pre Ph.D. Compulsory course work ( as per clause 9) the candidates shall prepare the synopsis (in the light of clause 5.2.1(c).) of their research plan and present before Research Advisory Committee (RAC) concerned for approval. The Member Secretary/convenor (Supervisor) shall conduct the meeting of the RAC for synopsis seminar and shall send the proceedings of the synopsis seminar (in **Appendix-7**) along with the approved synopsis (5 copies) duly signed by all the expert members of the RAC on the prescribed format as given in **Appendix-6**, to the Registrar FRI Deemed to be University for further action. **In the Synopsis Seminar the RAC shall consider the following aspects, viz. whether:**

- 5.2.8 The candidate possesses the competence for the proposed research;
  - 5.2.9 The research work can be suitably undertaken at the Institution
  - 5.2.10 The proposed area of research can contribute to new/additional knowledge.
- 5.2.11** The University shall maintain the list of all the Ph.D. registered students on its website on year-wise basis. The list shall include the name of the registered candidate, topic of his/her research, name of his/her supervisor/co-supervisor, date of enrolment/registration.

- 5.3. Notification of seats:-** The university notify a prospectus well in advance on the institution's website specifying the number of seats for admission, subject/discipline-wise distribution of available seats, criteria for admission, the procedure for admission, and all other relevant information for the candidates;
- 5.3.1(1) The vacancies shall be obtained in advance from all the research centres/Heads of Divisions of FRI.
- 5.3.1(2) All the research centres shall decide on an annual basis through their academic bodies a predetermined and manageable number of Ph.D. scholars to be admitted depending on the number of available Research Supervisors and other academic and physical facilities available, keeping in mind the norms regarding the scholar- teacher ratio (as indicated in Para 6.5), laboratory, library and such other facilities;
- 5.3.1(3) The vacancies shall be notified well in advance in the institutional website and through advertisement in at least two (2) national newspapers, of which at least one (1) shall be in the regional language, the number of seats for admission, subject/discipline-wise distribution of available seats, criteria for admission, procedure for admission, examination centre(s) where entrance test(s) shall be conducted and all other relevant information for the benefit of the candidates;

**5.3.2 While granting admission to students to Ph.D. Programmes, the University will adhere to the Central Government Reservation Policy,**

- (a) For implementing the Reservation policy, "Reservation Rosters for Direct Recruitment on All India Basis by Open Competition from 1.2.2019, ( As per Swamy's Hand Book 2022) upto 200 points/positions or whichever will be applicable shall be implemented on the available vacancies for all the disciplines of all the research centres collectively. The name of disciplines and research centres shall be arranged alphabetically.
- (b) Out of the specified 200 points roster, 15%(30 points/positions) shall be for Scheduled Castes, 7.5%(15 points/positions) for Scheduled Tribes, 27% (54 points/positions) for Other Backward Classes (non - creamy layer) and 10% (20 points/positions) shall be for Economically Weaker Sections. The remaining points will be unreserved. In case of applicability of any other roster the seats would be distributed following Swamy's Hand Book.
- (c) The seats reserved for the SC/ST shall be filled by the SC/ST candidates in merit. However in case of non-availability of the eligible candidates the reserved seats may be interchanged between the SC and ST. If still any seat remains unfilled, the same shall be left vacant.
- (d) **If the seats reserved for the OBCs (Non-creamy layer) remain vacant, the said seats shall be filled with merit-wise available candidate irrespective of category**
- (e) The roster shall not be carried forward for next year; it would be implemented only for that particular year and would automatically be lapsed after completion of admission process for that particular year. Every year separate/new model roster shall be prepared.
- (f) **Supernumerary seats:**
- (i) **Persons with Disabilities (PWD) – 3% of total intake. 1% each for the persons with low vision or blindness, hearing impaired and loco motor disability or cerebral palsy (interchangeable in case of non-availability of candidates in the sub-categories). If sufficient candidates are not available in a sub-category then candidates from other sub-categories shall be considered in their place.**

**5.4 The registration letter for the Ph.D. degree will be issued only after receipt of the prescribed fees to the FRI University.**

**Indian Scholars Fee structure**

<b>Fee structure</b>		
<b>Fee to be deposited at the time of initial reporting</b>		
	Compulsory Course Fee (to be paid to respective research centre)	8000/-
	Library Fee	4000/-
	Caution Money (Refundable (to be paid to respective Research Centre	5000/-
<b>Fee to be deposited at the time of Registration after Synopsis Seminar</b>		
	Registration Fee/Enrolment Fee	22000/-
	Annual Fee (to be deposited till submission of thesis)	15000/-
	Miscellaneous	3000/-
	Laboratory Fee (to be charged by the Research Centres concerned annually for first two years of registration	7000/-
	Library Fee per year (to be paid to respective research centres till submission of thesis)	3500/-
	Late Fee	1000/-
<b>Other Fees</b>		
	Renewal or Registration Fee	4000/-
	Thesis Fee (to be deposited at the time of submission of thesis	20000/-
	Revision of Thesis Fee	3000/-
	Viva-Voce Exam. Fee (To be deposited at the time of submission of thesis	4000/-
	Provisional Degree Fee & Degree Fee (To be deposited at the time of submission of thesis	500/-
	Transcript fee (Maximum up-to 5 copies) and more than 5 @ Rs. 500/- per copy	1000/-

5.5 The University shall maintain a list of Ph.D. supervisors (specifying the name of the supervisor, his or her designation, and the department/school/centre), along with the details of Ph.D. scholars (specifying the name of the registered Ph.D. Scholar, the topic of his/her research and the date of admission) admitted under them on the website of the institution and update this list every academic year.

**6. Allocation of Research Supervisor.- Eligibility criteria to be a Research Supervisor, Co-Supervisor, Number of Ph.D. scholars permissible per supervisor, etc.**

**6.1** Any Permanent/regular Scientist E, F, G and any equivalent Forest Officer working in F.R.I Deemed to be University and its Research Centers and in ICFRE Headquarter in the relevant field with a Ph.D. degree, and at least five research publications in peer-reviewed or refereed journals and any regular Scientist B, C & D and any equivalent Forest Officer with a Ph.D. degree, and at least three research publications in peer-reviewed or refereed journals may be recognized as a Research Supervisor in the university where the faculty member is employed or in its affiliated Ph.D. Research Centres. Such recognized research supervisors cannot supervise research scholars in other institutions, where they can only act as co-supervisors. Ph.D. awarded by a university under the supervision of a faculty member who is not an employee of the university or its affiliated Ph.D. Research Centres would be in violation of these Regulations.

For Ph.D. scholars working in Central government/ State government research institutions whose

degrees are given by Higher Educational Institutions, the scientists in such research institutions who are equivalent to Professor/Associate Professor/Assistant Professor can be recognized as supervisors if they fulfill the above requirements.

Provided that in areas/disciplines where there is no, or only a limited number of peer-reviewed or refereed journals, the Higher Educational Institution may relax the above condition for recognition of a person as Research Supervisor with reasons recorded in writing.

Co-Supervisors from within the same department or other departments of the same institution or other institutions may be permitted with the approval of the competent authority. Adjunct Faculty members shall not act as Research Supervisors and can only act as co-supervisors.

6.2 In case of interdisciplinary/multidisciplinary research work, if required, a Co-Supervisor from outside the Department/Centre/University may be appointed. The allocation of the Research Supervisor for a selected scholar shall be decided by the Division/Research Centres concerned in a formal manner depending on the number of scholars per Research Supervisor, the available specialization among Supervisors, and research interests of the scholars as indicated by them at the time of interview/synopsis seminar. The Head of Division/Research Centre shall ensure that the available research scholars are evenly distributed among the available scientists as per their expertise as far as practicable.

**6.3 For registering the Ph.D. Scholars up to a maximum number of research scholars under different level of scientists/Forest Officers at any time is as under:**

Scientist-E, F & G or equivalent Forest officer	- 8
Scientist-D or equivalent Forest officer	- 6
Scientist-B & C or equivalent Forest officer	-4

**Provided**

- a. That the name of research scholars, who have submitted the thesis, should not be counted for the purpose of fixing the quota of research scholars under a Supervisor.
- b. That the Head of Division certifies that the required laboratory facilities and other infrastructure is available in the Division for accommodating the research scholar.
- c. At any point, the total number of Ph.D. scholars under a faculty member, either as a supervisor or a co-supervisor, shall not exceed the number prescribed in **clause 6.3 and clause 7(1)**.

6.4 In case of relocation of a female Ph.D. scholar due to marriage or otherwise, the research data shall be allowed to be transferred to the Higher Educational Institution to which the scholar intends to relocate, provided all the other conditions in these Regulations are followed, and the research work does not pertain to a project sanctioned to the parent Institution/Supervisor by any funding agency. Such scholar shall, however, give due credit to the parent institution and the supervisor for the part of research already undertaken.

The transfer of female scholar shall be approved by the Research Degree Committee (RDC) of FRI Deemed to be University on the recommendations of Research Advisory Committee (RAC) of FRI Deemed to be University and on production of NOC from supervisor.

6.5 Faculty members with less than three years of service before superannuation **or whose tenure of deputation is going to expire within 03 years from the date of registration of scholar** shall not be allowed to take new research scholars under their supervision. However, such faculty members can continue to supervise Ph.D. scholars who are already registered until superannuation and as a co-supervisor after superannuation, but not after attaining the age of 70 years.

6.6 Persons who have registered themselves, as Ph.D. Scholars shall not act as Supervisor or Co-supervisor of any Ph.D. Scholar.

6.7 The change of Supervisor should not be allowed. However, in exceptional circumstances, the Academic Council will consider the change of supervisor on the recommendation of the Research Degree Committee, except in case of female candidates as mentioned above in clause 6(4).

6.8 To ensure academic prudence, Chancellor, Vice Chancellor and Registrar of FRI Deemed to be University cannot be the Supervisor/Co-Supervisor of Ph.D. Scholar of FRI Deemed to be University. However, the Ph.D. scholars already registered with Chancellor, Vice Chancellor and Registrar of FRI Deemed to be University shall not be affected from this clause and shall continue to work under their supervision.

**7. Admission of International students in Ph.D. programme.-**

7.1 Each supervisor can guide up to two international research scholars on a supernumerary basis over and above the permitted number of Ph.D. scholars as specified in clause 6 (3) above.

7.2 **Procedure of Registration of Foreign Candidates as Ph.D. Research Scholar:-** Applications of foreign nationals nominated by the Government of India under scholarship scheme and self-financing foreign nationals will be entertained for registration as Ph.D. Scholar subject to the condition that they should fulfill the clause 3 above besides following conditions:

- (a) Must have educational qualification and eligibility criteria as per clause 3 of these ordinances and an Equivalence Committee of the F.R.I. Deemed to be University before their registration shall settle the equivalence of the degree possessed by them. However, Candidates possessing a Degree considered equivalent to M.Phil. Degree of an Indian Institution, from a Foreign Educational Institution accredited by an Assessment and Accreditation Agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country for the purpose of assessing, accrediting or assuring quality and standards of educational institutions, shall be eligible for admission to Ph.D. programme.
- (b) There will be no entrance test for the Foreign/overseas students.
- (c) The applications of scholarship holders (under various schemes) of foreign nationals for admission must be routed through Indian Council for Cultural Relations/Ministry of Human Resource Development (Dept. of Education), Govt. of India, New Delhi or Ministry of Environment and Forests, Govt. of India, New Delhi or Ministry of External Affairs, Govt. of India, New Delhi
- (d) The foreign students under self-financing scheme should send their application directly to the Institute.
- (e) They must have valid students Visa at least for a period of two years.
- (f) They should have adequate knowledge of English.
- (g) The Degree/Certificate of the candidates must have been approved by the Association of Indian Universities (A.I.U) or equivalent to the corresponding degrees/certificate of Indian Universities.
- (h) They are required to pay the following fees: The scholars from the neighboring countries viz. Nepal, Bangladesh, Bhutan, Sri Lanka, Afghanistan, Pakistan & Maldives may pay following fee. The sponsored candidates will have to pay 25% more for all the items.

<b>Items</b>	<b>Fee Structure for neighboring countries (in Indian Rupees)</b>
Registration / Enrolment Fee	<b>50000/-</b>
Miscellaneous	<b>3000/-</b>
Annual fee (till submission of thesis)	<b>20,000/-</b>
Laboratory fee (to be charged annually for first two years of registration and to be paid to respective research centers)	<b>15000/-</b>
Library fee (till submission of thesis) (to be paid to respective research centers)	<b>6000/-</b>
Caution Money (Refundable)	<b>10000/-</b>
Late fee	<b>2000/-</b>
Renewal of registration fee	<b>6000/-</b>
Thesis Fee	<b>40000/-</b>
Compulsory Course Fee	<b>15000/-</b>

Revision of thesis fee	<b>10000/-</b>
Viva-Voce exam fee <b>(to be deposited at the time of submission of thesis)</b>	<b>10000/-</b>
Provisional Degree Fee & Degree Fee <b>(to be deposited at the time of submission of thesis)</b>	<b>1000/-</b>
Transcript fee (maximum up-to 5 copies) and more than 5 @ Rs.500/- per copy	<b>2000/-</b>

8. At any point, the total number of Ph.D. scholars under a faculty member, either as a supervisor or a co-supervisor, shall not exceed the number prescribed in clause 6.3 and clause 7.1.

**9. Course Work- Credit requirements, number, duration, syllabus, minimum standards for completion, etc.**

9.1 The Credit requirement for the Ph.D. coursework is a minimum of 12 credits, including a “Research and Publication Ethics” course as notified by UGC vide D.O. No. F.1- 1/2018(Journal/CARE) in 2019 and a research methodology course. The Research Advisory Committee can also recommend UGC recognized online courses as part of the credit requirements for the Ph.D. programme.

9.2 All Ph.D. scholars, irrespective of discipline, shall be required to train in teaching /education/pedagogy/writing related to their chosen Ph.D. subject during their doctoral period. Ph.D. scholars may also be assigned 4-6 hours per week of teaching/research assistantship for conducting tutorial or laboratory work and evaluations.

9.3 A Ph.D. scholar must obtain a minimum of 55% marks or its equivalent grade in the UGC 10-point scale in the course work to be eligible to continue in the programme and submit his or her thesis.

9.4 It shall be made compulsory for all the Ph.D. Scholars to pursue the following courses for one semester (6 months) at F.R.I. Deemed to be University or its Research Centres. The courses will be conducted by Registrar, FRI Deemed to be University/Nodal Officer concerned in a time bound manner and only once as mentioned in 5.2.1.(C) of this ordinance.

- i) Basic Forestry course as per syllabus (Appendix- 2)
- ii) Computer application course as per syllabus (Appendix- 3)
- iii) Statistical and Research Methods in Forestry course as per syllabus (Appendix-4)
- iv) Research and Publication Ethics (RPE) as per syllabus (Appendix- 5)
- v) Special problem to be given by Supervisor and presented in the form of review of literature/technical report in the related discipline/area of research. The Supervisor/Co-supervisor shall evaluate the report and if satisfied, may issue a certificate (to be attached in the report) and shall also give marks out of 100.

The minimum pass marks for the above courses shall be 55% in all courses in each paper in theory as well as in practical.

On successfully passing the Courses PBF 101; PCA102;PSR103 and PRPE 105; only the candidate shall be directed to report to concerned Head of Division and shall be provided a Supervisor to pursue course in PPW104. In case the candidate fails in any of the courses (PBF 101; PCA102; PSR103 and PRPE 105), he/she will be given a chance to appear in supplementary exam of the subject either in theory or in practical and only after passing in supplementary exam he/she will be directed to further pursue the course work on PPW104, in case he/she fails in supplementary exam also, his/her candidature for admission in Ph.D. Programme shall stand cancelled.

On successful completion of the Compulsory Course Work at the end of 6 months the candidate shall be allowed to submit the synopsis before the Research Advisory Committee in the synopsis seminar and obtain its approval.”

**9.5 The Structure of Compulsory Course work as per Choice Based Credit System (CBCS) is as under:-**

Sl. No.	Course code	Name of course	Credit for Theory	Credit for Practical
1	PBF 101	Basic Forestry	4	1
2	PCA 102	Computer application	0	2
3	PSR 103	Statistical and Research Methods in Forestry	2	2
4	PRPE 105	Research and Publication Ethics	1	1
5	PPW 104	Project work	3*	1**
*Report**Presentation			<b>Total credits = 17</b>	

**Marks Distribution Table for Examination**

Sl. No.	Course code	Name of course	Theory	Practical	Total
1	PBF 101	Basic Forestry	75	25	100
2	PCA 102	Computer application	0	100	100
3	PSR 103	Statistical and Research Methods in Forestry	50	50	100
4	PRPE 105	Research and Publication Ethics	50	50	100
5	PPW 104	Project work	150*	50**	200
*Report **Presentation					

**Note: -** The candidate has to complete all five courses and has to obtain minimum 55% passing marks in each course both in theory as well as in practical.

**Learning objective and evaluation procedure of course PPW 104:**

**Project work Credits (3+1)**

- The basic aim of the course is to train the scholars to identify research problem, reviewing literature, experimental set up, data collection and its analysis with the research process and conclude the work independently.
- Students will be required to do experimental work/review of literature for three months on the subject of student's choice selected for PhD under the supervision of his/her guide and submit the report and also present the project work in front of the Departmental Committee (consisting of concerned Head of Division and Supervisor) through power point presentation.
- The evaluation pattern of the course work PPW 104 shall be as under:-
  1. The Supervisor under whom scholar will do Project Work will provide the marks of Project report out of 150 as under:-

Criteria of Evaluation of Report by Supervisor					
Items	Novelty (Out of 50)	Content (out of 50)	Language (Out of 20)	Writing Style (out of 30)	Total Marks (Out of 150)

2. The Departmental Committee (Head of Division and Supervisor) will provide the marks for Power Point Presentation of report out of 50 as under:-

Slide Content (Out of 20)	Presentation (Out of 10)	Skills	Subject Knowledge (out of 20)	Total Marks (out of 50)



- 9.6 The Department where the scholar pursues his/her research may prescribe the course(s) to him/her based on the recommendations of the Research Advisory Committee and same shall be arranged at the concerned research center.
- 9.7 All candidates admitted to the Ph.D. programme shall be required to complete the Compulsory course work as mentioned in 9.4 and 9.5 above.
- 9.8 Grades in the course work if any recommended by RAC, shall be finalized after a combined assessment by the Research Advisory Committee and the Department and the final grades shall be communicated to the University.

## **10. RESEARCH COMMITTEES**

Subject to the general supervision of the Academic Council, all matters connected with the Doctoral programme of a Ph.D. Scholar shall be dealt in accordance with these ordinances by the following committees:

- i) The Research Advisory Committee (RAC)
- ii) The Research Degree Committee (RDC)
- iii) Counseling Sub Committee

### **10.1 Research Advisory Committee and its functions:**

- (1) There shall be a standing Research Advisory Committee, or an equivalent body for similar purpose for Ph.D. scholars. The standing RAC for the Ph.D. Scholars for each discipline (as mentioned in clause (3.3) shall be constituted by the Director, FRI /Director of the Research Centers concerned. The Research Supervisor of the scholar shall be the Convener of this Committee.

**The RAC shall be constituted as under:-**

- a) Chairman
- b) Two experts from outside the division/institute.
- c) One expert from the division (if Supervisor is the divisional expert, in that case, the Head, Division concerned may take approval from the DRI to appoint another expert from division concerned)
- d) One Statistician/Research Methodology Expert
- e) Head of the Division/Co-supervisor-Ex-officio Member
- f) Member Secretary/Convener – Supervisor anytime.

In addition to above, the Director FRI/Vice Chancellor FRI Deemed to be University shall be vested with the power to appoint any other additional subject expert into RAC of concerned discipline at anytime.

The standing RAC shall be constituted for a period of two years. The member secretary/Convener may convene the meeting of RAC in consultation with the chairperson and the other members as and when necessary. In case if, under category 'c' the Supervisor (under whom the candidate has completed the course work on research problem) is the expert from the division, the Head of Division concerned/Supervisor with the approval of VC, FRIDU/Director of the Institute may appoint any other expert from Division.

### **The RAC shall have the following responsibilities:**

- (i) To review the research proposal (Synopsis) and finalize the topic of research; and shall hold a synopsis seminar in which all the Forest Officers/ Scientists/RAC/Research Scholars of the concerned Division/Research Center shall participate. The suggestions made in the seminar by RAC may be incorporated in the proposed synopsis by the candidate. The RAC after holding the synopsis seminar shall recommend appropriate topic for registration and approve the synopsis after necessary revision/correction/modification as per the Ph.D. Ordinance. The recommendation of RAC should come in the Performa as given in Appendix-7;
- (ii) The Research Advisory Committee can also recommend UGC recognized online courses as part of the credit requirements for the Ph.D. programme under clause 9.1 of this ordinance and same shall be arranged at the concerned research center.
- (iii) To guide the research scholar to develop the study design and methodology of research and identify the course(s) that he/she may have to do and may also decide the credit of the course.
- (iv) To periodically review and assist in the progress of the research work of the research scholar.

(2) A research scholar shall appear before the Research Advisory Committee once in six months for 2<sup>nd</sup> and 3<sup>rd</sup> six monthly reports and once in a year for further six monthly reports onward to make a presentation of the progress of his/her work for evaluation and further guidance. The six monthly progress reports shall be submitted by the Research Advisory Committee to the Institution/College with a copy to the research scholar.

(3) In case the progress of the research scholar is unsatisfactory, the Research Advisory Committee shall record the reasons for the same and suggest corrective measures. If the research scholar fails to implement these corrective measures, the Research Advisory Committee may recommend to the university with specific reasons for cancellation of the registration of the research scholar from the Ph.D. Programme.

(4) To Recommend supervisor/co-supervisor as per clause 6 of the Ph.D. Ordinance.

(5) To Examine the eligibility of the Supervisor as per clause 6 of these ordinances and will ensure that the supervisor/co-supervisor is qualified to guide research scholar in the concerned field of research.

(6) Recommend, if necessary, in consultation with the Supervisor/Co-Supervisor for constitution of an Advisory Committee consisting of the Scientist/Teacher/Forest officer concerning the field of research of the Research Scholar. The Advisory Committee shall help/guide the Research Scholar in his/her research work in consultation with and overall supervision of the Supervisor;

(7) To Examine the application of the Research Scholar for extension of his/her term of registration beyond the period of registration and recommend to the RDC for extension of his/her term of registration (as per clause 4 above).

(8) Recommend, if necessary, in consultation with the Supervisor/Co-Supervisor for transfer of woman Ph.D. Scholar under clause 6.6 of the Ph.D. Ordinance.

(9) To hold pre-thesis submission seminar of a Research Scholar who has completed his/her research work at least 3 months before the expiry of term of registration and recommend a panel of eight examiners (other than the members of the RAC) giving brief bio-data and indicating major areas of research/expertise of the examiners.

While making their recommendations the RAC shall see that, the recommendations are made in conformity with the ordinance and such other directives as may be issued from time to time by the Academic Council in regard to matters connected with Ph.D. research.

## **10.2 RESEARCH DEGREE COMMITTEE (RDC)**

### **The RDC shall consist of the following:-**

- i) Director or his nominee (Chairman)
- ii) Four experts nominated by the Director for two years (localized)
- iii) Heads of the concerned Divisions of FRI/Nodal Officers of the Research Centres (Localized)
- iv) Supervisor and Co-supervisor, if any, of the Ph.D. Scholar (Localized)
- v) The Registrar (Member Secretary)

### **10.2.1 The RDC shall:**

- a) Consider the recommendations of the RAC with regard to appointment or change of supervisor/co-supervisor.
- b) Consider the report of the examiners and take the decision for the award of degree.
- c) Consider the report of RAC regarding extension of the term of registration of a Ph.D. Scholar beyond the period of Registration.
- d) The RDC will ascertain whether the certificate has been issued by the supervisor regarding incorporating corrections as suggested by the examiners.

- e) The RDC may act against the supervisors who may be found lacking in their duty as Supervisor. The RDC may even consider debarring the Supervisor from taking further scholars.

### **10.3 COUNSELING SUB COMMITTEE**

There shall be a Counseling sub Committee for the purpose of counseling the research scholars and the concerned supervisors including the resolution of grievances if any.

**(1).The Counseling sub Committee shall consist of the following: -**

1. Dean (Academic), FRI Deemed to be University : Chairman
2. Any two Head of Divisions of FRI/other research center : Members  
(To be nominated by the Director, FRI/Chairman Academic council)
3. One Officer other than from FRIDU& its research centres : Member  
(To be nominated by the Director, FRI /Chairman Academic council)
4. Registrar, FRI Deemed to be University: Member Secretary

All the cases involving academic/research interests of the research scholar and the supervisor should be addressed to the Director, FRI.

**(2) Terms of the reference of the Sub Committee shall be as follows:-**

- a) The committee shall look into all the matters that may be referred to it by Chairman, Academic Council/Research Degree Committee and shall submit its recommendation to the Research Degree Committee/Academic Council.
- b) The Chairman, Academic Council may direct office of the Registrar, FRI University to examine the cases related to academic/research interests of the research scholar and the supervisor and may issue suitable instructions. In exceptional cases, which may require detailed analysis, the Director/Chairman Academic Council may refer such cases to the Counseling Sub Committee for its opinion.
- c) The Sub Committee may study the specific cases and device its own procedure to analyze the issue referred to it and may submit its recommendation to the Director. The Director, FRI/Chairman Academic Council may pass appropriate order on the recommendation of the Counseling Sub Committee.
- d) The Chairman of the Sub Committee may convene the meeting of the Committee as and when necessary.

### **11. Evaluation and Assessment Methods, minimum standards/credits for award of the degree, etc.-**

**11.1** Upon satisfactory completion of course work, and obtaining the marks/grade prescribed in sub-clauses 9.2 above, completion of research work as per the synopsis approved by the RAC, as the case may be, the Ph.D. scholar shall be required produce a draft thesis within a reasonable time before RAC, as stipulated by the Institution based on these Regulations.

**11.2** Prior to the submission of the thesis but at least 3 months before the expiry of term of registration, the scholar shall make a presentation in the Department before the Research Advisory Committee of the Institution concerned in Pre-thesis Submission Seminar which shall also be open to all faculty members and other research scholars. The feedback and comments obtained from them may be suitably incorporated into the draft thesis in consultation with the Research Advisory Committee. The Supervisor shall organize a pre-thesis submission seminar for the candidate, in consultation with the Head of Division under the auspices of the RAC

**11.3** The Academic Council (or its equivalent body) of the Institution shall evolve a mechanism using well-developed software applications to detect Plagiarism in research work and the research integrity shall be an integral part of all the research activities leading to the award of a Ph.D. degree.

**11.4** While submitting for evaluation, the thesis shall have an undertaking from the research scholar and a certificate from the Research Supervisor attesting to the originality of the work, vouching that there is no

plagiarism and that the work has not been submitted for the award of any other degree/diploma of the same Institution where the work was carried out, or to any other Institution.

**11.5** The scholar shall submit five copies of summary of the thesis work along with the thesis. The panel of examiners shall be submitted by the Registrar to the Director, FRI University for appointment of three examiners at least one of them should be from outside the State where research has been carried out. However, the Director, FRI/VC FRI Deemed to be University may appoint any other experts as examiner beyond the names recommended by the RAC. After appointment of the examiners by the Director FRI/VC FRI Deemed to be University, the Registrar shall get in touch with each examiner with a copy of the summary to secure acceptance of the examiner ship.

**11.5.1** An examiner shall ordinarily be required to accept the appointment offered by the F.R.I. University within the time indicated by the Registrar in the appointment letter. If, however, no information is received from an examiner within a reasonable time from the date of issue of the letter of appointment his appointment shall stand cancelled and another examiner shall be appointed

**11.5.2** On receipt of the acceptance of any examiner, the Registrar shall forward the copy of the thesis to him and take all action to get the report of the examiner expeditiously.

**11.5.3** The examiner shall be requested to submit their individual reports within two months on the receipt of the thesis.

**11.5.4** The examiner shall categorically recommend in the prescribed Performa acceptance or rejection or revision of the thesis and also give their detailed comments and examiners shall state if the thesis complies with the following conditions in case they recommend the award of the degree.

- a) It is a piece of research work characterized either by discovery of facts or by a fresh approach towards interpretation of facts.
- b) The thesis evinces the Research Scholar's capacity for critical examination and sound judgment.
- c) It is satisfactorily in point of language and presentation of such matter.

**11.5.5** The examiner shall return the copy of the thesis along with thesis evaluation report or soon after submission of the evaluation report

**11.5.6 (a)** In case all the three examiners accept the thesis the same shall be accepted.

**(b)** In case all the examiners reject the thesis or two of them reject the thesis and third accept the thesis or two of them rejecting and the third recommending revision such thesis shall be rejected. The candidate may however be allowed to resubmit the thesis at least after 12 months and not later than 24 months, provided the title of the thesis remains unchanged. Normal procedure will be followed for the evaluation of the resubmitted thesis. In case of resubmission of the thesis, a fresh fee for the examination shall be paid by the candidate. No candidate shall be allowed to resubmit the same thesis more than once

**11.5.7** If two examiners accept the thesis and the third examiner recommends for revision or two recommending revision and third one recommending acceptance or if all the three recommend for revision, in all such conditions the thesis will be returned to the scholar for revision and the research scholar shall have to resubmit the thesis after revision in the light of examiner's observations. The revised thesis shall be sent to those examiners once again for re-evaluation who have recommended for revision and in such case there shall be only two options for the examiner 1. Accepted 2. Revision, in the format of re-evaluation report. In case any of the examiners recommend for revision for the second time, the candidate will be invited for viva where he/she will also defend/justified his/her work in the light of the examiner's comments in evaluation and re-evaluation reports.

**11.5.8.** If two examiners accept the thesis and the third reject the thesis or in case one accepts the thesis, one recommends revision and the third rejects the thesis in such case the Director, FRI/VC, FRIDU shall appoint the fourth examiner for evaluation of the thesis. The opinion of the fourth examiner shall be final and binding on the scholar. If fourth examiner also recommends for rejection of the thesis then such thesis shall be rejected. However, the scholar be allowed to re-submit the thesis at least after 12 months and not later than 24 months, provided the title of the thesis remains unchanged. Normal procedure will be followed for the evaluation of the resubmitted thesis. In case of re-submission of

the thesis, a fresh fee for the examination shall be paid by the candidate. No candidate shall be allowed to resubmit the same title more than once.

**11.5.9** If the examiners recommend that the candidate be asked to revise his/her thesis, the Director shall permit the candidate to resubmit his/her thesis not later than Twelve months, the period being counted from the date of issue of letter to him/her. He/She shall have to pay a fresh fee of Rs.2000/- at the time of resubmitting his/her thesis. But it shall not be necessary for him/her to reproduce any certificate of further attendance at the institution/research center at which he/she had carried his/her work. In exceptional cases, the Director FRI/VC FRIDU may allow a scholar to submit the revised thesis after the prescribed period and in that case additional penalty to be decided by Director FRI/VC FRIDU would be charged from the candidate.

**11.5.10** The re-submitted thesis shall be examined as far as possible by the old set of examiners.

**11.6** As per the above sub clauses if the thesis is accepted then the research scholar shall be called upon to appear for an examination before the following Viva-Voce Board

1. External examiner - Chairman.  
(Nominated by the Director, FRI out of the examiners who have evaluated the thesis.)
2. Internal examiner - Member  
(Supervisor/Co-supervisor)

On satisfaction of the Viva-Voce Board the chairman may write a detailed report in his/her own hand in the prescribed Performa on the viva-voce presentation by the scholar and may recommend him/her for award of Ph.D. Degree by FRI University. Provided that if a Viva-Voce board is not in a position to conduct the Viva-Voce examination, the Director may look into the special circumstances of the case and may appoint alternative Viva-Voce examiner/examiners.

Such cases whom the Viva-Voce board recommend for award of Ph.D. Degree shall be submitted to the RDC for consideration of the award of Ph.D. degree. On approval of the RDC the degree will be deemed to be awarded from the date of viva voce. The Executive Council shall award the final degree on passing of grace.

**11.7** The Institution shall develop appropriate methods so as to complete the entire process of evaluation of Ph.D. thesis within a period of six months from the date of submission of the thesis.

## **12. Academic, research, administrative, and infrastructure requirements to be fulfilled by Colleges for getting recognition for offering Ph.D. programmes.-**

- a. Post-graduate Colleges offering 4-year Undergraduate Programmes and/or Post-graduate Programmes, may offer Ph.D. programmes, provided they satisfy the availability of eligible Research Supervisors, required infrastructure, and supporting administrative and research facilities as per these Regulations.
- b. Colleges and research institutions established by the central government or a State government whose degrees are awarded by Higher Educational Institutions shall offer Ph.D. programmes provided they have.
  - i. At least two faculty members in a college or two Ph.D.-qualified scientists in the research institution.
  - ii. Adequate infrastructure, administrative support, research facilities and library resources as specified by the HEI.

## **13. Ph.D. through Part-time Mode-**

- (1) Ph.D. programmes through part-time mode will be permitted to in-service candidates as under, provided all the conditions stipulated in these Regulations are fulfilled.
  - (a). Ph.D. programmes through part-time mode will be permitted only to the in-service candidates employed on a regular basis/on deputation at ICFRE institutes/Research Centers of FRI Deemed to be University and they shall be required to take study leave during the period when the regular classes for course work are being conducted in FRI Deemed to be University or its research centers.
  - (b). An in-service candidate other than the persons employed on a regular basis/on deputation at ICFRE institutes/Research Centers of FRI Deemed to be University shall be required to take leave to pursue

Ph.D. for a minimum period of 2 years as minimum residential period from the date of commencement of Pre-Ph.D. compulsory course or for any other course recommended by RAC.

(2). The in-service candidate must have to submit his/her application through his/her employer along with an NOC from the appropriate authority in the organization where the candidate is employed, clearly stating that:

- i. The candidate is permitted to pursue studies on a part-time basis.
- ii. His/her official duties permit him/her to devote sufficient time for research.
- iii. If required, he/she will be relieved from the duty to complete the course work.

(3) Notwithstanding anything contained in these Regulations or any other law, for the time being in force, no Higher Educational Institution or research institution of the Central government or a State Government shall conduct Ph.D. programmes through distance and/or online mode.

The thesis evaluation procedure/viva-voce examination shall be conducted in the FRI Deemed to be University Dehradun only. The meetings of the Research Advisory Committees shall be only in the research centre concerned.

**14. Grant of M. Phil. Degree.-** The FRI Deemed to be university shall not offer the M.Phil. (Master of Philosophy) Programme.

**15. Issuing a Provisional certificate.-** Prior to the actual award of the Ph.D. degree, the degree-awarding Higher Educational Institution shall issue a provisional certificate to the effect that the Ph.D. is being awarded in accordance with the provisions of these Regulations.

**16. Award of Ph.D. degrees prior to Notification of these Regulations.-** Award of degrees to candidates registered for the Ph.D. programme on or after July 11, 2009, till the date of Notification of these Regulations shall be governed by the provisions of the UGC (Minimum Standards and Procedure for Award of M.Phil./Ph.D. Degree) Regulations, 2009 or the UGC (Minimum Standards and Procedure for Award of M.Phil./Ph.D. Degrees) Regulations, 2016 as the case may be. Further, the award of degrees to candidates already registered and pursuing Ph.D. shall be governed by these Regulations or UGC (Minimum Standards and Procedure for Award of M.Phil./Ph.D. Degree) Regulations, 2016. Nothing in these Regulations shall impact the M. Phil. Degree programmes commencing prior to the enactment of these Regulations.

**17. Depository with INFLIBNET.-** Following the successful completion of the evaluation process and before the announcement of the award of the Ph.D. degree(s), the scholar shall provide a student approval form duly signed by Supervisor and scholar regarding uploading of his/her thesis on Shodhganga in the format (**Appendix-14**) prescribed by INFLIBNET, a unit of UGC along with 02 soft copies of his/her Ph.D. thesis. The university shall submit an electronic copy of the Ph.D. thesis to INFLIBNET, for hosting the same so as to make it accessible to all the Higher Educational Institutions and research institutions.

## **18. SUPPLICATION OF THESIS**

**18.1** On completion of the research work for Ph.D. by the candidate, the Supervisor shall organize, in consultation with the Head of Division under the auspices of the RAC a pre-thesis submission seminar by the candidate to present his/her progress and achievements and to receive suggestions for further improvement of the thesis.

**18.2** After the pre-thesis submission seminar, the Supervisor shall forward the application of the candidate for supplication of the thesis along-with the minutes of the pre-thesis submission seminar (in Appendix -12), Panel of Examiners (as per clause 11.5 of Ph.D. Ordinance) and a certificate that the corrections/suggestions given by the RAC members in the pre-thesis submission seminar have been incorporated. The Supervisor shall also provide a certificate of attendance of scholar as per clause of these ordinances and that the scholar was not engaged in any paid assignment (as per clause 19.6 of these ordinances) unless permitted by the RAC.

**18.3** A Ph.D. Scholar shall ordinarily supplicate the Ph.D. thesis within six months from the date of his/her

pre-thesis seminar or till completion of term of registration whichever is earlier through the Supervisor and the Head of Division. The supervisor shall forward therewith four spirally bound printed copies of the Ph.D. Thesis and 5 copies of summary of the thesis to the Registrar.

**18.4 The thesis shall comply with the following conditions**

- ii) It must be a piece of research work characterized either by the discovery of facts or by a fresh approach towards the interpretation of facts. In either case, it should evince the candidate's capacity for critical examination and sound judgment.
- iii) It shall be satisfactory in point of language and presentation of subject matter.

**18.5 The thesis shall be accompanied by:-**

18.5.1 A declaration from the Ph.D. scholar attesting to the originality that the thesis embodies the result of his/her original work and observations and in that respects the investigation appears to advance knowledge in the subject and that the work has not been submitted for the award of any other degree/diploma of the same Institution where the work was carried out, or to any other Institution. The thesis has been duly checked through a plagiarism detection tool approved by FRI Deemed to be University and free of any plagiarism.

**18.5.2 A certificate from the Supervisor and Co-Supervisor stating:**

- a. That thesis embodies the work of the Ph.D. Scholar himself/herself
- b. That in the opinion of the Supervisor/(Co-supervisor, if any), the thesis fulfills the requirements of the Ordinance governing award of Ph.D. Degree of F.R.I. University.
- c. That the work done by the researcher under him/her is plagiarism free and has not been submitted for the award of any other degree/diploma of the same Institution where the work was carried out, or to any other Institution.

18.5.2 **A certificate from RAC** to be obtained at the time of pre thesis seminar in the given format at Appendix -13.

**18.5.4 Registration letter.**

The documents specified above shall be bound in the beginning of the thesis strictly except publications/presentations in the above sequence. The publications/presentations shall be bound at last of thesis.

## 18.6 FORMAT OF THESIS

The entire thesis submitted to the FRI Deemed to be University shall be in following format.

(i) The thesis cover page should be printed in the under mentioned format:

*Title of the thesis*

THESIS  
SUBMITTED TO THE  
FOREST RESEARCH INSTITUTE DEEMED to be UNIVERSITY  
DEHRA DUN, UTTARAKHAND  
For  
THE AWARD OF THE DEGREE OF  
DOCTOR OF PHILOSOPHY IN FORESTRY  
(Name of Discipline should be printed here)



By  
Name of the Research Scholar

Name of the Division/Research Center

Year

(ii) The following should be printed on the side of the thesis (at the time of submitting hard bound thesis):

Name of the scholar

Title of the thesis

Year of submission of the thesis

(iii) The cover should be either green or black in colour. The colour of the letters printed on the cover should be golden and the thesis cover should be laminated. (at the time of submitting hard bound thesis).



## 19. GENERAL PROCEDURAL GUIDANCE

- 19.1 Each RAC shall send a copy of the minutes of Synopsis seminar along-with the application of the candidate to the Registrar who shall issue letter of admission to the candidate recommended by the RAC after proper scrutiny and approval of the Director.
- 19.2 On receipt of the communication regarding the registration, the candidate shall pay the requisite fees to the Registrar within a month of date of issue of fee letter, failing which with a prescribed late fee.
- 19.3 Ph.D. Scholars shall be required to be present in the research centre concerned for a minimum period of two years from the date of registration. Their presence shall be duly recorded and maintained in the research centre concerned.
- 19.4 A record of the progress of every Ph.D. Scholar shall be kept by his/her Supervisor. The Supervisor shall conduct meeting of RAC preferable during the months of September/October for the six months period from March to August and during the months of March/April for the six monthly reports of the period from September to February for presentation of six monthly progress reports by the candidate. The RAC shall consider the progress reports and supervisor shall forward the same with recommendations and comments of the RAC, if any, to the Registrar.
- 19.5 Registration of a Ph.D. Scholar is liable to be cancelled by the Director at any time if:-
- i) Two consecutive six monthly progress reports are not submitted at all or are not satisfactory as per recommendations/comments of RAC.  
  
However, the research scholar is required to submit the 1<sup>st</sup> six monthly progress report through his Supervisor & Chairman of RAC and 2<sup>nd</sup> and 3<sup>rd</sup> six monthly progress reports duly reviewed by RAC. The candidate will make six monthly presentation of 2<sup>nd</sup> & 3<sup>rd</sup> six monthly Progress report before RAC. After that all the 6 monthly Progress Reports shall be submitted through supervisor & Chairman, RAC while annual presentation would be held before RAC.  
  
The six monthly progress reports are to be submitted till pre-thesis submission seminar.
  - ii) The attendance in case of Research Scholar should not be less than 75% in any term”
- 19.6 No Ph.D. Scholar shall accept during the period of research any paid assignment apart from Research Fellowships, Research Assistantship etc. unless in the opinion of the RAC such an assignment will not interfere with his/her research work.
- 19.7 A Ph.D. Scholar shall not be permitted to take any other degree course, but may be permitted by the RAC to take part-time Diploma or Certificate course(s) not affecting the scholar’s research work adversely.
- 19.8 The Research Scholar may not later than three months from the date of issue of registration letter, modify the scheme of the research work or nature or scope of the subject, on the recommendation of the Supervisor and RAC, with the approval of Director.
- 19.9 A Ph.D. Scholar shall be permitted to submit his thesis not earlier than thirty months from the date of his/her registration.

## **20. CONCLUSION**

20.1 From the date when these Ordinances come into operation all previous Ordinance on the subject shall cease to have effect.

Provided that this revocation shall not affect the previous ordinance so revoked or anything done or suffered under any previous ordinance so revoked or affect any right, privilege, obligation or liability acquired, arrived or incurred under any ordinance so revoked.

20.2 Notwithstanding anything contained in these ordinances, any question, which is not covered by these ordinances, or any difficulty arising out of these ordinances shall be dealt with by the Academic Council.

20.3 The legal disputes if any with respect to the process of award of any degree/diploma/certificate by this University shall be subject to the jurisdiction of the competent Courts under the Honorable High Court of Uttarakhand State.

### **Appendix -1 (Ph.D. Application Form)**

### **List of Research Centres of FRI Deemed to be University**

1. Arid Forest Research Institute, Jodhpur, Rajasthan
2. Central Pulp & Paper Research Institute, Saharanpur, Uttar Pradesh
3. Forest Research Institute, Dehradun, Uttarakhand
4. Forest Survey of India, Dehra Dun, Uttarakhand
5. G.B. Pant National Institute of Himalayan Environment, Almora, Uttarakhand
6. Himalayan Forest Research Institute, Shimla , Himachal Pradesh
7. Indian Institute of Forest Management, Bhopal, Madhya. Pradesh.
8. Indian Institute of Remote Sensing, Dehra Dun, Uttarakhand
9. Institute of Forest Bio-Diversity, Hyderabad.
10. Institute of Forest Genetics & Tree Breeding, Coimbatore, Tamil Nadu
11. Institute of Forest Productivity, Ranchi, Jharkhand
12. Institute of Wood Science & Technology, Bangalore Karnataka
13. Kerala Forest Research Institute, Thrissur , Kerala
14. Rain Forest Research Institute, Jorhat, Assam
15. Tropical Forest Research Institute, Jabalpur, Madhya. Pradesh.
16. UP Forest Research Institute, Kanpur Uttar Pradesh
17. Wildlife Institute of India, Dehra Dun , Uttarakhand

## Syllabus for Basic Forestry (PBF 101) Course

Credits (Th-4+Pr.1)

**Learning objectives:** The course is designed to provide exposure of basic forestry and its allied fields to the scholar.

### **MODULE I: Overview of Forestry in India**

- History of Forest management in India, Forest policies and law, Tangible/Intangible benefits, forestry resources.

**Lecture session – 2**

### **MODULE II: Forest Ecology**

- Basic principles and concept of forest ecology, Major abiotic and biotic components, food webs, ecological pyramids and energy flow, ecological successions, forest community concepts; Forest types in India, Conservation of forest ecosystems.

**Lecture session – 6**

### **MODULE III: Systematic Forest Botany and Ethnobotany**

Importance of Systematic botany in forestry; concept of species, genus; dendrological approach on classification of forest species; herbarium, arboretum; Ethno botany of forest flora of economic importance; plant nomenclature; Identification of species.

**Lecture session – 6**

### **MODULE IV: Soil Science and Soil Conservation**

- Forests Soils, classification, factors affecting soil formation; physical, chemical and biological properties. Soil reaction - soil pH and its relation to nutrient availability.
- Soil conservation - definition, causes for erosion; types - wind and water erosion; conservation and management of eroded soils/areas, wind breaks, shelter belts; Role of forests in conserving soils.

**Lecture session-6**

### **MODULE V: Forest Hydrology and Watershed Management**

- Introduction, Hydrological cycle, Rainfall-runoff process, Interception, forest & water, run-off, water holding capacity of soils, free water, field capacity, capillary water, hygroscopic water, ground water.
- Watershed Management – approach and concepts of watershed; watershed management, its objectives.

**Lecture session-4**

### **MODULE VI: Silvicultural Practices**

- Definition of silvics and silviculture, Study of locality factors, Forest regeneration (natural and artificial), Plantation forests and mixed regeneration; methods of propagation, grafting techniques; site factors; nursery and planting techniques-nursery beds, polybags and maintenance, water budgeting, grading and hardening of seedlings, pruning and lopping. Thinning- thinning of irregular corps, increments felling, improvement felling.
- Silvicultural system - definition, classification and detailed study of the following systems: Clear felling system; uniform system; the group system; coppice with standard system
- Quality seed production through seed production area and seed orchards. Establishment and management of seed orchards. Essentials of seed testing, seed quality evaluation, seed dormancy, seed storage, seed classification and seed certification.

**Lecture session-8**

### **MODULE VII: Forest Management, Mensuration and Remote Sensing**

- Forest Management: Objective and principles; techniques; management of forest plantations.
- Forest Mensuration: Introduction - definition, objectives and scope. Measurement of single tree - object, place of measurement, Methods of measuring - diameter, girth, height, crown and volume of trees; form-factor; volume estimation of stand, current annual increment
- Remote Sensing: Introduction - definition, objectives and scope. Forest cover monitoring, Geographic Information Systems for management and modeling.

**Lecture session-6**

### **MODULE VIII: Forest Protection and Economics**

- Agencies causing forest damage viz. man, fire, cattle, wildlife, insects and pathogens nature of their damages, cause, prevention, remedial measures and benefits. General forest protection against fire, equipment and methods, controlled use of fire. Grazing regulations; effect of wild animals on forest regeneration. Basic knowledge of forest pathology and forest entomology – definition, scope and damage.
- Forest Economics: – fundamental principles, cost-benefit analyses; estimation of demand and supply; Socio-economic analyses of forest productivity and attitudes; valuation of forest goods and service.

**Lecture session-8**

### **MODULE IX: Wood Science**

- Anatomical structure of wood, defects and abnormalities of wood, timber identification - general principles. Different types of Wood seasoning and Preservation; Pulp-paper and rayon; Wood substitution.

**Lecture session-4**

### **MODULE X: Non-Wood Forest Products**

- NWFP – Definition, Importance, Diversity / Types, their distribution, Role in rural livelihood and industry, present utilization and future scope.
- Introduction about natural products chemistry; General procedures for isolation of extractives, and other secondary metabolites from wood and NWFP; Value addition chemical from forest plants.

**Lecture session-4**

### **MODULE XI: Biodiversity and Environmental Conservation**

- Forest Biodiversity, its protection, components and principles of conservation, Climate Change, Clean development Mechanism, Carbon Trading, Pollution types, global warming, green house effects, ozone layer depletion, Forest and environment impact assessment and control measures. National conservation strategies. Indian Forest Act. Overview on national strategies and international conventions related to forest conservation and management (CBD, UNFCCC, NBA, CITES etc.)

**Lecture session-6**

### **MODULE XII: Forest Genetics and Tree Improvement**

- **Forest Biotechnology:** Aims and objectives of Tissue Culture for genetic improvement through clonal propagation, production of in vitro variability, transgenics, somaclonal variation, genetic fusion of cells
- Forest Genetics and its applications. Concept of tree improvement, methods and techniques. Variation and its use, provenance trials. Genetic testing through progeny tests. Selection and breeding for resistance to diseases, insects and adverse environment; the genetic base, forest genetic resources and gene conservation in situ and ex-situ.

**Lecture session-8      MODULE**

### **XIII: Extension Forestry**

- Extension Education - meaning, definition, objectives, principles and characteristics. Extension programmes of ICFRE. Major elements involved in forest extension.

**Lecture session-2**

### **MODULE XIV: Agroforestry**

- Agroforestry - scope and necessity; Agro forestry systems under different agro ecological zones. Role of agroforestry in livelihood support and rural economy

**Lecture session-2**

### **PRACTICAL**

**Practical session-10**

1. Excursions –Forest types, Botanical Garden, Field Research station (ICAR), Agroforestry farm
2. Soil Analysis-physical & chemical properties
3. Seed testing
4. Nursery practices & visit
5. Forest Mensuration – Height, girth, volume of standing tree & felled material
6. Exposure to ERDAS and ARC-GIS
7. Visit to insectary and pathology lab
8. Timber Identification
9. Isolation of medicinal plants extractives
10. Tissue culture & clonal propagation

**Syllabus for Computer Application (PCA 102) Course**

**PCA 102 COMPUTER APPLICATION**

**Credits (Th-0+Pr.2)**

**Learning objectives:** The objective of course is to enrich the scholars' skill to use different programmes of computer for research purpose.

**MODULE I: Fundamentals of computer**

Definition of Computers, History and generation of computers, Classifications of computers, Block diagram of a computer, CPU, ALU, Control unit, Computer Memory i.e. RAM, ROM, Input/output devices, computer peripherals, (Discussion / Practical)

**Lecture session- 4**

**MODULE II: Windows 8.1**

- Introduction to Windows 8.1 and its installation, File Explorer, Windows 8.1 Settings, Control Panel Settings, Desktop Management, Using Apps in Windows 8.1, Downloading Apps from the Windows Store, Internet Explorer properties, Creating Documents, Drawing Pictures, Using the Internet, Printing Information Practical Test, Internet, www, Email, About virus and its protection

**Lecture session- 5**

**MODULE III: MS Office 2010**

- Beginning to Use Microsoft Word 2010, Basic Editing, Formatting, Templates, Working With Graphics and Pictures, Tables, Desktop Publishing, Long Documents, Technical Documents, Mail Merge, Proofing, Printing, and Publishing, Comparing, Merging, and Protecting Documents, Customizing and Expanding Word, Introduction to MS Excel 2010, Worksheets and Workbooks, Entering Information into MS Excel 2010, Formatting a Worksheet, Adding Elements to a Workbook, Charts, Formulas and Calculations, Excel Forms, Tables, Developing a Workbook, Sharing Worksheets and Workbooks, Advanced Skills : PowerPoint : Activating PowerPoint and Getting Started, Using Themes and Layouts, Inserting Text and Using WordArt, Inserting Graphics (Tables, Charts, Shapes, Clip-Art), Working With Videos, Movie-Clips, Animations, and Transitions, Sounds, Creating Photo Albums, Reviewing and Adding Comments to the Presentation, Editing, Saving, Printing and Publishing Tools, Help

**Lecture session- 15**

**MODULE IV: Adobe Page Maker**

- Page Maker's Introduction/ Palettes/ Creating & Opening Publications/ Publication from Templates/ Naming & Saving Publications/ Closing Publications/ Printing Publications/ Page Maker's Introduction/ Creating Text objects/ Text frames & blocks/ Text flow/ Jump lines/ Formatting text/ Guides/Drawing objects & Graphics/Grouping & Ungrouping/ Adding colours/Cropping Graphics/ Arranging text & graphics/ Non- printing objects/ Layers/ Format characters/ Control character spacing/ Format paragraphs

**Lecture session- 6**

**MODULE V: Latest trends in Information Technology**

- Cyber security and applications, Plagiarism check softwares and their use, Online research library e.g. INFLIBNET, Shodhganga etc., MOOCS (Massive Open Online Course) and uses.

**Lecture session- 5  
(Practical-35)**

**Syllabus for Statistical and Research Methods in Forestry(PSR 103) Course**

Credits (Th-2+Pr.2)

**Objective: To elucidate the PhD scholars with the concepts of research methods and various statistical techniques and their application in forestry research.**

**Module I: Introduction to Research**

Meaning and types of research; Criteria of a good research; identification and formulation of research problem; Elements of research (objective, review of literature, hypothesis formulation, scientific writing), Ethics in research; Plagiarism in research.

**Lecture Session:15****Module II: Elementary Statistical Methods –I**

Introduction of Statistics; Type of data; Forestry variables; Classification, tabulation and graphical representation of data; Measure of central tendency; Measure of dispersion; Measure of Skewness and Kurtosis; Theory of probability; Probability distributions (Binomial, Poisson, Normal distributions and their application).

**Lecture Session:20****Module III Elementary Statistical Methods –II**

Correlation (simple and rank) and regression (simple and multiple); Concept of sampling distributions – $\chi^2$ , t, F and its application; Concept related to testing of hypothesis; Tests of significance based on one sample, two sample and multiple sample tests for comparison of means and attribute test; Non-parametric Tests – Sign test, Wilcoxon test, Mann-Whitney U-test, Run test, Mann-Kendall test, Krushal-Wallis test; introduction to multivariate analysis.

**Lecture Session:20****Module IV: Elementary Design of Experiments**

Analysis of variance (one way and two way classification); Basic principles of design of experiments; Completely randomized design (CRD); Randomized block design (RBD); Latin square design (LSD); Missing plot techniques and its application to RBD and LSD; Factorial experiments; Concept of confounding, split and strip plot designs; Transformation of data; Normality test based on skewness and kurtosis.

**Lecture Session:25****Module V: Elementary Sampling Techniques**

Concept of sampling; Sample vs. complete enumeration; Simple random sampling (with and without replacement); Stratified random sampling; Systematic sampling; Cluster sampling; Multistage sampling; Area sampling (plot size and shape); Determination of sample size; Sampling and non-Sampling errors; Non-probability Sampling.

**Lecture Session:20**

**Practical:** Practical exercise will be conducted based on the theory with the use of MS-Excel and other relevant software available.

**Note: Mathematical derivations in statistical theory, if any, should be omitted/ avoided.**

### Syllabus of Research and Publication Ethics (CPE-RPE) (2 + 0) (30hrs.)

#### Overview

- This course has total 6 units focusing on basics of philosophy of science and ethics, research integrity, publication ethics. Hands-on-sessions are designed to identify research misconduct and predatory publications. Indexing and citation databases, open access publications, research metrics (citations, h-index, Impact Factor, etc.) and plagiarism tools will be introduced in this course.

#### Course structure

- The course comprises of six modules listed in table below. Each module has 4-5 units.

Modules	Unit title	Teaching hours
<b>Theory</b>		
RPE 01	Philosophy and Ethics	4
RPE 02	Scientific Conduct	4
RPE 03	Publication Ethics	7
<b>Practice</b>		
RPE 04	Open Access Publishing	4
RPE 05	Publication Misconduct	4
RPE 06	Databases and Research Metrics	7
	<b>Total</b>	<b>30</b>

#### Syllabus in detail

#### THEORY

- **RPE 01: PHILOSOPHY AND ETHICS (3hrs)**
  1. Introduction to philosophy: definition, nature and Scope, concept, branches.
  2. Ethics: definition, moral philosophy, nature of moral judgments and reactions
- **RPE 02: SCIENTIFIC CONDUCT (5hrs)**
  1. Ethics with respect to science and research
  2. Intellectual honesty and research integrity
  3. Scientific misconducts: Falsification, Fabrication, and Plagiarism(FFP)
  4. Redundant publications: duplicate and overlapping publications, salami slicing
  5. Selective reporting and misrepresentation on data
- **RPE 03: PUBLICATION ETHICS (7hrs)**
  1. Publication ethics: definition, introduction and importance
  2. Best practices/standards setting initiatives and guidelines: COPE, WAME, etc.
  3. Conflicts of interest
  4. Publication misconduct: definition, concept, problems that lead to unethical behavior and vice versa, types
  5. Violation of publication ethics, authorship and contributorship
  6. Identification of publication misconduct, complaints and appeals
  7. Predatory publishers and journals

#### PRACTICE

- **RPE 04: OPEN ACCESS PUBLISHING (4hrs)**
  1. Open access publications and initiatives
  2. SHERPA/RoMEO online resource to check publisher copyright & self –archiving policies
  3. Software tool to identify predatory publications developed by SPPU
  4. Journal finder/ journal suggestion tools viz. JANE, Elsevier Journal Finder, Springer Journal Suggester, etc.



- **RPE 05: PUBLICATION MISCONDUCT (4hrs)**
  - A. Group Discussions (2hrs.)**
    1. Subject specific ethical issues, FFP, authorship
    2. Conflicts of interest
    3. Complaints and appeals: examples and fraud from India and abroad
  - B. Software tools (2hrs.)**  
Use of plagiarism software like Turnitin, Urkund and other open source software tools
- **RPE 06: DATABASES AND RESEARCH METRICS (7hrs.)**
  - A. Databases (4hrs.)**
    1. Indexing databases
    2. Citation databases: Web of Science, Scopus, etc
  - B. Research Metrics (3hrs)**
    1. Impact Factor of journal as per Journal Citation Report, SNIP, SJR, IPP, Cite Score
    2. Metrics: h-index, g index, i10 index, altmetrics

**\*GUIDELINES FOR PREPARING Ph.D. SYNOPSIS**

1. **Cover page** should have title of the proposed work with name of the Research Scholar and Supervisor in a format as depicted below: -

<b><u>Format :</u></b>	<b><u>Example :</u></b>
(Title of the proposed research plan)	<b>Bamboo – endomycorrhiza: Ecology, growth and macroproliferation.</b>
Synopsis of the proposed research plan	Synopsis of the proposed research plan
Submitted for the degree of	Submitted for the degree of
Doctor of Philosophy in Forestry (Name of Discipline) Of	Doctor of Philosophy in Forestry (Name of Discipline) Of
Forest Research Institute Deemed to be University	Forest Research Institute Deemed to be University
By	By
Name of the Scholar	XYZ
Under the Supervision of	Under the Supervision of
Name and address of Supervisor	XYZ Forest Research Institute, Dehra Dun

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*\* 7 copies of the synopsis are to be submitted to the Member Secretary/Convener (Supervisor), Research Advisory Committee by the candidate. The Member Secretary will send one copy to each member of R.A.C. for perusal.*

2. **Second page** should have details of Research Scholars, Supervisor and place of work where Research Scholar intends to conduct studies with signature of Research Scholar and Guide both. **After synopsis seminar, names of R.A.C. members may also be indicated on this page.** These informations be **formatted** as below:-

**\*\* Synopsis of proposed research plan approved by the Research Advisory Committee for the degree of Ph.D. submitted to the F.R.I. Deemed to be University, Dehradun**

Topic of Research:  
(approved by the RAC)

Name of the Research Scholar:

Name and Designation of Supervisor:

Name and Designation of Co-Sup:

Place of work:

\*\*\*Name of Expert Members of RAC:

Signature  
(Name)  
Supervisor/Co-supervisor if any

Signature  
(Name)  
Research Scholar

\*\*\* Signature  
(Name)  
Chairman RAC

\*\*\* Signature  
(Name)  
Member Secretary.RAC

**\*\* *Synopsis to be revised after the R.A.C. meeting (synopsis seminar) as per the comments/ recommendations of R.A.C.***

**\*\*\* Names of the R.A.C. members should be mentioned in the synopsis approved by the RAC and the same should be signed by the Chairman and Member Secretary.**

3. **Introduction:** Species/organism/theme/aspect of research should be introduced with background information indicating its importance and relevance with over all objectivity and concept of forestry.
4. **Review of literature:** Review of literature should be comprehensive covering various aspects of the proposed work but it must be precise with recent information. Detailed review at this stage is not required.
5. **Methodology:** Techniques in brief should be given in respect of specific experiments/observations only. Methods of routine nature need not be described.
6. **Proposed plan of work:** This part of the synopsis is very important. Different aspects of the proposed plan of work should be given into separate components/chapters/sub-projects. Each component/sub-project should have detailed titles of various experiments proposed to be performed. Wherever possible area of research be mentioned indicating whether studies would be performed in the laboratory or in some specific filed conditions.

7. **Expected Conclusions:** Researcher may indicate the conclusions, which are expected to be drawn from the proposed studies.

8. **References:** References should be listed alphabetically author wise. In the text, the reference should be quoted as Sen-Sarma (1980) or Sen-Sarma and Thakur, (1981) or Sen-Sarma et al. (1982) for single, two and more than two authors, respectively. Papers by the same author in the same year should be distinguished by letters, a, b, c, etc. For references, following pattern should be followed.

**FOR RESEARCH PAPERS:**

Ahmad, M. 1987. Relative resistance of different clones of *Tectona grandis* to teak defoliator, *Hyblaea puera* Cram. (Lepidoptera: Hyblaeidae) in South India. *Indian Forester*, 113(4): 281-286.

**COMPLETE BOOKS:**

Beeson, C.F.C. 1941. *The Ecology and Control of the Forest Insects of India and the Neighbouring Countries*. Vasant Press, Dehra Dun, ii + 1007 pp.

**FOR A CHAPTER IN EDITED BOOK:**

Heather, W.A. and Griffin, D.M. 1984. The potential for epidemic disease, 143-154: In *Eucalyptus for Wood Production*, Hills, W.E. and Brown, A.G. (eds.) CSIRO/Academic Press, Sydney.

**CITATION FROM NEWSPAPERS:**

Hanumantha Rao, C.H. and Singh Padam, 1986. Fertilizers strategy of diffusion. *The Economics Times* (Bombay), Jan. 29, 25(327): I-II (Suppl.).

**THESES AND DISSERTATIONS:**

Mehra, M.S. 1984, Litterfall and nutrient return in certain forest ecosystems of Kumaun Himalaya, Ph.D. thesis, Kumaun University, Nainital : 274 pp.

**FOR ANNUAL REPORT:**

Annual report, 1989-90. Department of Agricultural Research and Education, Ministry of Agriculture, Govt. of India, New Delhi 67-70

**IN CASE OF PROCEEDING/CONFERENCE:**

Khan, M. 1987. NGOs and Agroforestry. In *Professional Education I Agroforestry*, 209-215: Easter Zulbert, E. (ed.) Proceedings of an International Workshop, 5-10 December, 1982, ICIPE Training Centre, Dudville, Nairobi, Kenya.

**IN CASE OF BULLETINS/RECORDS:**

Byant, M.S. 1951. bibliographic style, USDA. Bib. Bull. 6:30 pp.

Or

Author, year. Title *Indian For. Rec.* (N.S.), (Ent.) 33(5): 1-71

**Performa of the minutes of meeting of RAC for Synopsis Seminar**

- i) Name of Candidate:
- ii) Date of meeting:
- iii) Institute's name:
- iv) Division's Name:
- v) Chairman's Name:
- vi) Expert member's names:
  - (1)
  - (2)
  - (3)
  - (4)
- vii) Supervisor's name:
- viii) Co-Supervisor's name:
- ix) Member Secretary/Convener (Supervisor) :
- x) **Suggestions/comments made by the RAC:**  
(Please attach the details duly signed by all the members)
- xi) Topic recommended by R.A.C.:
- xii) Name of Discipline for which registration is recommended:  
*(Which will be recorded in the Degree certificate as per clause 3.3 of the Ph.D. Ordinance. The decision of the office of the FRI Deemed to be University shall be final)*
- xiii) Courses recommended:
- xiv) Recommendation of RAC whether to be registered as PhD Scholar:

**Signatures of the Members of the RAC**

(The proceedings should be neatly typed and the signature of the members of the RAC should be on the same page)

*To be filled by the proposed Supervisor  
(From FRI University or its Research Center)*

1. Name \_\_\_\_\_
2. Date of Birth \_\_\_\_\_
3. Designation \_\_\_\_\_
4. Institute/University/Department \_\_\_\_\_
5. Date of Retirement/Repatriation \_\_\_\_\_
6. Present Occupation, if any: **Name of the Organization:** \_\_\_\_\_  
**Pay:** \_\_\_\_\_ **Grade:** \_\_\_\_\_ **Post:** \_\_\_\_\_ **Pmt./Temp.** \_\_\_\_\_
7. Address  
 a) Permanent \_\_\_\_\_  
 \_\_\_\_\_  
 P.O. \_\_\_\_\_ Distt. \_\_\_\_\_ Ph.No. \_\_\_\_\_  
 b) Local \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 c) E-mail Address \_\_\_\_\_
8. Educational Qualification \_\_\_\_\_
9. Date of Award of Ph.D. Degree \_\_\_\_\_
10. Professional Experience (in years)  
 a) Research  
 b) Teaching  
 (i) . No. of students already submitted Ph.D. Thesis  
 (ii). No. of students presently under supervisor
11. Area of specialization
12. Number of Publications/Books etc.(list to be attached) (Nos.)-  
 (i) . In International peer reviewed journal (referred journals) (Nos.)-  
 (ii). In National peer reviewed journal (referred journals) (Nos.)-
13. Any other information
14. I agree to supervise the work of the  
 Sh./Smt./Km.\_\_\_\_\_. At present I am supervising the  
 work of \_\_\_\_\_ Research Scholars whose names are given below: (Names of the research  
 scholars who have submitted their theses to the FRI University not to be counted)  
 1.  
 2.  
 3.  
 4.  
 5.  
 6.

**Dated** \_\_\_\_\_

*Signature of Supervisor*

**Note:- For appointment of Supervisor/Co-supervisor please read clause 6 of the Ph..D. Ordinance of FRI University carefully.**

*To be filled by the proposed Co-Supervisor  
(From FRI University or its Research Center)*

1. Name \_\_\_\_\_
2. Date of Birth \_\_\_\_\_
3. Designation \_\_\_\_\_
4. Institute/University/Department \_\_\_\_\_
5. Date of Retirement/Repatriation \_\_\_\_\_
6. Present Occupation, if any: **Name of the Organization:** \_\_\_\_\_  
**Pay:** \_\_\_\_\_ **Grade:** \_\_\_\_\_ **Post:** \_\_\_\_\_ **Pmt./Temp.** \_\_\_\_\_
7. Address
  - a) Permanent \_\_\_\_\_  
 P.O. \_\_\_\_\_ Distt. \_\_\_\_\_ Ph.No. \_\_\_\_\_
  - b) Local \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
  - c) E-mail Address: \_\_\_\_\_
8. Educational Qualification \_\_\_\_\_
9. Date of Award of Ph.D. Degree \_\_\_\_\_
10. Experience (in years)
  - a) Research
  - b) Teaching
  - c) No. of students already guided for Ph.D.
11. Area of specialization
12. Number of Publications/Books etc.(list to be attached)
13. Any other information
14. I agree to supervise the work of the Sh./Smt./Km. \_\_\_\_\_. At present I am supervising the work of \_\_\_\_\_ Research Scholars whose names are given below: (Names of the research scholars who have submitted their theses to the FRI University not to be counted)
  - 1.
  - 2.
  - 3.
  - 4.
  - 5.

**Dated** \_\_\_\_\_

*Signature of Co-Supervisor*

**Note:- For appointment of Supervisor/Co-supervisor please read clause 6 of the Ph..D. Ordinance of FRI University carefully.**

**Format of meeting of minutes of RAC for Progress Report**

1. Name of the scholar :
2. Registration Number :
3. Name of Discipline & Topic of Research :
4. Name of Supervisor :
5. Name of Co Supervisor :
6. Name of Research Center/ Institute :
7. Date of meeting of R.A.C.
8. Progress report I/II/III/IV :
9. Period of Progress report :

(Detailed progress report should be attached compulsorily)

Remarks if any of the supervisor:

Remarks of Chairman/Expert Members of R.A.C.:

**Signature of the Supervisor and members of the R.A.C. should be at the last page of the report also**



**Performa of the minutes of meeting of RAC for extension of term**

- i) Name of Ph.D Scholar :
- ii) Registration Number & date :
- iii) Date of meeting:
- iv) Topic :
- v) Institute's name:
- vi) Discipline  
(as per clause 3.3 of the Ph.D. ordinance)
- vii) Chairman's Name:
- viii) Expert member's names:
  - (1)
  - (2)
  - (3)
  - (4)
- ix) Supervisor's name:
- x) Co-Supervisor's name:
- xi) Head of Division (Member Secretary):
- xii) Recommendation of RAC reg. Extension giving specific reason:  
(the RAC should clearly state the reason for grant of extension and the duration of extension)

**Performa of the minutes of meeting of RAC for Pre-thesis submission seminar**

- (i) Name of Ph.D. Scholar :
- (ii) Registration Number & date:
- (iii) Date of meeting:
- (iv) Topic:
- (v) Institute's name:
- (vi) Discipline  
(as per clause 3.3 of the Ph.D. ordinance)
- (vii) Chairman's Name:
  
- (viii) Expert member's names:
  - (1)
  - (2)
  - (3)
  - (4)
- (ix) Supervisor's name:
- (x) Co-Supervisor's name:
- (xi) Head of Division (Member Secretary):
- (xii) Suggestions (in detail must be given)/Recommendation of RAC:

**Signatures of the Members of the RAC including Supervisor and Member Secretary**

**FOREST RESEARCH INSTITUTE DEEMED to be UNIVERSITY  
DEHRA DUN**

This is to certify that Mr./Ms./Mrs. ....enrolment no.....  
carried out research work under Dr..... of (Name of the Center)  
..... The topic of the research registered with FRI Deemed to be  
University was .....

..... The scholar presented his/her work in the pre-  
thesis submission seminar held on ..... and the RAC found the work to be satisfactory and  
approves the work to be presented in the form of thesis for evaluation by examiners for “Award of Ph.D.  
Degree” by FRI Deemed to be University.

Supervisor

Head of Division

Expert Member  
Member

Expert Member

Expert

Chairman RAC

**Student Approval  
Form**

Name of the Author	
Department	
Degree	
University	
Guide	
Thesis Title	
Year of Award	

Agreement

1. I hereby certify that, if appropriate, I have obtained and attached hereto a written permission/statement from the owner(s) of each third party copyrighted matter to be included in my thesis/dissertation, allowing distribution as specified below.
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4. View Only (No Downloads) (worldwide)	

Signature of the Scholar

Signature and seal of the Guide

Place : \_\_\_\_\_

Date : \_\_\_\_\_