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## Board of Studies

**Name of Faculty:** Faculty of Pharmaceutical Sciences, Future University.

### Attendance Sheet

| S. No. | Name                        | Designation                         | Position                          | Signature |
|--------|-----------------------------|-------------------------------------|-----------------------------------|-----------|
| 1      | Prof. Dr. Hemendra Gautam   | Professor                           | Dean                              |           |
| 2      | Prof. Dr. Rahul Shukla      | Professor                           | Chairperson                       |           |
| 3      | Prof. (Dr.) Navneet Verma   | Pro-Vice Chancellor IFTM university | Academic Expert (External Member) |           |
| 4      | Mr. Sachin Sharma           | Senior Research Manager             | Industry Expert (External Member) |           |
| 5      | Dr. Amar Kumar Saxena       | Dean Academics                      | Member                            |           |
| 6      | Mr. Gangeshwar Pratap Singh | Associate Professor                 | Member                            |           |
| 7      | Dr. Ashish Kumar            | Associate Professor                 | Member                            |           |
| 8      | Dr. Jatin Jaiswal           | Professor                           | Member Secretary                  |           |

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## Minutes of the Board of Studies (BOS) Meeting

Faculty of Pharmaceutical Sciences

Future University, Bareilly

Date: 04/10/2025

Venue: Future Institute of Pharmacy

Time: 9.30 am

1. The meeting commenced with a warm welcome by Dr. Rahul Shukla, Chairperson of the BOS.
2. A brief overview of the agenda was presented, highlighting the key areas of discussion: Approval of Course Structure, Syllabus, Scheme, and Appointment of External Examiners.
3. The proposed course structure for Session 2025-27 M. Pharmacy (Pharmaceutics, Pharmaceutical Chemistry & Pharmacognosy), D. Pharmacy & Ph.D in Pharmaceutical Sciences was presented.
4. Members reviewed the proposed structure, ensuring alignment with the curriculum standards and regulatory requirements.
5. After discussion, the course structure was **approved unanimously**.
6. **Mr. Gangeshwar Pratap Singh** circulates the final course structure to all faculty members.
7. The syllabus for the following courses was presented for approval:
  - o M. Pharmacy (Pharmaceutics, Pharmaceutical Chemistry, Pharmacognosy).
  - o D. Pharmacy.
  - o Ph.D in Pharmaceutical Sciences.
8. Each syllabus was discussed in detail, with feedback provided by the faculty members.
9. Minor revisions were suggested in AI for All and AI for Pharmacy of the syllabus.
10. After revisions, the syllabus was **approved**.
11. **Dr. Jatin Jaiswal** implements the revisions and finalizes the syllabus.
12. The proposed scheme of examination, including distribution of marks, examination pattern, and evaluation methods, was presented for the following courses:
  - o M. Pharmacy (Pharmaceutics, Pharmaceutical Chemistry, Pharmacognosy).
  - o D. Pharmacy.
  - o Ph.D in Pharmaceutical Sciences.
13. The scheme was reviewed by the BOS members, and the scheme was **approved**.
14. A list of potential external examiners for practical examinations and paper setting was proposed.
15. After discussing the qualifications and expertise of the proposed examiners, the list was **approved**.
16. **Dr. Ashish Kumar** sent formal invitations to the external examiners.
17. The Chairperson thanked all members for their valuable contributions and participation.
18. The Chairperson concluded the meeting, noting that the decisions made would help enhance the quality of education at the Faculty of Pharmaceutical Sciences, Future University.
19. The meeting was adjourned at 4.00 pm.

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### **Action Points Summary**

1. **Mr. Gangeshwar Pratap Singh** circulate the final course structure to all faculty members
2. **Dr. Jatin Jaiswal** implements the revisions and finalizes the syllabus.
3. **Dr. Ashish Kumar** sent formal invitations to the external examiners

**Minutes Prepared by:**

**Dr. Jatin Jaiswal**  
**Professor**

**Minutes Approved by:**

**Chairperson**

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# FUTURE UNIVERSITY

18th Milestone, Bareilly-Lucknow Highway NH-24 Near Faridpur, Bareilly,  
Uttar Pradesh 243503 Website: [www.futureuniversity.in](http://www.futureuniversity.in)



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### Ph.D. REGULATIONS

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*[Handwritten signatures]*

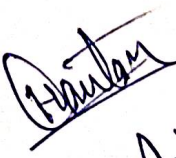


## PREAMBLE

Future University Bareilly offers research programmes in various disciplines, leading to the award of Ph.D. degree. The process to award this degree is in recognition of high academic achievements, independent research and application of knowledge to the solution of technical and scientific problems in different disciplines. The research program provides an enabling research experience to candidates during their stay in the University, thus helping them to enter their professional life with right perspective and knowledge. The research work is an original work characterized by the discovery of the facts or by a fresh approach towards the interpretation of the facts or development of any equipment making a marked advancement in technology. The research work shall distinctly evince the candidate's capacity for creative examination and sound judgment and shall make original contribution to the existing treasure of knowledge. The Ph.D. degree shall be conferred and awarded only to a candidate who will fulfil all the requirements specified in these proposed regulations which are framed according to the requirements of various faculty/departments.

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## 1. SHORT TITLE, APPLICATION AND COMMENCEMENT:

- 1.1 **'Applicant'** means a person who makes an application in the prescribed form for admission to the Ph.D. programme of the Future University, Bareilly.
- 1.2 **'Candidate'** means a person registered for the Ph.D. degree, who has completed the required course work and has submitted the synopsis, duly approved by Research Degree Committee of the University.
- 1.3 **'Supervisor'** means a person who is a faculty/scientist in Future University with Ph.D. degree and formally approved and/or recognized by the RDC to supervise the research work.
- 1.4 **'Co-supervisor'** means a supervisor appointed by RDC as such in addition to the supervisor to help in the accomplishment of the research work of the Candidate.
- 1.5 **'Course Work'** means the Pre-Ph.D. work prescribed under 7(1) of the UGC Regulations, 2016.
- 1.6 **'RDC'** means Research Degree Committee.
- 1.7 **'Full time research candidate'** means a candidate registered for the Ph.D. degree devoting full time for the completion of his/ her degree.
- 1.8 **'Part time research candidate'** means a person registered for Ph.D. degree, whether sponsored or self-financed devoting a part of his time to pursue the research programme along with the discharge of his official obligations.
- 1.9 **'Sponsored research candidate'** means a research candidate who is in receipt of financial assistance for pursuing research work from any sponsoring organization or his/her employer.
- 1.10 **'Project fellow'** means a research candidate who is receiving financial assistance for pursuing research work from any project undertaken by the University.
- 1.11 **'Minimum Registration Period for submission of thesis'** means the period before the expiry of which a candidate shall not be allowed to submit his Ph.D. thesis.
- 1.12 **'Maximum registration period'** means the period on the expiry of which a candidate's registration shall stand cancelled, however, the competent authority may give extension up to maximum one year in two spells of six months each.
- 1.13 The University shall allow the Ph.D. Degree in Sciences, Engineering, Management, Law, and other related/allied disciplines as approved by Academic Council from time to time.

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**1.14** There will be four advisory committees for the proper functioning of the Ph.D. degree:

- (a) Research Advisory Board
- (b) Research Degree Committee
- (c) Faculty Research Committee
- (d) Doctoral Research Committee

**1.15** The office of the Dean Research will take care for all activities related to Ph.D. programme of the Future University.

## **2. COMPOSITION OF VARIOUS BOARDS AND COMMITTEES**

### **2.1 Constitution and Functions of Research Advisory Board (RAB)**

Research Advisory board shall function as per the provision given in the Future University Research Policy. The Research Advisory Board will be the main investigation body of the University and will give the thorough vision, to the research, embraced by the University, including its prioritization. The RAB will in like manner oversee, direct and scrutinize all the assessment activities and Ph.D. programs of the University. The Dean Research will be coordinated by the RAB. The RAB get-togethers should be held somewhat once in a year. **The composition of the RAB will be as under:**

|     |                                                                                                                                                     |   |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------|---|
| 01. | Vice Chancellor (Chairperson) or his nominee                                                                                                        |   |
| 02. | Dean Academic Affairs                                                                                                                               |   |
| 03. | Deans of Faculty                                                                                                                                    |   |
| 04. | Dean Research-Member Secretary/Convener                                                                                                             |   |
| 05. | Ph.D. Coordinator                                                                                                                                   |   |
| 06. | External outstanding experts from leading Research Organizations/Industries/Corporate groups in different domains nominated by the Vice-Chancellor. | 2 |

### **2.2 CONSTITUTION AND FUNCTION OF RESEARCH DEGREE COMMITTEE**

**Constitution of RDC will be as follows:**

|                            |             |
|----------------------------|-------------|
| Vice Chancellor            | Chairperson |
| Dean Academic Affairs      | Member      |
| Deans of concerned Faculty | Member      |
| Dean Research              | Convener    |

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|                                              |        |
|----------------------------------------------|--------|
| Ph.D. Coordinator                            | Member |
| Research Supervisor                          | Member |
| Two eminent Academicians as External Expert* | Member |

**Note:** the Vice Chancellor will nominate the name of the two eminent academicians for a period of three years.

The RDC may meet as often as necessary in the interest of academic excellence. The Research Degree Committee shall deal with the policy matters and make recommendations regarding the conferment of the award of the Ph.D. degree.

The quorum of the RDC shall not be less than two-third of its members, however, the presence of an external expert will remain mandatory. The RDC shall perform the following functions, namely:-

- To approve the proposed research topic of each applicant based on defending his/her synopsis after successful completion of the course work.
- To register the student and allocation of guide will be in accordance to the rules of the University.
- To Review and Monitor the Research Progress.
- To Recommend for Change and/or Inclusion of Supervisors.
- To Recommend for Extension of Duration.
- To Recommend for Acceptance/Change in Place of Work.
- To Recommend for Thesis Submission.
- To prepare and finalized the Panel of Examiners for the evaluation of Thesis.

### 2.3 CONSTITUTION AND FUNCTIONS OF FACULTY RESEARCH COMMITTEE (FRC):

|                                                               |             |
|---------------------------------------------------------------|-------------|
| Dean Research                                                 | Chairman    |
| Dean of the concerned faculty                                 | Co-Chairman |
| Concerned HOD of the Department                               | Member      |
| Two Professor/Associate Professor/ or Nominated Person by HOD | Members     |
| Ph.D. Co-ordinator                                            | Convener    |
| Concerned Supervisor                                          | Member (s)  |

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The Constitution of FRC will be as follows:

FRC shall be responsible for

- a) Admission of the candidates to the program, registration and guide allotment.
- b) Review the research plan and finalize the topic of research.
- c) Monitoring of the progress of research.
- d) Overall monitoring of progress of research and makes suitable recommendations.

## **2.4 CONSTITUTION AND FUNCTION OF DOCTORAL RESEARCH COMMITTEE (DRC) FOR SCHOLAR:**

Dean/HOD of the concerned faculty/department shall constitute a committee consisting of following for each research scholar within fifteen days from the date of admission:

|                                                        |          |
|--------------------------------------------------------|----------|
| Supervisor                                             | Chairman |
| One faculty member from the department                 | Member   |
| One faculty member from the related department/faculty | Member   |

DRC shall be responsible for regular monitoring of the progress of research work. A research scholar shall appear before the Doctoral Research Committee (DRC) once in a six months to make a presentation of the progress of his/her work for evaluation and further guidance. The DRC shall submit six-month progress report within 15 days from the date of presentation to the Dean Research through the respective Dean/ HOD of the Faculty. FRC shall take up all the reports for consideration for satisfactory progress and make suitable recommendations.

In case the progress of the research scholar is not satisfactory, the DRC shall record the reasons for the same and suggest the necessary measures. If the research scholars fail to implement these corrective measures for two consecutive reporting periods, the DRC may recommend to FRC for cancellation of the registration of the research scholar.

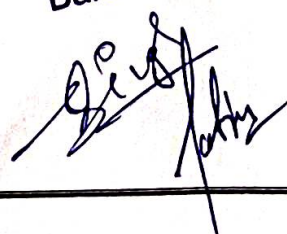
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### 3. ELIGIBILITY CRITERIA FOR ADMISSION

#### 3.1 PH.D. PROGRAMME:

Candidates for admission to the Ph.D. programme shall have a Master's degree or a professional degree declared equivalent to the Master's degree by the corresponding statutory regulatory body, with at least 55% marks in aggregate or its equivalent grade 'B' in the UGC 7-point scale or an equivalent degree 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.

A relaxation of 5% of marks, from 55% to 50%, or an equivalent relaxation of grade, may be allowed for those belonging to SC/ST/OBC (non-creamy layer)/Differently Abled and other categories of candidates as per the decision of the UGC from time to time, or for those who had obtained their Master's degree prior to 19 September 1991. The eligibility marks of 55% or (an equivalent grade in a point scale wherever grading system is followed) and the relaxation of 5% to the categories mentioned above are permissible based only on the qualifying marks without including the grace mark procedures.

Candidates who have cleared the Ph.D. Course work with at least 55% marks in aggregate or its equivalent grade 'B' in the UGC 7-point scale. Degree shall be eligible to proceed to do research work leading to the Ph.D. Degree in the same Institution in an integrated programme. A relaxation of 5% of marks, from 55% to 50%, or an equivalent relaxation of grade, may be allowed for those belonging to SC/ST/OBC (non-creamy layer)/Differently Abled and other categories of candidates as per the decision of the Commission from time to time.

Candidates possessing a Degree considered equivalent to M.Pharm 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 the 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.

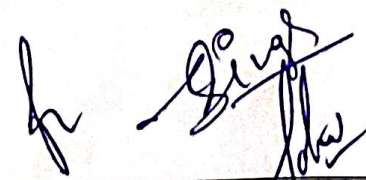
The Ph.D. Research Scholars can be categorized as per the following:-

- a) Full-time
- b) Full-time Sponsored
- c) Part-time

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Financial aid/Assistantship/Scholarship may be granted subject to availability of grants from Future University/UGC/DST/CSIR, etc.

#### 4. DURATION OF THE PROGRAMME:

4.1 Ph.D. programme shall be for a minimum duration of three years, including course work and a maximum of six years from the date of admission.

4.2 The extension beyond the maximum limit can be given up-to a maximum of two years for genuine reason by RDC on the recommendation of FRC.

4.3 The women candidates and persons with disability (more than 40% disability) may be allowed a relaxation of two years for Ph.D. in the maximum duration. In addition, the women candidates may be provided Maternity Leave/Child Care Leave once in the entire duration of Ph.D. for up to 240 days.

4.4 In case of any grievances, Vice chancellor may constitute a committee of senior faculty members under the chairmanship of Dean Research to look after the issue.

4.5 Based on the recommendation of the committee, Vice chancellor may take the appropriate decision and same has to be intimated to the RAB and academic council.

#### 5. NOTIFICATION FOR PH.D. PROGRAMME

5.1 The University shall lay-down and decide on annual basis, number of Ph.D. seats in each faculty, depending on the number of available eligible supervisors and the government norms.

5.2 The number of seats as aforesaid shall be notified on a regular basis on the University website and/or advertised in widely read national as well as regional newspapers.

5.3 A notification for Ph.D. Programme shall specify:-

The number of seats available in each Department/Faculty/subject, the date, place and syllabi of the Entrance Test at the University.

#### 6. PROCEDURE FOR ADMISSION FLOW CHART: PH.D. PROGRAMME (ADMISSION TO AWARD) STEPS ACTIVITY RESPONSIBILITY/COMMITTEE REMARKS

| Steps           | Activity                  | Responsibility/<br>Committee                                                                           | Remarks                                         |
|-----------------|---------------------------|--------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| 1 <sup>st</sup> | Semester                  |                                                                                                        |                                                 |
| 1               | Process of Admission Test | COE and Dean Research<br>Dean<br>Faculty of<br>Pharmaceutical Science<br>Future University<br>Bareilly | Approval of VC<br>Future University<br>Bareilly |



|   |                                                                              |                                 |                |
|---|------------------------------------------------------------------------------|---------------------------------|----------------|
| 2 | Registration of Students after result declaration                            | COE/Dean Research               |                |
| 3 | Orientation of Selected Candidates                                           | Office of Dean Research         |                |
| 4 | Supervisor Allotment & Research Area Identification                          | Dean/HODs of Respective Faculty | Approval of VC |
| 5 | DRC Formation                                                                | Dean/HODs of Respective Faculty | Approval of VC |
| 6 | DRC Meeting (Presentation on Research Area & Recommendation for Course Work) | DRC                             | -              |
| 7 | Course Work Registration                                                     | DRC                             | -              |
| 8 | Course Work Literature Survey for Research Plan formulation                  | Dean Research Supervisor        | -              |

### 2<sup>nd</sup> Semester

|    |                         |                                                           |                                                                                      |
|----|-------------------------|-----------------------------------------------------------|--------------------------------------------------------------------------------------|
| 9  | Comprehensive Viva Voce | FRC                                                       | Approval of VC                                                                       |
| 10 | Research Plan Approval  | FRC, External Expert, VC/ Nominee, Dean Research/ Nominee | Approval of VC for Appointing External Expert on the recommendation of Dean Research |

PhD Research and submission of thesis

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|                                                      |                                                  |                                                                         |                                                                                      |
|------------------------------------------------------|--------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 11                                                   | Half Yearly Progress Report                      | FRC through Supervisor                                                  | -                                                                                    |
| 12                                                   | Pre Ph.D. Evaluation after recommendation of FRC | FRC, External Expert, VC/ Nominee, Dean Research/ Nominee               | Approval of VC for Appointing External Expert on the recommendation of Dean Research |
| 13                                                   | Submission of synopsis                           | Office of Dean Research in coordination with COE Office                 | -                                                                                    |
| 14                                                   | Process of thesis submission for evaluation      | Dean Research, COE                                                      | Approval of VC for appointing the Examiners                                          |
| <i>PhD Viva Voce examination and award of degree</i> |                                                  |                                                                         |                                                                                      |
| 15                                                   | Ph.D. Viva Defense                               | Dean Research/ Nominee, Faculty Dean & HOD, External Expert, Supervisor |                                                                                      |
| 16                                                   | Processing of result and award of degree         | Dean Research , COE                                                     | Approval of VC                                                                       |

### Details Description:

**6.1** The admission in Ph.D. shall be based on the criteria notified by the University, keeping in view the guidelines/norms in this regard issued by the UGC and other statutory bodies concerned.

**6.2** The admission in Ph.D. shall be based on the Entrance Test conducted by the office of Controller of Examinations (COE) in coordination with office of Dean Research.

**6.3** Entrance Test followed by an interview shall be conducted. The weightage for entrance test and interview shall be 70% and 30% respectively. Only those students

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securing at least 50% in theory and 50 % in interview separately shall be considered for admission.

6.4 Candidates with M.Pharm Degree or equivalent degree from any other institute/University recognized by UGC or qualified with fellowship/scholarship offered by the University/National and International Agency/NET/GPAT/GATE score will be exempted from entrance test. However, such candidates will have to appear for the interview.

6.5 Foreign candidates who fulfil eligibility criteria will be admitted after an online test and interview.

6.6 The University shall admit candidates through a two stage process

- (i) Entrance test conducted by COE in coordination with office of Dean Research.
- (ii) An interview in the subject area of the candidate to be conducted by a committee constituted by FRC.

6.7 The entrance test will have two sections for a total of 70 marks

- (i) Core subject (50 MCQs)
- (ii) Research aptitude (20 MCQs)

## 7. COURSE WORK

The course work shall be treated as prerequisite for Ph.D. preparation.

7.1 Each student, including a part-time student after having been admitted, shall be required to undertake course work for a minimum period of one or two semester.

7.2 The credit assigned to Ph.D. course work shall be a minimum of 14 credits and a maximum of 16 credits.

7.3 A minimum of four credits shall be assigned to one or more courses on Research Methodology, which could cover areas such as quantitative methods, computer applications, training, fieldwork, etc. In addition to that a mandatory course on research and publication ethics, teaching pedagogy and advanced level course related to the concerned subject will be covered.

7.4 All courses prescribed for Ph.D. course work shall be in conformity with the credit hour instructional requirement and shall specify content, instructional and assessment methods. They shall be duly approved by the authorized academic bodies.

7.5 The Department where the scholar pursues his/her research shall recommend the course(s) to him/her based on the recommendations of the RDC.

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7.6 All candidates admitted to the Ph.D. programmes shall be required to complete the course work prescribed by the Department during the initial one or two semesters.

7.7 Grades in the course work, including research methodology courses shall be finalized after an assessment by Research Advisory Board and the Department and the final grades shall be communicated to the University.

7.8 Ph.D. scholar has to obtain a minimum of grade B in the UGC 7-point scale in the course work in order to be eligible to continue in the programme and submit the thesis.

7.9 It is expected from all faculty to submit the details of the students registered for course work to the office of Dean Research.

7.10 Candidate already having M.Phil. degree may be exempted from the Ph.D. course work on the recommendation by the FRC.

## 8. COMPREHENSIVE VIVA-VOCE EXAMINATION:

8.1 Each candidate needs to qualify in a comprehensive viva-voce examination as per the guidelines of FRC based on broad field of his/her research. The comprehensive examination will be conducted by FRC. The committee will include one external expert as recommended by Dean Research and approved by Vice Chancellor.

8.2 After conducting the comprehensive examination, FRC will make one of the following recommendations:

(i) Qualified

(ii) Not qualified

8.3 A candidate will normally have only two attempts for qualifying in the comprehensive viva-voce. However, the Vice Chancellor on the recommendation of FRC can relax these norms. If candidate fails to clear viva-voce in four attempts, admission to Ph.D. program stands cancelled.

## 9. RESEARCH PLAN SUBMISSION:

9.1 Qualified candidates shall submit a research plan in the prescribed format (Annexure 1) to the office of Dean-Research through research supervisor.

9.2 The candidate shall present the research plan before DRC and then FRC, which may approve it or recommend modifications.

9.3 FRC on the basis of successful completion of pre-registration requirements will recommend the registration of the candidates in Ph.D. program to the VC for approval.

9.4 Ph.D. registration requirement should generally be completed within 12 months; however, the VC may relax based on the recommendation of FRC.

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## 10. REGISTRATION

The date of approval of research plan shall be taken as the date of registration. The University shall maintain a list of all registered Ph. D students on its website. The list shall include the name of registered candidate, title of his/her research plan, name of his/her supervisor/co-supervisor, date of enrolment/registration.

## 11. REVIEW OF THE PROGRESS:

11.1 Each research scholar will submit a progress report at the end semester in the prescribed format to FRC through DRC for review.

11.2 In case two consecutive progress reports are unsatisfactory, the research scholar may be de-registered from the Ph.D. programme.

## 12. TRANSFER OF CREDITS:

12.1 FRC may allow transfer of credits for courses work done as an admitted candidate elsewhere. However, in all cases, candidates shall present a research proposal to FRC and get it approved.

12.2 The FRC allow may allow up to 1 year relaxation in the time required for submission of thesis based on the time spent in other institution.

## 13. PRE REQUISITE FOR THESIS SUBMISSION:

13.1 Research scholar can submit his/her Ph.D. thesis only after 24 months of respectively after the approval of the Research Plan.

13.2 Publication/acceptance of three research papers out of which two must be in Scopus/SCI indexed journals after the final registration.

13.3 Candidate must present two research papers in National/International level conferences.

## 14. PRE PH.D. SUBMISSION PRESENTATION

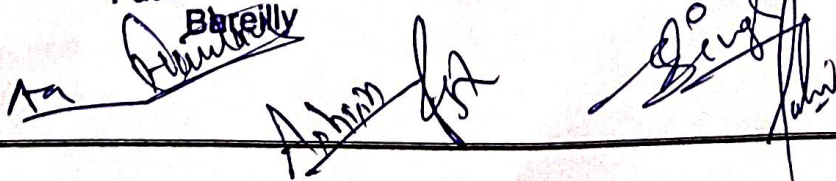
14.1 On completion of the research work, the research scholar shall submit a copy of synopsis (Annexure-II) to the office of Dean Research who, in turn, will advise to FRC to conduct a pre-submission open presentation.

14.2 FRC will make one of the following recommendations:

- (i) Satisfactory for submission.
- (ii) Changes or further work required.

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In case FRC recommends some further work, the candidate shall give another presentation. If the candidate could not succeed in the further two presentations, FRC may recommend for cancellation of the registration.

## 15. BOARD OF EXAMINERS

The concerned Ph.D. supervisor will submit a list of examiners drawn from reputed Institutions/Universities/Organizations (other than Future University) to FRC. The board will have minimum of four examiners each from India and abroad. The Vice Chancellor may approve the names of two external examiners, out of which one may be from abroad, out of the names recommended by FRC.

## 16. SUBMISSION OF THESIS

16.1 The research scholar will submit the thesis along with the documents (Annexure III) as per the guidelines of the University.

16.2 After acceptable plagiarism/similarity, the COE office of the University will forward the synopsis of the thesis to the selected examiners for their consent for evaluation.

16.3 On receipt of the consent, the thesis in hard/soft copy would be sent to them for evaluation. If the consent of the examiners is not received within one month, the synopsis of the thesis may be sent to the next examiner as approved by the Vice Chancellor.

## 17. THESIS REPORT

17.1 The examiners will be required to submit their evaluation report (either hard copy or soft copy) within maximum of 60 days from the date of dispatch of the thesis. The COE office will give a reminder once in 15 days in case of examiner does not respond within 30 days. In case the examiner does not, respond after two reminder the COE office may forward the thesis to an alternative examiner.

17.2 The examiner will recommend either of the following:

- (i) The thesis may be accepted after the successful completion of viva-voce examination.
- (ii) The thesis may be revised incorporating the comments of examiners and verified before Viva-voce.
- (iii) The thesis may be revised incorporating the comments of examiners and be resubmitted.
- (iv) The thesis may not be accepted.

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## 18. FINAL VIVA-VOCE OF PH.D.

18.1 If all the examiners recommend the award of degree, the viva-voce of the candidate has to be conducted.

18.2 If one of the examiner's reports is unsatisfactory, thesis will be forwarded to the next examiner.

18.3 If consecutive two examiner's reports are unsatisfactory, thesis will be rejected for the award of degree and registration will be cancelled.

## 19 VIVA-VOCE

19.1 The public viva-voce of the research scholar to defend the thesis shall be conducted only if the evaluation reports of the examiner (s) on the thesis is/are satisfactory and include a specific recommendation (Annexure-IV) for conducting the viva-voce examination. Supervisor of the candidate will initiate the process of vivavoce examination.

19.2 The viva-voce examination will be conducted by a committee consisting of Dean Research, HOD, one external thesis examiner nominated by the Vice Chancellor, and the supervisor as coordinator.

19.3 If performance of the research scholar in the viva-voce examination is unsatisfactory, he/she will be asked to re-appear within a month and not later than six months.

19.4 If unsatisfactory on the second attempt, the candidate will not be awarded degree and registration gets cancelled.

## 20 AWARD OF DEGREE

20.1 On successful completion of viva-voce examination, Dean Research with of approval of Vice Chancellor will issue a letter mentioning that the research scholar has completed all the requirements and shall receive the Ph.D. degree in the convocation of the University.

20.2 Research Degree Committee (RDC) will receive the proposal and recommend to the Academic Council of the University for Final Approval.

20.3 After approval of the Academic Council, the research scholar will be awarded Ph.D. degree in the convocation.

## 21. CONTROLLER OF EXAMINATION

The Controller of Examination (COE) shall be responsible for all matters relating to the conduct of Ph.D. entrance examinations in coordination with Dean Research.

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## 22. DEAN RESEARCH

The complete Ph.D. programme will be administrated by the office of Dean Research.

## 23. PH.D. COORDINATOR

The Ph.D. Coordinator will assist the Dean Research in all activities related to Ph.D. programme.

## 24. PLAGIARISM

Maximum permissible similarity limit shall be 10 % as per UGC notification dated 23rd July 2018). In case of any plagiarism reported against any research scholar at any stage, even after the award of degree; necessary action will be taken by the University as per the UGC which could include cancellation of registration/withdrawal of degree.

## 25. DEPOSITORY WITH INFLIBNET

Following the successful completion of the evaluation process and before the announcement of the award of the Ph.D. degree, the University concerned shall submit an electronic copy of the Ph.D. thesis to the INFLIBNET, through the library for hosting the same so as to make it accessible to all Institutions/Colleges.

## 26. POWER TO RELAX

The chairperson (VC) of the Academic Council, in exceptional circumstances, on the recommendation of Research Degree Committee may relax any of the provisions of the said ordinances to remove any difficulty.

In case of any dispute, the decision of the Vice Chancellor shall be final.

## 27. TIMELINE FOR ISSUING VARIOUS CERTIFICATES

| S. No | Task                                                 | Responsibility                                                 | Timeline                                                                            |
|-------|------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 1     | Communication for Provisional Degree Certificate     | Office of Dean Research                                        | After one week of the completion of Ph.D. viva-voce.                                |
| 2     | Issue of Provisional Degree Certificate              | COE Office                                                     | Within one week after receiving the communication from the Office of Dean Research. |
| 3     | Issue of notification related to completion of Ph.D. | Registrar Office in Coordination with Office of Dean Research. | After three days of receiving Provisional Degree Certificate.                       |

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|---|------------------------------------------------------------------------------------------|-------------------------|------------------------------------------------------------------------|
| 4 | Issue of certificate of Ph.D. completion in accordance with UGC 2009; & 2016 regulations | Office of Dean Research | After one week of issue of notification related to completion of Ph.D. |
|---|------------------------------------------------------------------------------------------|-------------------------|------------------------------------------------------------------------|

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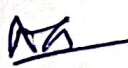
# FACULTY OF PHARMACEUTICAL SCIENCES, FUTURE UNIVERSITY

| Ph.D. Course Scheme                                           |  |
|---------------------------------------------------------------|--|
| Name of Course: Doctor of Philosophy (Ph.D.)                  |  |
| Name of School/Department: Faculty of Pharmaceutical Sciences |  |
| Course Structure: Three Years-Six Semesters (2025-28)         |  |
| Name of Instructor (s): Dr. Hemendra Gautam                   |  |

| Ph.D. Course Work (PHARMACEUTICAL SCIENCES) |             |                                                 |                                |   |   |   |                   |               |                |
|---------------------------------------------|-------------|-------------------------------------------------|--------------------------------|---|---|---|-------------------|---------------|----------------|
| COURSE                                      |             |                                                 | Credit Structure & Total Hours |   |   |   | Evaluation Scheme |               |                |
| S No                                        | Course Code | Course Title                                    | Course Type                    | L | T | P | C                 | Hrs. per Week | Total (Theory) |
| 1                                           | 25RMPHDUC01 | Research Methodology                            | UCC                            | 4 | 0 | 0 | 4                 | 4             | 100            |
| 2                                           | 25REPHDUC02 | Research Ethics and Publications                | UCC                            | 2 | 0 | 0 | 2                 | 2             | 100            |
| 3                                           | 25PHPHDEC01 | Essential Techniques in Pharmaceutical Sciences | DSE                            | 4 | 0 | 0 | 4                 | 4             | 100            |
| 4                                           | 25PHPHDDC01 | Literature Review Presentation                  | DSC                            | 4 | 0 | 0 | 4                 | 4             | 100            |
| Doctor of Philosophy (Ph.D.)                |             |                                                 | Total                          | - | - | - | 14                | 14            | 400            |

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## Scheme and Syllabus of Ph.D. Course 2025 onwards (Common subjects)

| Course code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Course Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Hours/week  |   |             | Credit | Max. Marks |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---|-------------|--------|------------|
| 25RMPHIDUC01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Research Methodology                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | L           | T | P           | C      | 100        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3           | 0 | 0           | 3      |            |
| Pre-requisite                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | NA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |             |   |             |        |            |
| Evaluation Scheme                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Theory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |   |             | Hours  | Marks      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | External (End Semester Exnm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |             |   |             | 3      | 50         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Internal (1) Midterm + Assignment/Seminar + Ability Based Evaluation – 35 Marks / (2) Attendance -5 Marks)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |             |   |             | 1      | 50         |
| Objective(s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <ul style="list-style-type: none"><li>To give an overview of the research methodology and explain the technique of defining a research problem</li><li>To explain the functions of the literature review in research.</li><li>To explain carrying out a literature search, its review, developing theoretical and conceptual frameworks and writing a review.</li><li>To explain various research designs and their characteristics.</li><li>To explain the details of sampling designs, and also different methods of data collections.</li><li>To explain the art of interpretation and the art of writing research reports.</li></ul> |             |   |             |        |            |
| UNIT-I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Introduction and Design of research                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |   |             |        | 9          |
| Meaning, objectives and significance of research, types and parameters of research, research process, identification and definition of the research problem, definition of construct and variables, pure and applied research design, exploratory and descriptive design methodology, qualitative vs. quantitative research methodology, field studies, field experiments vs. laboratory experiments, research design in social and physical sciences.                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |             |   |             |        |            |
| UNIT-II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Data and Methods of Data Collection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |   |             |        | 9          |
| Primary and Secondary sources of data, Collection of primary data, observation methods, interview methods, Collection of primary data through questionnaire and schedules. Collection of secondary data, Selection of appropriate method for data collection, processing and analysis of data. Sample survey, simple random sampling, stratified random sampling, systematic sampling, cluster sampling, area sampling and multistage sampling. Pilot survey, scaling techniques, validity & reliability. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |             |   |             |        |            |
| UNIT-III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Probability Distribution and Hypothesis Testing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |             |   |             |        | 9          |
| Sampling and probability distribution, definitions and basic concepts of hypothesis testing, procedures of hypothesis testing, flow diagram for hypothesis testing, test of hypothesis, important parametric test, hypothesis testing of mean, proportion, tests for equality of mean and variances of two population, confidence interval, z-test, and $X^2$ (Chi Square) test for goodness to fit, limitation of test of hypothesis. Non-parametric statistical techniques                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |             |   |             |        |            |
| UNIT-IV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Analysis of Variance and Covariance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |             |   |             |        | 9          |
| Basic principle of Analysis of Variance, ANOVA Technique, Setting up Analysis of Variance Table, short-cut method for one-way ANOVA, Coding method, Two-way ANOVA, ANOVA in Latin-square design, analysis of co-variance (ANCOVA), assumptions in ANCOVA.                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |             |   |             |        |            |
| Academic Ethics: Plagiarism, exposure on anti-plagiarism tools                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |             |   |             |        |            |
| UNIT-V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Technical Writing and IPR:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |             |   |             |        |            |
| Academic writing, sources of information, assessment of quality of journals and articles, writing scientific component of research report, types of report – technical reports and thesis, SCOPUS Index, citations, search engines, google, impact factor, H-Index.                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |             |   |             |        |            |
| IPR: What is IPR?, Importance of patents, types of IPR, process of patent.                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |             |   |             |        |            |
| Faculty of Pharmaceutical Science<br>Future University<br>Bareilly                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Total hours |   | 30 lectures |        |            |

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**Outcome(s)**

At the end of the course, the students will be able to:

CO1: Students who complete this course will be able to understand and comprehend the basics in research methodology and applying them in research/ project work.

CO2: This course will help them to select an appropriate research design.

CO3: The course will enable them to collect the data, edit it properly and analyse it accordingly

CO4: The Students will develop skills in qualitative and quantitative data analysis and presentation.

CO5: Students will be able to demonstrate the ability to choose methods appropriate to research objectives.

**TEXT BOOK:**

1. Business Research Methods, Cooper, R. Donald and Pamela S. Schindler, Tata McGraw-Hill, Delhi.
2. Research Methodology – Methods and Techniques, C K Kothari, New Age International.

**REFERENCES:**

1. Practical Research Methods, Dawson, Catherine, UBS Publishers' Distributors, New Delhi
2. Management Research Methodology: Integration of Principles, Methods and Techniques, K N Krishnaswamy, A I Sivakumar and M Mathiranjani, Pearson Education.
3. Statistical Methods, S.P. Gupta, Sultan Chand and Sons Publication, New Delhi

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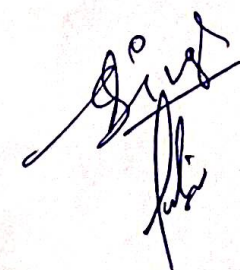
## 25REPHDUC02 RESEARCH ETHICS AND PUBLICATION (Common subjects)

| UNIT | CONTENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Hours |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| I    | <b>Philosophy and Ethics:</b> Introduction to Philosophy: definition, nature and scope, concept, branches. Ethics: Definition, moral philosophy, nature of moral judgments and reactions.                                                                                                                                                                                                                                                                                      | 12    |
| II   | <b>Scientific Conduct:</b> Ethics with respect to science and research, Intellectual honesty and research integrity, Scientific misconducts: Falsification, Fabrication and Plagiarism (FFP), Redundant publications: duplicate and overlapping publications, salami slicing, Selective reporting and misrepresentation of data                                                                                                                                                | 12    |
| III  | <b>Publication Ethics:</b> Publication ethics: definition, introduction and importance, Best practices/standards setting initiatives and guidelines: COPE, WAME etc., Conflicts of interest, Publication misconduct: Definition, concept, problems that lead to unethical behavior and vice versa, types, Violation of publication ethics, authorship and contributorship, Identification of publication misconduct, complaints and appeals, Predatory publishers and journals | 12    |
| IV   | <b>Open Access Publishing:</b> Open access publications and initiatives, SHERPA/RoMEO online resource to check publisher copyright & self-archiving policies, Software tool to identify predatory publications developed by SPPU: UGC-CARE list of journals, Journal finder/journal suggestion tools viz. JANE, Elsevier Journal Finder, Springer Journal Suggester, etc.                                                                                                      | 12    |
| V    | <b>Publication Misconduct: Group discussions:</b> Subject specific ethical issues, FFP, authorship, Conflicts of interest, Complaints and appeals: examples and fraud from India and abroad<br><b>Software tools:</b> Use of reference management software like Mendeley, Zotero etc. and anti-plagiarism software like Turnitin, Urkund                                                                                                                                       | 12    |
| VI   | <b>Databases and research metrics: Databases:</b> Indexing databases, Citation databases: Web of Science, Scopus etc.<br><b>Research Metrics:</b> Impact factor of journal as per Journal Citation Report, SNIP, SJR, IPP, Cite Score, Metrics: h-index, g-index, i-10 index, altmetrics                                                                                                                                                                                       | 12    |

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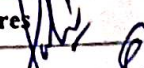
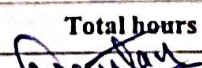




## Scheme and Syllabus of Ph.D. Course 2025 onwards (Common subjects)

| Course code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Course Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Hours/week |   |   | Credit      | Max. Marks |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---|---|-------------|------------|
| 25RMPHDUC01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Research Methodology                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | L          | T | P | C           | 100        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3          | 0 | 0 | 3           |            |
| Pre-requisite                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | NA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |            |   |   |             |            |
| Evaluation Scheme                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Theory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            |   |   | Hours       | Marks      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | External (End Semester Exam)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |            |   |   | 3           | 50         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Internal (1) Midterm + Assignment/Seminar +Ability Based Evaluation – 35 Marks / (2) Attendance -5 Marks)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |   |   | 1           | 50         |
| Objective(s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <ul style="list-style-type: none"><li>To give an overview of the research methodology and explain the technique of defining a research problem</li><li>To explain the functions of the literature review in research.</li><li>To explain carrying out a literature search, its review, developing theoretical and conceptual frameworks and writing a review.</li><li>To explain various research designs and their characteristics.</li><li>To explain the details of sampling designs, and also different methods of data collections.</li><li>To explain the art of interpretation and the art of writing research reports.</li></ul> |            |   |   |             |            |
| UNIT-I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Introduction and Design of research                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |            |   |   |             | 9          |
| Meaning, objectives and significance of research, types and parameters of research, research process, identification and definition of the research problem, definition of construct and variables, pure and applied research design, exploratory and descriptive design methodology, qualitative vs. quantitative research methodology, field studies, field experiments vs. laboratory experiments, research design in social and physical sciences.                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            |   |   |             |            |
| UNIT-II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Data and Methods of Data Collection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |            |   |   |             | 9          |
| Primary and Secondary sources of data, Collection of primary data, observation methods, interview methods, Collection of primary data through questionnaire and schedules. Collection of secondary data, Selection of appropriate method for data collection, processing and analysis of data. Sample survey, simple random sampling, stratified random sampling, systematic sampling, cluster sampling, area sampling and multistage sampling. Pilot survey, scaling techniques, validity & reliability. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            |   |   |             |            |
| UNIT-III                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Probability Distribution and Hypothesis Testing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            |   |   |             | 9          |
| Sampling and probability distribution, definitions and basic concepts of hypothesis testing, procedures of hypothesis testing, flow diagram for hypothesis testing, test of hypothesis, important parametric test, hypothesis testing of mean, proportion, tests for equality of mean and variances of two population, confidence interval, z-test, and X <sup>2</sup> (Chi Square) test for goodness to fit, limitation of test of hypothesis. Non-parametric statistical techniques                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            |   |   |             |            |
| UNIT-IV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Analysis of Variance and Covariance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |            |   |   |             | 9          |
| Basic principle of Analysis of Variance, ANOVA Technique, Setting up Analysis of Variance Table, short-cut method for oneway ANOVA, Coding method, Two-way ANOVA, ANOVA in Latin-square design, analysis of co-variance (ANCOVA), assumptions in ANCOVA.                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            |   |   |             |            |
| Academic Ethics: Plagiarism, exposure on anti-plagiarism tools                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            |   |   |             |            |
| UNIT-V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Technical Writing and IPR:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |   |   |             | 9          |
| Academic writing, sources of information, assessment of quality of journals and articles, writing scientific report, structure and component of research report, types of report – technical reports and thesis, SCOPUS Index, citations, search engines beyond google, impact factor, H-Index.<br>IPR: What is IPR?, importance of patents, types of IPR, process of patent.                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            |   |   |             |            |
| Total hours                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            |   |   | 30 lectures |            |

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Total hours: 30 lectures

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Future University  
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**Outcome(s)**

At the end of the course, the students will be able to:

CO1: Students who complete this course will be able to understand and comprehend the basics in research methodology and applying them in research/ project work.

CO2: This course will help them to select an appropriate research design.

CO3: The course will enable them to collect the data, edit it properly and analyse it accordingly

CO4: The Students will develop skills in qualitative and quantitative data analysis and presentation.

CO5: Students will be able to demonstrate the ability to choose methods appropriate to research objectives.

**TEXT BOOK:**

- |    |                                                                                                |
|----|------------------------------------------------------------------------------------------------|
| 1. | Business Research Methods, Cooper, R. Donald and Pamela S. Schindler, Tata McGraw-Hill, Delhi. |
| 2. | Research Methodology – Methods and Techniques, C K Kothari, New Age International.             |

**REFERENCES:**

- |    |                                                                                                                                                            |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | Practical Research Methods, Dawson, Catherine, UBS Publishers' Distributors, New Delhi                                                                     |
| 2. | Management Research Methodology: Integration of Principles, Methods and Techniques, K N Krishnaswamy, A I Sivakumar and M Mathiranjani, Pearson Education. |
| 3. | Statistical Methods, S.P. Gupta, Sultan Chand and Sons Publication, New Delhi                                                                              |

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## 25REPHDUC02 RESEARCH ETHICS AND PUBLICATION (Common subjects)

| UNIT | CONTENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Hours |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| I    | <b>Philosophy and Ethics:</b> Introduction to Philosophy: definition, nature and scope, concept, branches. <b>Ethics:</b> Definition, moral philosophy, nature of moral judgments and reactions.                                                                                                                                                                                                                                                                               | 12    |
| II   | <b>Scientific Conduct:</b> Ethics with respect to science and research, Intellectual honesty and research integrity, Scientific misconducts: Falsification, Fabrication and Plagiarism (FFP), Redundant publications: duplicate and overlapping publications, salami slicing, Selective reporting and misrepresentation of data                                                                                                                                                | 12    |
| III  | <b>Publication Ethics:</b> Publication ethics: definition, introduction and importance, Best practices/standards setting initiatives and guidelines: COPE, WAME etc., Conflicts of interest, Publication misconduct: Definition, concept, problems that lead to unethical behavior and vice versa, types, Violation of publication ethics, authorship and contributorship, Identification of publication misconduct, complaints and appeals, Predatory publishers and journals | 12    |
| IV   | <b>Open Access Publishing:</b> Open access publications and initiatives, SHERPA/RoMEO online resource to check publisher copyright & self-archiving policies, Software tool to identify predatory publications developed by SPPU: UGC-CARE list of journals, Journal finder/journal suggestion tools viz. JANE, Elsevier Journal Finder, Springer Journal Suggester, etc.                                                                                                      | 12    |
| V    | <b>Publication Misconduct: Group discussions:</b> Subject specific ethical issues, FFP, authorship, Conflicts of interest, Complaints and appeals: examples and fraud from India and abroad<br><b>Software tools:</b> Use of reference management software like Mendeley, Zotero etc. and anti-plagiarism software like Turnitin, Urkund                                                                                                                                       | 12    |
| VI   | <b>Databases and research metrics: Databases:</b> Indexing databases, Citation databases: Web of Science, Scopus etc.<br><b>Research Metrics:</b> Impact factor of journal as per Journal Citation Report, SNIP, SJR, IPP, Cite Score, Metrics: h-index, g-index, i-10 index, alt-metrics                                                                                                                                                                                      | 12    |

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## 25PHPHDDC01 LITERATURE SURVEY & REVIEW

**Description:** Candidate has to carry out an extensive literature review and prepare a Research Proposal (Hypothesis) about the work, which he will be doing, along with reporting the extent of work which is already done. Evaluation will be done on presentation/seminar basis.

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Bareilly

*Asst. Professor*  
*Adnan*

*for*

*Dr. Singh*  
*for*



## 25PHPHDEC01 ESSENTIAL TECHNIQUES IN PHARMACEUTICAL SCIENCES (Common subjects)

**Course Description:** The course contains important aspects and techniques essential in the research in pharmaceutical sciences. It contains description about the Investigational New Drug process, FDA guidelines, extraction, spectroscopic, chromatographic techniques which are commonly used in the research.

### Course Learning Outcomes

After completion of the course, student is able to:

CO1 Understand the discovery and development of the new drug

CO2 Understand the different types of the drug delivery system.

CO3 Understand the use of the different animal models in the area of drug development.

| UNIT | CONTENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Hours |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| I    | <b>Oral Controlled drug delivery systems:</b> Design and fabrication of diffusion controlled, dissolution controlled, osmotic, gastro-retentive delivery systems, biodegradable polymeric delivery systems. Controlled drug delivery polymers, roles of polymers in drug delivery, pharmacokinetic/ pharmacodynamic basis of oral controlled drug delivery.                                                                                                                                                                 | 12    |
| II   | <b>Extraction:</b> Different techniques adopted for the extraction of phytoconstituents like Maceration, percolation, sonication, soxhlet assisted extraction, ultrasound assisted extraction, super critical carbon dioxide extraction and Microwave assisted extraction.<br><b>Common In-vitro and animal models for selected categories of drugs:</b><br>Antihypertensive, anti-inflammatory, antidiabetic, antiulcer, anti-oxidants, antianxiety, antidepressants, immunomodulatory.                                    | 12    |
| III  | <b>Drug Design:</b> Approaches to drug design, method of variation, biochemical and physiological approaches. Lead compound - Search & Optimization: Search of lead compound from natural products and other sources, selection of test compounds. Methods of lead optimization – synthesis of analogs, variation of substituents, extension of structure, ring versus chain structures, bio-isosterism, ring contraction and expansion. Hansch analysis, Free-Wilson analysis, Craig plot, Topliss scheme, CoMFA analysis. | 12    |
| IV   | <b>Biological Drug Targets:</b> Receptors, types, binding and activation, theories of drug receptor interaction, drug receptor interactions, agonists vs antagonists, artificial enzymes.<br><b>Basic definition and types of toxicology:</b> (general, mechanistic, regulatory and descriptive) Regulatory guidelines for conducting toxicity studies OECD, ICH and EPA. OECD principles of Good laboratory practice (GLP). History, concept and its importance in drug development                                        | 12    |
| V    | <b>Spectroscopic techniques:</b> Introduction and application of Infrared, UV-visible, NMR and Mass spectroscopy.<br><b>Chromatographic techniques:</b> Introduction and application of TLC, HPTLC, HPLC, UPLC, Column chromatography, etc.                                                                                                                                                                                                                                                                                 | 12    |

### Suggested Readings/Recommended Books (Latest Editions)

1. W.C. Evans, Trease and Evans Pharmacognosy, 15th edition, W.B. Saunders & Co., London.
2. Egon Stahl, Thin Layer chromatography -A laboratory handbook, Springer-Verlag, Berlin.
3. Robert M Silverstein, Spectrometric Identification of Organic Compounds, John Wiley & Sons.
4. Douglas A Skoog, F. James Holler, Timothy A. Nieman, Principles of Instrumental Analysis, Eastern press, Bangalore.

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Asst. Professor  
Anshu

Prof

Academic Council  
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## **Annexure I**

### **Ph.D. RESEARCH PLAN**

#### **TOPIC**

(Times New Roman 16 Pt Bold)

**Research Plan Submitted (14pt Bold)**  
**To (14pt)**

**Future University (14pt Bold)**



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UNIVERSITY**  
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**For (14pt)**

**Ph.D. Degree (14pt Bold)**  
**in (14pt)**

**Name of the Subject (14pt Bold)**

**Name of the Faculty (14pt Bold)**

**Signature of Candidate**

(Times New Roman 12pt Bold)

**Name:**

**System ID:**

**Address:**

**Mob:**

**Signature of Supervisor**

(Times New Roman 12pt Bold) Name:

Address:

Email:

Mob :

**Signature of Co-Supervisor**

(Times New Roman 12pt Bold) Name:

Address:

Email:

Mob :

**Academic Council  
Future University  
Bareilly**

**Forwarded by:**

Head of Department (sign)

Dean of Faculty (Sign)

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Faculty of  
Pharmaceutical Science  
Future University  
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*[Handwritten signatures]*



## **Ph.D. RESEARCH PLAN**

**Title (Capital, 16pt bold)**

- 1. Introduction and origin of the research problem**  
(At least two pages with recent references- in text citation)

(All the headings 12 pt Bold but text not in bold)

- Reference citation guidelines within text is at as per in Annexure-III (sub Annexure-10)  
(must adhere to the guidelines)

- 2. Literature Review**

- 3. Research Gaps**

- 4. Objectives**

- Back ground of objectives selection based on the in-depth review of the literature/research publications (national and international).
- Point wise (roman numbering) listing of objective with clarity or proposed work, not making big sentences/paragraphs.

i)        Abc

ii)       Def

iii)      Ghi

iv)      jkl

- 5. Detailed Research Methodology**

- Types of data and source of data proposed to achieve the above mentioned objectives
- **Methodology/hypothesis must be described clearly** for the quality research and as a means to achieve the proposed objectives.

- 6. Expected outcomes**

- In terms of prototype, patent, guidelines/recommendations, academic addition, community benefits/societal upgradation, etc. (but not the paper publication)

---

### **References:**

**List of 10 Journals (Scopus/SCI indexed etc.) with publishers related to the proposed topic.**

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*[Signatures]*



## **Annexure-II**

**A**

**SYNOPSIS ON**

**TITLE OF THE WORK**

**Times New Roman (TNR)**

**- 16 font size - Bold**



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**SUBMITTED TO:**

**NAME OF THE FACULTY FUTURE UNIVERSITY**

**TNR – 12 font size -Bold**

**IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF DEGREE  
OF**

**DOCTOR OF PHILOSOPHY (PH.D.)**

**IN**

**DEPARTMENT**

**TNR-12 font size-Bold)**

**SUPERVISED BY:**

**SUPERVISOR NAME**

**CO-SUPERVISOR NAME**

**SUBMITTED BY:**

**STUDENT NAME**

**(ENROLLMENT NO.)**

**NAME OF THE DEPARTMENT**

**FUTURE UNIVERSITY,**

**Academic Council  
Future University  
Bareilly**

**Dean  
Faculty of  
Pharmaceutical Science  
Future University  
Bareilly**

**18th Milestone, Bareilly-Lucknow Highway NH-24 Near  
Faridpur, Bareilly, Uttar Pradesh 243503.**

*[Handwritten signatures and stamps]*



## **1. INTRODUCTION**

<sample text is given here. Use Times new Roman Font with 12 size>.

## **2. REVIEW OF LITERATURE**

<sample text is given here. Use Times new Roman Font with 12 size>.

## **3. OBJECTIVES**

<sample text is given here. Use Times new Roman Font with 12 size>.

## **4. RESEARCH METHODOLOGY**

<sample text is given here. Use Times new Roman Font with 12 size>.

## **5. RESULTS**

<sample text is given here. Use Times new Roman Font with 12 size>.

## **6. CONCLUSIONS**

<sample text is given here. Use Times new Roman Font with 12 size>.

## **7. IMPLICATIONS**

<sample text is given here. Use Times new Roman Font with 12 size>.

## **8. LIMITATIONS & FUTURE RESEARCH**

## **9. PUBLICATIONS**

## **10. REFERENCES (Annexure-III (sub Annexure-10))**

References will be in alphabetical order.

## **10. ANNEXURES**

**NOTE:** The page limit of the synopsis is allowed up to maximum 50-60, only.

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Asst. Prof. Dr. Anshu Kumar  
Anshu Kumar  
Dr. Anshu Kumar  
Dr. Anshu Kumar  
Dr. Anshu Kumar



## Annexure-III FUTURE UNIVERSITY

Bareilly, Uttar Pradesh

### GUIDELINES FOR PREPARATION AND SUBMISSION OF Ph.D. THESIS

1. On completion of the research work, the candidate shall submit 05 copies of the synopsis including bibliography of research work in the office of Dean Research through supervisor, Head of the Department and concerned Dean of Faculty for processing.
2. The candidate will submit 05 copies (3 copies - COE office, 1 copy - Library, 1 copy - Dean Research) of the thesis with a soft copy (CD form-PDF format) through supervisor, Head of the Department and concerned Dean of the Faculty for processing as per ordinance in the office of Dean Research.
3. The thesis of the Ph.D. scholar must be authenticated by the librarian with maximum permissible similarity limit of 10%.

#### Structure of the thesis

The contents of thesis should be arranged in a bound volume as annexures given in the following table.

| S.No. | Contents                                                                                                  | Annexure |
|-------|-----------------------------------------------------------------------------------------------------------|----------|
| 1     | First page - facing page                                                                                  | 1        |
| 2     | Inner cover page                                                                                          | 1        |
| 3     | Declaration by the candidate                                                                              | 2        |
| 4     | Certificate by the supervisors, Head of the Department and Dean of Faculty                                | 3        |
| 5     | Acknowledgments                                                                                           | 4        |
| 6     | Preface                                                                                                   | 5        |
| 7     | List of Tables                                                                                            | 6        |
| 8     | List of Figures                                                                                           | 7        |
| 9     | Symbols and abbreviations                                                                                 | 8        |
| 10    | Contents                                                                                                  | 9        |
| 11    | Chapters 1: General Introduction, Chapter 2...., Chapter 3..., Chapter N- Conclusions and Future strategy |          |
| 12    | Appendices (If any)                                                                                       |          |
| 13    | List of publications                                                                                      |          |
| 14    | References will be written at the end of the thesis                                                       | 10       |
| 15    | Formatting Specification                                                                                  | 11       |

#### NOTE:

1. Figures in the chapter should be numbered with the chapter number such as Fig. 4.2 means Fig.2 of chapter 4. In a similar way the caption for the table should be written on the top of the table.
2. Page numbering should start from chapter 1 e.g. Arabic numerals like 1, 2,3 etc. at the bottom Centred. The initial pages starting from declaration till the Symbols and abbreviations must be in roman numbers i.e. i, ii, iii,iv.....
3. Thesis Printing Specification

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- (a) Binding Colour: Rust Red
- (b) Text printing should be in gold colour in the front page of thesis.
- (c) Volume: About 150-200 pages, with printing on both sides in Single column.

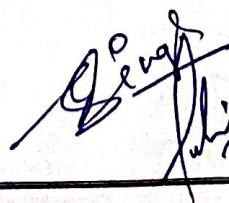
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**TOPIC (ALL CAPITAL LETTERS-14 pt)**

**A THESIS**

*Submitted by*

**Name of Candidate (All CAPITAL-14pt)**

**Under the supervision of**

**Guide's Name**

*In partial fulfilment for the award of the Degree of*

**DOCTOR OF PHILOSOPHY**



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Bareilly, Uttar Pradesh 173234

MONTH -Year

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*[Signature]*

*[Signature]*

*[Signature]*

*[Signature]*



## DECLARATION

I hereby declare that this thesis submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which has been accepted for the award of any other degree or diploma of the university or other institute of higher learning, except where due acknowledgment has been made in the text.

Place:      Signature of the candidate

Date      Name:

Reg. No Date of Registration

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## CERTIFICATE

This is to certify that the thesis entitled .....by  
Mr./Ms..... (Registration No... ) to FUTURE University, towards the  
fulfillment of requirements of the degree of Doctor of Philosophy is record of bonafide research work  
carried out by him/her in the Department of ....., Faculty of ....., FUTURE  
University. The results/findings contained in this thesis have not been submitted in part or full to any  
other University/Institute for award of any other Degree/Diploma.

Signature of Supervisor

Name:

Designation:

Signature of Co-Supervisor

Name:

Designation:

Signature of Head of Department  
Name:

Signature of Dean of Faculty  
Name:  
(Office seal)

Place:

Date:

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*[Signature]*

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*[Signature]*

*[Signature]*



## ACKNOWLEDGMENTS

First and foremost, I thank my supervisor(s) Prof./Dr.....for his guidance in my research work. ....

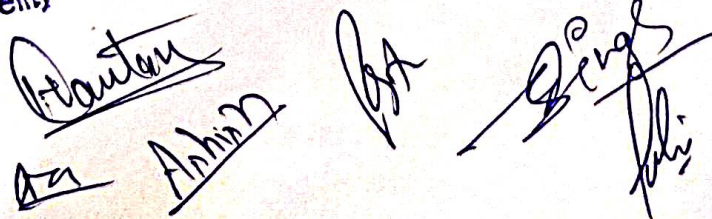
.....  
(Candidate may thank all those who have helped during the tenure of Ph.D. work and can express feelings and appreciations in a way as he/she likes preferably contained only in one page-one side.

This is just a model)

Signature of the Research Scholar with name

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## PREFACE

In the preface the research scholar is expected to write in brief the introduction, importance of the work, work carried out, results obtained and their interpretation and expected outcome in one and half pages.

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Annexure 6

**LIST OF TABLES**

|                         |                 |
|-------------------------|-----------------|
| <b>Title of Table-1</b> | <b>Page no-</b> |
| <b>Title of Table-2</b> | <b>Page no-</b> |
| <b>Title of Table-3</b> | <b>Page no-</b> |
| <b>Title of Table-4</b> | <b>Page no-</b> |

Annexure 7

**LIST OF FIGURES**

|                          |                 |
|--------------------------|-----------------|
| <b>Title of figure-1</b> | <b>Page no-</b> |
| <b>Title of figure-2</b> | <b>Page no-</b> |
| <b>Title of figure-3</b> | <b>Page no-</b> |
| <b>Title of figure-4</b> | <b>Page no-</b> |

Annexure 8

**SYMBOLS AND ABBREVIATIONS**

|                          |                  |
|--------------------------|------------------|
| <b>Used abbreviation</b> | <b>Full form</b> |
| <b>ACP</b>               |                  |
|                          |                  |
|                          |                  |

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*[Handwritten signatures]*

## REFERENCES

### Example:

References will be in alphabetical order.

### **Reference list entry (Single Author)**

Bay, 2017. "Predicting Responses to Contemporary Environmental Change Using Evolutionary Response Architectures." American Naturalist 189, no. 5 (May): 463-73. <https://doi.org/10.1086/691233>.

### **In-text citation**

(Bay, 2017)

### **Reference list entry (Two Authors)**

Bay and Rachael A., 2017. "Predicting Responses to Contemporary Environmental Change Using Evolutionary Response Architectures." American Naturalist 189, no. 5 (May): 463-73. <https://doi.org/10.1086/691233>.

### **In-text citation**

(Bay and Rachael, 2017)

### **Reference list entry (More than Two Authors)**

Bay, Rachael A., Noah Rose, Rowan Barrett, Louis Bernatchez, Cameron K. Ghalambor, Jesse R. Lasky, Rachel B. Brem, Stephen R. Palumbi, and Peter Ralph. 2017. "Predicting Responses to Contemporary Environmental Change Using Evolutionary Response Architectures." American Naturalist 189, no. 5 (May): 463-73. <https://doi.org/10.1086/691233>.

### **In-text citation**

(Bay et al. 2017)

| Details                                                                 | Font Type       | Font size                                                                     | Spacing                                           |
|-------------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------------|---------------------------------------------------|
| <i>Facing page (cover and first page) - see sample page for details</i> | Times New Roman | 14pt bold capitals                                                            | Centered<br>(Adjustable spacing)                  |
| Headings before                                                         |                 | Dean<br>Faculty of<br>Pharmaceutical Science<br>Future University<br>Bareilly | Academic Council<br>Future University<br>Bareilly |

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|                                                            |                 |                            |                                                                                                               |
|------------------------------------------------------------|-----------------|----------------------------|---------------------------------------------------------------------------------------------------------------|
| numbering                                                  | Times New Roman | 14pt bold capitals         | Centered                                                                                                      |
| Text                                                       |                 | 12pt                       | Aligned                                                                                                       |
| <i>Chapter headings<br/>with chapter number on<br/>top</i> | Times New Roman | 14pt bold capitals         | Centered                                                                                                      |
| <i>Section headings</i>                                    | Times New Roman | 12pt bold capitals         | Left adjusted                                                                                                 |
| <i>Subsection headings</i>                                 | Times New Roman | 12pt bold sentence<br>Case | Left adjusted                                                                                                 |
| <i>Paragraph headings</i>                                  | Times New Roman | 12pt bold sentence<br>Case | Left adjusted                                                                                                 |
| <i>Body of thesis</i>                                      | Times New Roman | 12pt                       | Adjusted on both<br>left and right and<br>with 1.5 spacing for<br>text and double<br>spacing for<br>Equations |
| <i>Margins</i>                                             | Left Margins    | 1.5 inch                   | To binding<br>accommodate area                                                                                |
|                                                            | Right Margins   | 1.25 inch                  |                                                                                                               |
|                                                            | Top             | 2.0 inch                   | On pages on which<br>chapter begins                                                                           |
|                                                            |                 | 1.0 inch                   | Other pages                                                                                                   |
|                                                            | Bottom          | 1.25 inch                  |                                                                                                               |

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**FUTURE UNIVERSITY**  
**BAREILLY, UTTAR PRADESH, INDIA**  
**PH.D. VIVA EXAMINERS'**  
**REPORT**

|                                       |                                                                                      |            |           |
|---------------------------------------|--------------------------------------------------------------------------------------|------------|-----------|
| <b>Title of the thesis:</b>           |                                                                                      |            |           |
| <b>Name of the candidate:</b>         |                                                                                      |            |           |
| <b>System ID:</b>                     |                                                                                      |            |           |
| <b>Subject / Field of Research:</b>   |                                                                                      |            |           |
| <b>Department / Faculty / Centre:</b> |                                                                                      |            |           |
| <b>Date and time of the viva:</b>     |                                                                                      |            |           |
| <b>Specific Recommendation</b>        | <b>based on:</b>                                                                     | <b>YES</b> | <b>NO</b> |
|                                       | Whether the candidate is acquainted with the current literature on the subject?      |            |           |
|                                       | Whether the thesis is a genuine work of the candidate?                               |            |           |
|                                       | Whether the candidate possesses the capacity for critical examination and judgement? |            |           |
|                                       | Whether the candidate answered the reviewer's questions satisfactorily?              |            |           |

Ph.D.viva voce examination held on dated \_\_\_\_\_ was attended by number of faculty and students. The candidate Mr./Ms. \_\_\_\_\_ presented his/her research work before the committee. Number of queries and questions related to thesis as well as associated areas were asked, which the candidate replied in an adequate manner. We recommend the award of Ph. D. degree of Future University in \_\_\_\_\_ stream to Mr./Ms.

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.....  
.....  
(Signature and name of the examiner)

(Signature and name of the supervisor)

(Signature of the concerned HOD)

Date:

Signature of the Dean Research.

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