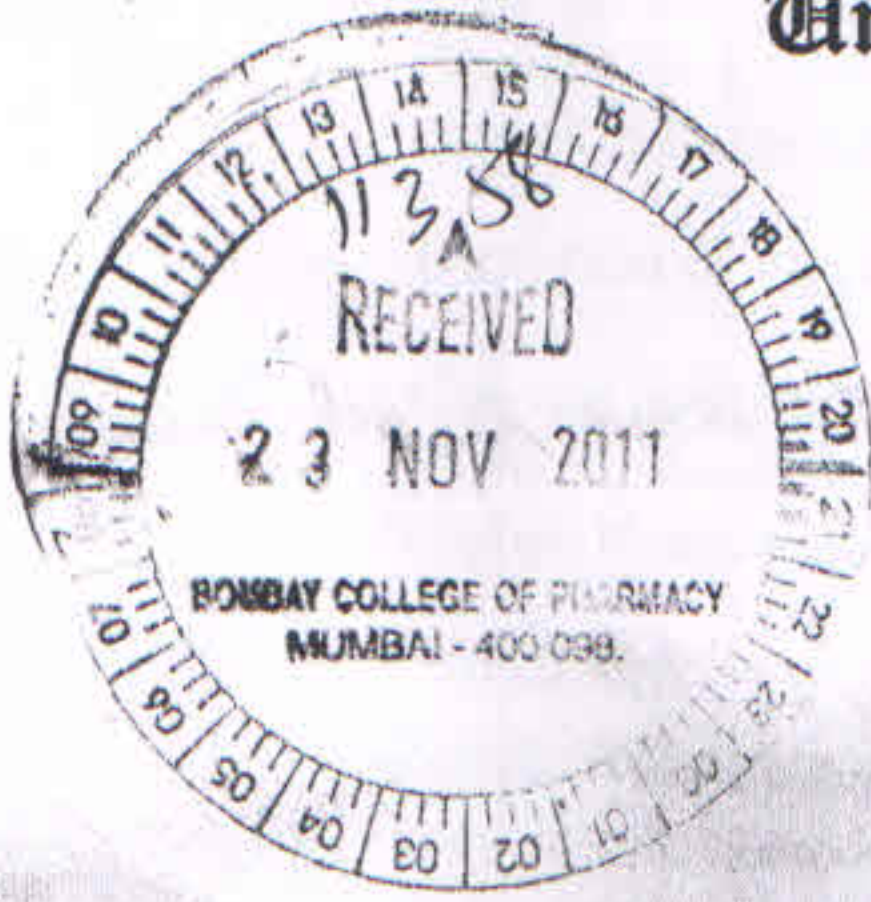


University of Mumbai



Temp. Ph.D. Controller
cc: Library - return cap
Teaching staff
O/c - Mr. P.

No. Th./68²² /of 2011.
Mumbai - 400 032.
19 November, 2011.

To,

The Principal,
Bombay College of Pharmacy,
Kalina, Santacruz (E),
Mumbai - 400 098.

Sir/Madam,

The Principals / Directors of the Affiliated Pharmacy Colleges are hereby informed that the Ad-hoc Board of Studies in Pharmacy at its meeting held on 4th May, 2011, has recommended the following guidelines to be adopted for the Ph.D. course work to be conducted by the Research Centres as per UGC guidelines No.Exam./Thesis/Univ./VCD/ 2414 of 2010, dated 18th November, 2010.

[Signature]
for **CONTROLLER OF EXAMINATIONS**

After detailed discussion the committee unanimously recommended to the Academic Council the following guidelines to be adopted for the pre-Ph.D. course work to be conducted by the research centres.

- I Duration of course work: 6 months
- II Course content: This will comprise of two modules:
Module I: Research Methodology Theory
Module II: research Methodology Practical Assignment/s

Module I:

The detailed syllabus for Module I is as follows:

Research Methodology Theory:

1. Objective and purpose of Research Types of Research (Educational, Clinical, Experimental, Basic, Applied, Patent Oriented Research)
2. Literature Survey – Use of Library, Books & Journals Medline-Internet, obtaining patents and reprints of articles.
3. Selecting a problem and preparing research proposal for different types of research mentioned above.
4. Methods and tools used in research
 - Qualitative and Quantitative studies
 - Simple data organization, Descriptive data analysis
 - Limitations and sources of errors
 - Inquiries in form of questionnaire, opinionnaire or by interview
 - Statistical analysis of data including variance, standard deviation, standard error mean, students' "t" test and annova, correlation of data and its interpretation, computer data analysis.
5. Documentation
 - Techniques and importance of documentation
 - Uses of computer packages in documentation
6. Scientific writing / reporting
 - Different types of research papers
 - Title and author names
 - Abstract, Key words
 - Methodology

7. Scientific Presentation
 - Importance, types, different skills
 - Content, format of model, introduction and ending
 - Skills for oral presentation and types of visual aids
 - Questionnaire
8. Protection of Patents and trade marks, Designs and copyrights
 - The patent system in India
 - Present status of Intellectual Property Rights (IPR)
 - Product Patent, Process Patent
 - Requirements and Preparation of patent proposal
 - Registration of patents in foreign countries
9. Cost Analysis of the project
 - Cost incurred on raw materials
 - Cost incurred on procedure
 - Cost incurred on instrumentation
 - Cost incurred on preclinical and or clinical studies
 - Commercialisation of patents
10. Sources for procurement of Research Grants
11. Industry-Institute Interaction. Industry Projects-Feasibility studies

Books Recommended:

1. Research in Education : John W. Best and James V Khan
Publishers -Prentice Hall of India Pvt. Ltd.
New Delhi, 1999
2. Effective Business Report Writing - Brown, Leland
First ed. Publisher-Prentice Hall, Inc. India, 1981
3. Presentation Skills- Michael Hatton
Publisher - Indian Society for Technical Education.
New Delhi, 1996
4. Thesis and Assignment writing- Anderson Jonathan and Durston Berry H.
Publisher-Wiley Eastern Ltd., Bangalore, 1970
5. Writing a Technical Paper- Donald H. Menzel,
Publishers-McGraw - Hill Book Comp. Inc.,
New York, 1961

Module II : Research Methodology Practical Assignment/s

The Practical module will be under the direct supervision and guidance of the research guide assigned by the respective research centre and will be relevant in the research area of Ph.D project. This will comprise of assignments, presentation and a viva-voce examination to be conducted by the research centre.

III) Evaluation

A written test/presentation and viva-voce examination will be conducted based on the course content as prescribed in II at the end of 15 weeks for 50 marks for each of the modules and duly evaluated by appointment of examiner/s who are approved Ph.D. guides either from the research centre/department/sister department/institutes within or outside the University.

IV) Qualifying Criteria

Minimum 50% marks in each of theory and practical module.

A certificate of completion of the course work duly signed by the research guide and the head of the research centre shall be given to each candidate. A copy of this will be sent to the University and the records of the same will be maintained by the respective research centre at least six (6) months after the award of Ph.D. degree to the concerned candidate).