Work Plan and Methodology :

For the present research descriptive and experimental method will be used. The problems faced by the science pupil-teachers will be searched by survey method of descriptive method.

Remedial method through the experimental method will be used and as per lesson plan of the content of textbook pretest will be conducted. After that guidance will be given using prepared Teaching Handbook and then post-test will be conducted.

In the present research the problems faced by science pupil-teacher when they teach as per teaching-learning method will be studied and hence a descriptive survey method will be used. In the same way to suggest solutions experimental method will be used.

Questionnaires for science pupil-teacher and questionnaires for science lecturers will be prepared as an important tool for survey. Both the questionnaires will be verified by the language experts. In the same way confidence level measurement scale will be used to measure the confidence of science pupil-teacher. This scale also will be checked and approved by language and subject experts. To measure educational achievement score secured by science pupil-teacher will be collected after half number of all types of lessons and will be compared those score with the score of remaining half number of all types of lessons.

Pre-test, Teaching Handbook and post-test will be prepared as important tools in experimental method and all these will be checked by subject experts.

A list of all educational colleges affiliated to Mumbai University will be obtained. After that 10 educational colleges in Mumbai-Thane region will be randomly selected. Then with the prior permission of the Principals on an average 10 students of each college i.e. total 100 students will be given questionnaires to fill.

The researcher will select 40 science pupil-teachers from 5 education colleges. As taking 20 practice lessons is compulsory for them the researcher will take their pre-test when they will finish their 10 lessons. All these 40 pupil-teachers will be given a Teaching Handbook. They will also receive guidance about using Teaching Handbook. Then a post test will be taken when they finish their remaining 10 lessons.

Actual Method :

After selecting samples and all the necessary preparations the research
will be carried out. Firstly the copies of questionnaires will be distributed to pupil-teachers and professors for their reviews. These questionnaires will be collected in a common time frame. After collecting questionnaires the researcher will start analysis. Tables will be made as the response received in questionnaires. Then tabular analysis of calculation and explanation will be made. Tables will be made as per questions and calculations will be drawn as well as suggestions will be given based on analysis of responses.

**Survey Method:**

To know the opinions of science lecturers as well as science pupil-teachers and to make a comparative study of these opinions a survey method will be used in this research to find out difficulties faced by the B. Ed. Science pupil-teachers while teaching.

The following information will be collected through the survey method.

1) Present condition  
2) Desired condition  
3) Required condition

In the present research conclusions will be drawn on the basis of study of the opinion of lecturers and the selected science pupil-teachers.

**Sampling Method:**

![Diagram of Student’s Sample]

*Fig – Student’s Sample*
The following topic is selected for research ‘A Study of Difficulties Faced by Science Pupil-Teachers Studying in Educational Colleges while Teaching As Per Teaching –Learning Process and Their Solutions’

A list of all educational colleges affiliated to Mumbai University will be obtained. After that for the research 10 educational colleges in Mumbai-Thane region will be selected randomly and from those selected colleges on an average 10 students from each college i.e. total 100 students and 20 science lecturers will be selected using random method.

Fig. – Lecturer’s Sample

Scope and limitations:

Scope of the Study:

The research will be related to science pupil-teachers and lecturers of educational colleges and it has a wide scope. The conclusions will be drawn considering the research will be applicable to the entire pupil-teacher in Maharashtra.

Limitations of the Study:

As the present research will be carried out within a limited time-span and due to no economic support and insufficient human force the researcher proposes that the research to have following limitations.

1) Geographical Limitations: The research will be limited to 10 educational colleges in the Maharashtra state.

2) Sampling Limitations: For this research on an average 10 science pupil-
teachers from 10 education colleges i.e. total 100 student-teachers and 20 lectures will be selected for sampling.

3) Syllabus : The present research will comprise the 5 stages which are included in the teaching process of B. Ed. training. These 5 stages are syllabus, planning, instructions, activities and evaluation. The research will be limited as per these stages only for the teaching.

4) Content Limitation : The research will be limited to science graduate pupil-teachers of educational colleges.

5) Method Limitation : The three methods of research i.e. Descriptive research method, Survey method and Experimental Research method will be used.

6) Time Limitation : The research period will be only of 2 years.

Name of the Tools :

1) Science Pupil-Teacher’s Questionnaire – Self made
2) Science Lecturer’s Questionnaire – Self made
3) Questionnaire for Confidence Measurement Scale – Self made
4) Scores of Micro lessons, Simulated lessons and Practice lessons – will be collected from educational colleges
5) Questionnaires of Pre-test and Post-test in Experimental method – Self made
6) Ideal Teaching Handbook – Self made

Statistics Techniques : Following statistics will be used for the analysis of data.

Descriptive Statistical Analysis for Central Tendency -

i) Mean 
ii) Median

iii) Mode 
iv) Standard Deviation

v) Quartile 
vi) Percentile

vii) Kurtosis 
viii) Skewness

Inferential Statistical Analysis –

(i) t-Test 
ii) F-Test (ANOVA) 
(iii) \( \chi^2 \)-Test

Tabulation and analysis of data

1. Tabulation of data
2. Analysis and Interpretation

Findings, Conclusion, suggestion.