

**Vidya Prasarak Mandal's**  
**B. N. Bandodkar College of**  
**Science, Thane**

**Syllabus for**

**Program: Diploma**  
**Course: Research Scholar Programme**

**With effect from academic year**

**2014 - 2015**

**Approved by**

**College Development Committee (CDC) in July 2018**

## **PREAMBLE**

Science Square Committee and Research Committee started Research Scholar Programme in Academic year 2014-2015 with the prime objective of inculcating research aptitude among undergraduates. This course is also intended to have all round development of student's personality. Research Scholar Programme is of 24 months duration for which S.Y. B.Sc. students are enrolled after an entrance test. The entrance test involves multiple choice questions which are based on syllabi of 12<sup>th</sup> Science and F.Y.B.Sc. The course content consists of theory involving 5 units (2 credits i.e. 60 hrs) and practical including mini research project (2 credits i.e.100 hrs). The course not only includes various modules of research methodology but also topics based on presentation skills, writing proficiency, computational tools and environmental- societal aspects. The final evaluation of students is done using different criteria such as assignments and report of each module, report of mini research project and its oral presentation.

### **Course Outcomes:**

- Course will produce well groomed students with improved logical and exploratory skills, enhanced literary proficiency, oratory ability and presentation techniques.
- It will enrich knowledge of students beyond regular syllabi.
- Student may become vigilant about surrounding environment and prove to be ethical researcher and responsible citizen.
- Course can act as an opportunity to explore ones research potential which may help in building career as scientist or corporate employees.

### **Teaching-Learning Objectives:**

- To instill ability of scientific investigation
- To extract rational and analytical thinking through modules based on research methodology
- To explore literature from research point of view using various web based resources
- To enrich information of appropriate methodology required to conduct research project
- To enhance reading and writing abilities by reviewing books, research papers, thesis, etc
- To introduce concept of IPR and patenting
- To teach basic computational tools (MS word, excel and power point presentation)
- To utilize statistical knowledge in research
- To upgrade talent of presenting research in public using poster and oral presentation
- To improve personal presentation skills involving body language and oratory ability
- To give exposure to good health practices (yoga, managing/healing negative emotions)
- To groom in order to face professional interviews and group discussion
- To train to execute event management
- To sensitize towards various environmental and social issues

# Syllabus of Diploma Course

## Research Scholar Programme

- **Eligibility:** Completed F.Y.B.Sc. in any Science Subjects
- **Duration:** 24 Months
- **Admission Criterion:** Entrance Test (100 Marks)  
(Test is based on 12<sup>th</sup> Science and F.Y.B.Sc. Topics in form of MCQs)
- **Course Fee:** Rs. 2500/- per student

### Course Content

UNIT	TOPICS	Duration in hours
<b>THEORY</b>		
<b>I</b>	<b>Research Methodology Part I</b>	<b>10</b>
<b>II</b>	<b>Research Methodology Part II</b>	<b>13</b>
<b>III</b>	<b>Skill Development Part I</b>	<b>17</b>
<b>IV</b>	<b>Skill Development Part II</b>	<b>08</b>
<b>V</b>	<b>Environmental and Societal Aspects</b>	<b>12</b>
	<b>Total Hrs</b>	<b>60 (2 Credits)</b>
<b>PRACTICAL</b>		
<b>Mini Research Project</b>		<b>100 (2 Credits)</b>
<b>THEORY + PRACTICAL = 4 CREDITS</b>		

**Syllabus of**  
**Diploma Course: Research Scholar Programme**

**Theory**

<b>UNIT</b>	<b>SUB-TOPICS</b>	<b>Duration (Total 60 Hrs) 2 Credits</b>
<b>I</b>	<b><u>Research Methodology Part I</u></b> a) Research orientation b) How to select topic c) Preparation of research proposal d) Preparation of research paper e) IPR and Patent f) Instrumentation	<b>10</b>
<b>II</b>	<b><u>Research Methodology Part II</u></b> a) Use of library b) Reference work c) Review of research paper d) Poster presentation e) Presentation – oral ppt f) Book review g) Use of stats in research	<b>13</b>
<b>III</b>	<b><u>Skill Development Part I</u></b> a) Management of stress and anger b) Soft skills c) Yoga d) Event management e) Heal your life f) Personality development	<b>17</b>
<b>IV</b>	<b><u>Skill Development Part II</u></b> a) Editing news letter b) How to write an application c) Preparation of resume d) Group discussion e) Computer skills	<b>08</b>
<b>V</b>	<b><u>Environmental and Societal Aspects</u></b> a) Interaction with nature b) Ecotourism c) Social responsibility d) Industry visit	<b>12</b>

## **Practical**

<b>Mini Research Project</b>	
<ul style="list-style-type: none"><li>✓ Individual/Group (2-4 students) Research project</li><li>✓ Table work of minimum 3-4 months</li><li>✓ Project writing (Introduction, Objectives, materials &amp; Methods, Results &amp; Discussion)</li><li>✓ Power Point Presentation of Research-Project</li><li>✓ Assessment by Referee</li></ul>	<b>Duration Total 100 Hrs 2 Credits</b>

### **Evaluation Scheme**

#### **Theory Examination = 50 Marks**

- Attendance (75% and more) = 20 Marks
  - Assignments based on each topic = 20 Marks
- (Total number of assignments: 25 each carrying 10 marks & reduced to 20%)
- Module Report = 10 Marks

#### **Practical Examination = 50 Marks**

- Project Work-done & Report = 30 Marks
- Oral Presentation & Viva-voce = 20 Marks

➤ <b>Total of Theory Examination</b>	<b>50 Marks</b>
➤ <b>Total of Practical Examination</b>	<b>50 Marks</b>
➤ <b>Grand Total</b>	<b>100 Marks</b>

### **Duration**

	Theory	Practical
Duration in terms of Hours	60	100
Working Per day	2 Hours	2 Hours
No. of Working Days	30	50
No. of weeks	05	09
Course will be conducted throughout the year as per availability of Resource Person and Students		