METHODOLOGY:

APHA (American public health Association) was used for water quality analysis. The method used for studying physical properties like colour by visual observation and odour by smelling, temperature by thermometer (at the time of sample collection) also following analytical methods for quality parameters of drinking waters will be used.

<table>
<thead>
<tr>
<th>PARAMETERS</th>
<th>METHOD USED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) pH-</td>
<td>Digital pH meter</td>
</tr>
<tr>
<td>2) Electrical conductivity (EC)-</td>
<td>Digital conductivity meter (systronics)</td>
</tr>
<tr>
<td>3) Alkalinity –</td>
<td>Titrometric method used HCl.</td>
</tr>
<tr>
<td>4) Chloride -</td>
<td>Titrometric method using standard AgNO₃ solution</td>
</tr>
<tr>
<td>5) Total Hardness –</td>
<td>EDTA complexo metric method</td>
</tr>
<tr>
<td>6) Total dissolved solids –</td>
<td>Gravemetric method.</td>
</tr>
<tr>
<td>7) Dissolved oxygen –</td>
<td>Titrometric method.</td>
</tr>
<tr>
<td>8) Calcium</td>
<td>EDTA complexo metric method</td>
</tr>
<tr>
<td>9) Magnesium</td>
<td>EDTA complexo metric method</td>
</tr>
<tr>
<td>10) C.O.D.</td>
<td>Titrometric method.</td>
</tr>
<tr>
<td>11) B.O.D.</td>
<td>Titrometric method.</td>
</tr>
</tbody>
</table>

All analytical grade chemicals were used to prepared reagent and calibration standards.

Measured parameters will be compared with the guidelines suggested by BIS (Bureau of Indian standards) for drinking water (IS-10500,Bureau of Indian standard, New Delhi ,2003.)
From the following twenty stations, samples will be collected on regular basis and analyse in laboratory.

Drinking water sampling stations in varangaon region.

I) Area :- Siddheshwar Nagar – Lake water.
   S1 – Art, Science and Commerce college.
   S2 – Z.P. Primary school.
   S3 – Shivaji chowk.
   S4 – Water tank.
   S5 – Samaj temple.

II) Area – Rampeth, Tube- well Water.
   S6 – Weekly market.
   S7 – Mutton shop.
   S8 – Ajay nagar.
   S9 – Renuka nagar.
   S10 – Swami Samarth temple.

III) Area – Shriram nagar, River water.
   S11- Primary health centre.
   S12- Railway station varangaon.
   S13- Bus stop.
   S14- M.G.Vidyalaya.
   S15- Ganpati temple.

IV) Area – Rural Village, open well water.
   S16 – Near Nageshwar temple.
   S17- Susari.
   S18- Z.P. Primary school susari.
   S19- Achegaon.
   S20 – Renuka mata temple.
WORK PLAN:

Preparing time schedule and strictly adhering to, it would complete the study efficiently and satisfaction.

1) **July 2012 – Dec. 2012** :- (1) Regarding the present title the literature survey wrt. the physico – chemical parameter of river, lake and ground water is carried out. (2) Calibration of apparatus and setting of system required for water analysis. (3) collection of samples in rainy season as per standard methods.

2) **Jan 2013 – Jun 2013** :- Actual samples analysis as per standard method and correlation with the available literature data. (2) Collection of water sample in cold season as per previous method and it’s actual analysis.

3) **July 2013 – Dec 2013** :- (1) collection of water sample in summer season as per previous method and it’s actual analysis, (2) writing and publishing two data collection papers, comparing result, taking guidance from experts.

4) **Jan 2014 – July 2014** :- (1) After publish the research paper in national and international journals, thesis writing as per the university rule. After completion of writing the thesis will be submitted to the university.

The necessary instrument and technical co-operation will obtained from following institution

1) School of chemical and life sciences, North Maharashtra University Jalgaon
2) J.D.M.V.P. Nutan Maratha College Jalgaon
3) Smt.G.G. Khadase Science College Muktainagar
4) Art, Science and Commerce College Varangaon
5) Center of Environmental Science and engineering IIT, Mumbai