

PADMASHRI DR. VITHALRAO VIKHE PATIL COLLEGE OF ENGINEERING
DEPARTMENT OF CIVIL ENGINEERING



DESIGN OF WATER PURIFIER

SUBMITTED

BY

B. E. CIVIL STUDENTS

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INTRODUCTION

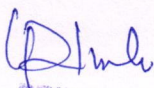
Water is a very important component of our lives and of the earth. 70% of our body is composed of water. 71% of the earth is water. We have different bodies of water, from oceans, seas, lakes, rivers and many more. Researchers even say that if the global warming continues, the glaciers in Arctic are will melt; water will envelop all the land areas. The earth will be surrounded of water. Thus, everyone and everything will be demolished. Let's not forget catastrophes caused by water. When heavy rain is combined with other elemental disaster, then it becomes a super typhoon, tidal wave, and tsunami. As tragic as they may sound but these are all natural disasters. Why do we use water in our everyday lives? On some Maslow's Hierarchy of needs interpretation, water may not be literally put under the physiological stage but water is under that first stage. Let's go to the basics – we use water for drinking, for preparing food, cooking, bathing and washing of our clothes and things. Water has been and will always be an important component of our lives. As of 2014 the World Health Organization (WHO) has reported 842, 000 deaths per year from waterborne diseases. It's just sad that these deaths can be prevented by having portable, clean, safe water. Especially in remote areas, where sanitation is a big concern, water is unsafe for drinking and unhygienic. This affects not just the middle aged residents but also the children, actually, everyone in the community.

The main objective here is to produce safe and clean drinking water for our college campus. Water has lots of chemical particles, ions, algae, bacteria causing parasites, nutrients, some say it includes minerals and a lot more. So depending on the purpose of water consumption, different methods for water purification were established. Though in market different filter media were available, but not economical one and needs to change filter media frequently. We design filter media which combine seven different filter media which can enhanced the quality of water.

- **ORIGIN OF THE RESEARCH PROBLEM**

The main source of water supply to our college campus is from Ahmednagar Municipal Corporation. It contains more dissolved solids. Due to the more percentages of TDS taste of water is changed. In summer season there is deficiency of portable water. Also water purifier available in our campus is insufficient and not maintained regularly. Due to such water there may be problem of water contamination. Local water supplies are treated to reduce the presence of contaminants, such as bacteria, lead, mercury and pollutants. However, these contaminants can sometimes enter water through accidents or through the improper disposal




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of certain materials. In order to make sure you're well-protected from these, water purification in Charlotte is a must. The purification process helps remove contaminants that might have entered your drinking water. Here are some of the **top reasons as to why need water purification.**

Chlorine in drinking water can cause a wide range of serious health issues. These include the following:

- Higher risk of cancer
- Cardiovascular problems
- Asthma
- Birth defects

OBJECTIVES

- To purifier the water
- To minimize the total dissolved solids (TDS)
- Disinfection of e-coil bacteria

• **METHODOLOGY:** - Different filter media are combining together as a single unit to purify the water. Significance of each filter media are mentioned below.

Justification for the proposed equipment

Filter Media used

1. Sand filter:- To remove the bacteria and solids
2. Pre-carbon filter:- to remove the contaminants presents in impurities
3. Reverse Osmosis (R.O.) filter:- To remove the microorganism
4. Post-carbon filter:- To remove excess chlorine
5. Ultra violet (U. V) filter:- To kill e-coil bacteria / in active e-coil bacteria
6. Alkaline filter:- to maintain pH

BENEFITS TO INSTITUTE

Water purifier is economical and as it contains multi filter media quality of water is best as compare to other filter media available in market. **Filter media will be installed in our college campus at different places as per the requirement and needs.**

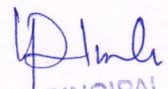
FINANCIAL ASSISTANCE REQUIRED

To purchase above filter media and to install a filter media unit, total expenditure required has been summarized below.

BUDGET ESTIMATES: SUMMARY

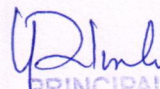
Sr. No.	Items	Budget
1	Sand filter	450
2	Pre-carbon filter	550
3	R.O. filter	1350




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4	Post carbon filter	850
5	U. V. filter	1250
6	Alkaline filter	1400
	Total	5,850/-




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