

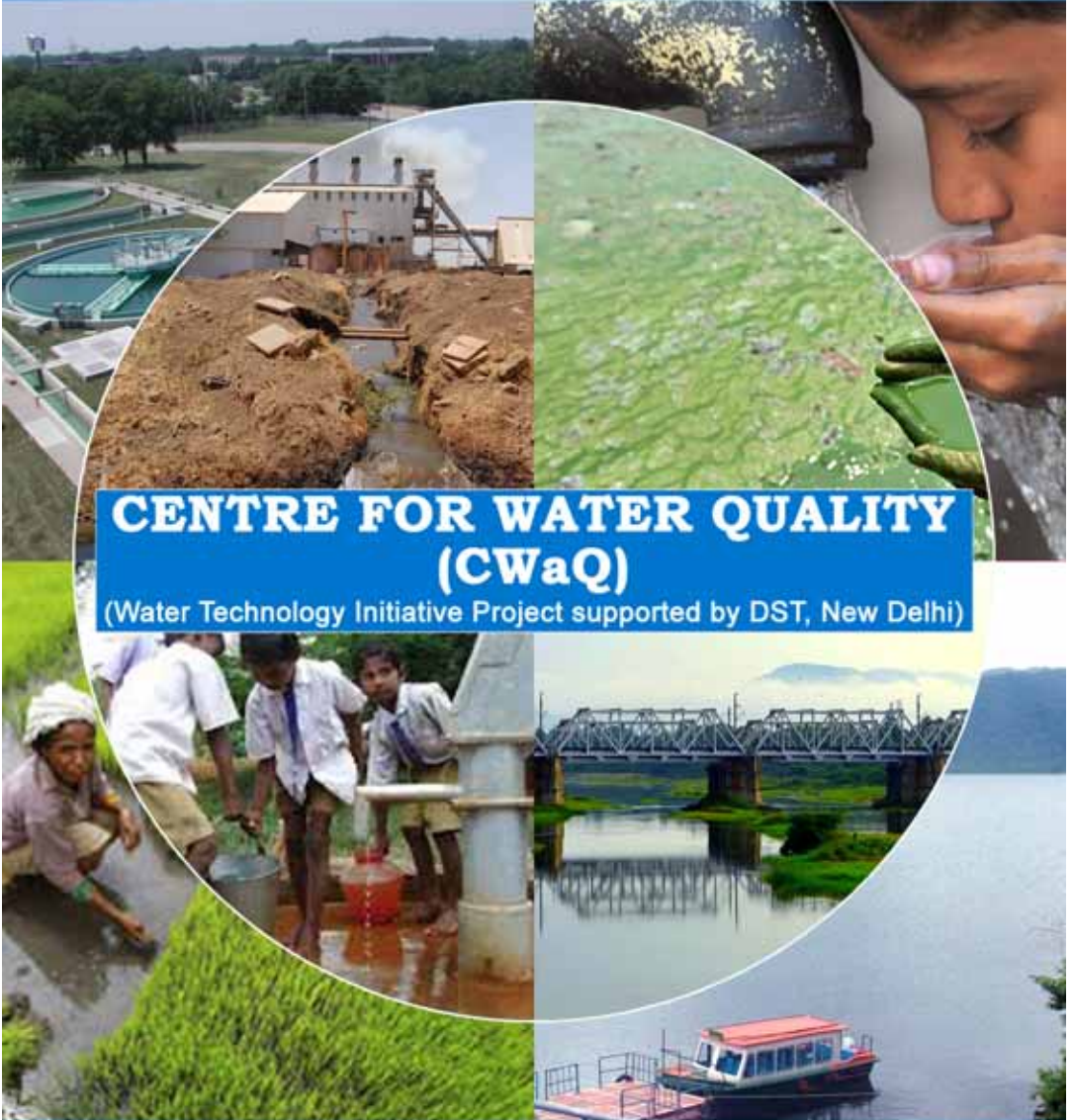


GITAM
UNIVERSITY

(Estd. u/s 3 of the UGC Act, 1956)

VISAKHAPATNAM ♦ HYDERABAD ♦ BENGALURU

Accredited by NAAC with 'A' Grade



**CENTRE FOR WATER QUALITY
(CWaQ)**

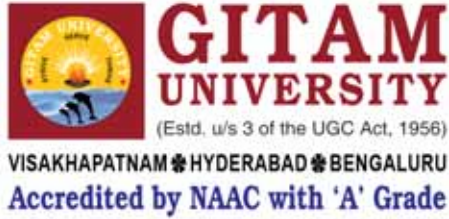
(Water Technology Initiative Project supported by DST, New Delhi)

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Contents

About the University	02
About The Centre	03
Objectives	04
Consultancy services	06
Facilities at the Centre	06
Our Team	08
Field work and surveys for water sample collection	09
Research at the Center - Projects undertaken	10
Civic Engagements - Water quality awareness and sensitization	11
Sample information and submission form	12
Information for Stakeholders	13





**Vision
of
the Centre**

To become an accredited
comprehensive
water quality analysis
and
data management facility

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About the University

Gandhi Institute of Technology and Management, popularly known as GITAM University, is a premier educational Institute in India having a track record of over 35 years in teaching and research of global standards. The University is located in three picturesque campuses at Visakhapatnam, Hyderabad and Bengaluru. With a multi-disciplinary approach, the University is offering 123 programmes at under-graduate, post graduate and doctoral levels in diverse disciplines such as Technology, Architecture, Pharmacy, Science, Management, International Business, Humanities, Medicine and Law.

Recognizing the holistic education the University is imparting, the Ministry of HRD, Govt. of India has ranked GITAM as “A” Category University among the universities of its kind. The University is accredited by NAAC with “A” grade. UGC has recognized GITAM as a Research University, by sanctioning 12-B status, making it eligible to receive grants from Govt. funding agencies. GITAM Institute of Technology, one of the constituent units of the University, was sanctioned TEQIP-II program by MHRD, Govt. of India.



About The Centre

“Poor quality of water kills 10 times more people than all the wars combined.” The importance of water as “elixir of life” is well documented in vedic scriptures. Water and sustainable development are intrinsically linked. Once viewed as an infinite and abundant resource, water today translates quality of life in terms of human, social, and economic development. Population growth is expected to result in a decline in the per capita availability of fresh water. It has been recently estimated that by 2017 per capita availability of water will decline. Major rural population in India is solely dependent on ground water and the urban population depends on surface water sources, the quality of which is questionable. The quality of water is equally important as the quantity. As Rigveda puts it --The water which is pure, full of light and divine characteristics help me in this world and be received by me. The quality of this elixir of life is declining owing to indiscriminate anthropogenic activities rendering the quantity worthless for consumption.

It is then imperative to continuously monitor the quality of drinking water to safeguard the health of the human beings and in turn the quality of life.

Realizing this social need the University established a Center for Water Quality (CWaQ) in the year 2015, a unique facility for providing comprehensive water quality analysis to stake holders so as to enable them to supply quality water to the public. The center also facilitates an all - embracing portfolio of analyses for waste water and other environmental water samples.



Objectives

- Drinking water quality analysis
 - ✓ Identification of mineral ions
 - ✓ Identification of Nutrient Ions
 - ✓ Identification of heavy metals and metalloids
 - ✓ Pesticides
 - ✓ Phenol
 - ✓ Total organic carbon load
 - ✓ Surfactants (LAS)
 - ✓ Oil and grease
 - ✓ Mercury
 - ✓ Microbial contaminants
- Drinking water quality monitoring
 - ✓ Water quality monitoring as per IS10500:2012 and surveillance
- Waste water analysis: Industry specific analysis as per CPCB guidelines
 - ✓ Pulp and Paper industry
 - ✓ Sugar Industry
 - ✓ Fertilizer Industry
 - ✓ Dairy Industry
 - ✓ Aquaculture
 - ✓ Food processing
- Irrigation water analysis
 - ✓ pH
 - ✓ Conductivity
 - ✓ Sodium & Potassium
 - ✓ Nutrient ions
 - ✓ Salinity
- Recreational water analysis
 - ✓ pH
 - ✓ Disinfectant residuals
 - ✓ Microbial quality

- Process Water
 - ✓ Fisheries
 - ✓ Food processing and beverages
 - ✓ Healthcare
 - ✓ Hospitality industry
 - ✓ Source water for Packaging
 - ✓ Building Construction
 - ✓ Battery storage
- Capacity Building
 - ✓ Workshops on water quality testing and techniques for stake holders
 - ✓ Executive development programs on advancements in clean water technologies
 - ✓ Training the unemployed youth on water quality kits to become self employed
 - ✓ Certificate and diploma programs on advanced analytical instrumentation
 - ✓ Inter departmental elective course on analytical instrumentation for water quality
- Civic Engagements
 - ✓ Awareness programmes on health benefits of safe drinking water
 - ✓ Organising Rallies on the use of safe drinking water in the rural areas
 - ✓ Sensitizing programs on sanitation and water quality in educational institutes
- Research
 - ✓ Continuing research on water quality modelling
 - ✓ Continuing research on bio-remediation
 - ✓ Development of water quality sensors and kits

Consultancy services

- ✓ Analysis of water quality
- ✓ Solution for water quality issues
- ✓ Recycling and reuse of waste water
- ✓ Preparation of detailed project reports on water treatment plants

Facilities at the Centre

The Centre for water quality is well equipped with the state of art instruments indispensable for comprehensive water quality analysis and monitoring as per IS10500:2012. The quality policy of the facility is reflected in calibrated equipments, strict adherence to protocols for sample preservation and systematic documentation apart from the analytical grade chemicals, solvents and reagents required to ensure analytical quality

Gas Chromatograph – Mass spectrometer is a sensitive tool for monitoring broad range of toxic substances like polycyclic aromatic hydrocarbons(PAH), pesticides, phenols and chloro-phenols etc in water.



Gas Chromatograph – Mass Spectrometer

Chemical Oxygen demand analyzer measures the capacity of water contaminated by domestic or industrial wastes to consume oxygen during the decomposition of organic matter and the oxidation of inorganic chemicals such as ammonia and nitrite.



COD analyzer



Mercury Analyzer

Mercury analyzer is designed to determine traces of mercury in water and environmental samples. It is a sensitive instrument for analysis of mercury upto nanogram levels in agricultural food and pharma research.

For determining the amount of dissolved oxygen needed by aerobic organisms in a water body to break the biodegradable organic matter present in the given water sample at certain temperature over a specific period of time



BOD Incubator

To incorporate oxygen and evenly distribute nutrients throughout the culture media. for growth of just about any kind of cell including bacterial cultures.



Orbital Shaker Incubator

Our Team

Dr K. Lakshmi Prasad, Professor : An expert in ground water modelling and water resources engineering



Dr. Ch. Ramakrishna, Professor: An expert in environmental geology

Dr. M. Ramesh, Professor, An expert in Surface water modelling



Dr. Anima Sunil Dadhich, Associate Professor, An expert in Water and soil chemistry

Field work and surveys for water sample collection



Research at the Center - Projects undertaken

Prof. K. Lakshmi Prasad

1. Facility for Drinking Water quality analysis and monitoring in North Coastal districts of Andhra Pradesh, funded by DST, New Delhi.
2. Policies for sustainable water resources a study of Visakhapatnam urban area, funded by DST, New Delhi.

Prof. Ch. Ramakrishna

1. Sustainable water quality management for Greater Visakhapatnam Municipal Corporation (GVMC) Area, Andhra Pradesh funded by DST, New Delhi.
2. Response of Mangrove plant species of Visakhapatnam to toxic effluents funded by MoEF, New Delhi.
3. Drinking water situation in Rural Andhra Pradesh” funded by NUS, Singapore.

Prof. M. Ramesh

1. Assessment and strategies for sustainable management of water resources using remote sensing & geographic information systems funded by DST, New Delhi.

Dr. Anima S. Dadhich

1. Sequential Chemical Speciation, Spatial Distribution and Bio-availability of Mercury in Soil in Urban- Suburban Region of Visakhapatnam, A.P funded by UGC, New Delhi.



Meghadri Gedda Reservoir,
Visakhapatnam



Mangroves in Industrial Area,
Visakhapatnam

Civic Engagements - Water quality awareness and sensitization

Rational use of water is as crucial as the consumption of potable quality of water. The perception of quality is subjective depending on the level of awareness and may vary from apparently clear water to what is there in it. By and large the attitude of individual and community towards sanitation practices and hygiene is pivotal for local water quality issues. Contamination of drinking water is a significant concern for public health. The centre for water quality at GITAM University, with University's flagship motto of Strive, Excel and Serve, is carrying the baton for creating awareness and sensitizing people in rural areas and urban areas as well about sanitation, quality of water and health issues. The centre is actively involved in achieving this selfless goal for public welfare adopting various methods

- ✓ Social networking-----Personal communication and interaction
- ✓ Educating in schools
- ✓ Simple demonstration and training programs in villages



**CENTRE FOR WATER QUALITY (CWaQ)
GITAM UNIVERSITY**

Sample information and submission form

Sample Information:

Sample No.

Sample Code:

Name of the District:

Name of the Mandal:

Sample Site:

Sample Source:

Description of the Sampling Site:

Sampling point:

Boring	Tap	Pond	Well

Drains Nearby:

Yes	No

If Yes,

Open	Closed

Garbage Disposal Site nearby:

Yes	No

Cleanliness of the area and the water collecting site:

Very Good	Good	Fair	Bad	Very Bad

Any Farming Land nearby:

Yes	No

If yes, what are the various kinds of fertilizers being used in it?

Information for Stakeholders

❖ Sampling Protocol for stakeholders

● Steps for Collecting a Water Sample for Chemical Quality Analysis

1. Sample should be collected in a clean PET bottle after rinsing the bottle and cap a couple of times
2. If sampling from a tap or a hand pump the water should be allowed to run for around 10 minutes before collecting the sample.
3. The bottle should be allowed to overflow while collecting the sample.
4. The sample should be refrigerated after collection and be delivered to the centre no later than 24 hours.
5. The sample should be labelled with bottle name, place of sampling, address, date and time of sampling and the parameter(s) desired to be tested.

● Steps for Collecting a Water Sample for microbiological analysis

1. Sample should be collected in sterile bottles and without touching the inside of the cap or bottle.
2. Cap should not be put down while sampling.
3. Do not open the bottle after collection, refrigerate before delivering to the centre no later than 24 hours.
4. If sampling from a tap, allow the water to run for 3 to 5 minutes before collecting the sample.
5. Do not rinse the sample bottle. Collect the sample directly into the bottle by filling the bottle around 3/4 th full
6. The sample should be labelled with bottle name, place of sampling, address, date and time of sampling and the parameter(s) desired to be tested.

Approach us

**Centre for Water Quality
(CWaQ)**

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