

DETAILED PROJECT REPORT ON



HOSPITAL

20 BEDED
AT

K.P ROAD ANANTNAG J&K

IN FAVOUR OF

M/S AL NOOR HOSPITAL

PROP.

MR. BILAL AHMAD DAR S/O MR.BASHIR AHMAD DAR

R/O FRISAL YARIPORA KULGAM J&K

PREPARED BY

MEP industrial and Engineering Consultancy® Anantnag Kmr.
(Govt. Approved)

Regd. No: DI&C/P&S/332/2876

B.O:- 3rd Floor Sofi Complex Opp.Axis Bank Near Al Noor Hospital K P Road Anantnag kmr.

M.No.9596399961,6005822862



*ANG/2876/ Ao-40
Date: 16-02-2025*

*Project Co-ordinator
MEP Industrial & Engineering
Consultancy
Anantnag (Kmr.)*

BIODATA OF THE PROMOTER

A Bio data of the promoter for the Proposed Hospital provides a structured overview of the promoter's background, qualifications, and experience. Below is a full bio data of the promoter that can be used for this purpose:

Name	Mr. Bilal Ahmad Dar
Fathers Name	Mr.Bashir Ahmad Dar
Address	Frisal Yaripora Kulgam J&K
Tehsil	Yaripora J&K
District	Kulgam J&K
Nationality	Indian
Contact Number	9596129304
Email Id	
Pan No	BJMPD0272P
Adhar No	7676-3749-5536
Professional Background	BUMS
Experience	15 Years
Vision for the Proposed Hospital	To provide advanced, affordable, and quality healthcare to the people of Anantnag and surrounding regions
Plans for the Hospital	To establish a multi-specialty hospital with state-of-the-technology, skilled professionals, and a focus on preventive healthcare
Social &community contribution	Initiated free medical camps in rural areas, active in health awareness programs



PROJECT HIGHLIGHTS

Sr. No.	Particulars	Description	
1.	Name of the proposed Hospital	M/S AL NOOR HOSPITAL	
2.	Location	K.P Road Anantnag J&K	
3.	Line of Activity	HOSPITAL	
4.	Land & Building	Rented	
5.	Land Development	Nil	
6.	Total Area Available	1200 Sqft	
7.	Building Construction	0.00	Lacs
8.	Building Utility	0.00	Lacs
9.	Plant & Machinery	88.11	Lacs
10.	Preliminary /Preoperative Expenses	0.39	Lacs
11.	Misc. fixed Asset	3.50	Lacs
12.	Contingencies	0.00	Lacs
Total Cost Of Fixed Assets		92.00	Lacs
Margin of Working capital Required		5.00	Lacs
Total cost of the Project		97.00	Lacs
16.	Man Power	17	Nos
17.	Power Requirement	84	HP
18.	STP Capacity	10	KLD
19.	ETP Capacity	3	KLD



Importance of Setting up a Private Hospital in K.P Road Anantnag J&K

Anantnag, located in the Kashmir Valley, is an area that, despite having a rich cultural heritage and scenic beauty, faces challenges in terms of healthcare infrastructure. The region often struggles with inadequate medical facilities, underdeveloped infrastructure, and high patient loads in government hospitals. Setting up a private hospital in Anantnag would address many of these challenges and bring numerous benefits to the local population.

Here are the key reasons why a private hospital in Anantnag would be important:

1. **Improved Healthcare Access:** Anantnag and surrounding areas have limited healthcare options. Many patients have to travel to larger cities like Srinagar for specialized treatment, which can be time-consuming, expensive, and stressful, especially for those with serious health conditions. A private hospital in Anantnag would offer more accessible medical care to the local population, reducing travel time and associated costs.
2. **Quality of Care:** Private hospitals typically offer high-quality care due to their ability to invest in modern technology, experienced healthcare professionals, and better patient facilities. By providing advanced treatments and specialized services, the private hospital would elevate the standard of healthcare in the region.
3. **Reduced Pressure on Public Hospitals:** The public healthcare system in Kashmir often faces overcrowding, limited resources, and long waiting times. A private hospital would alleviate this burden by serving as an additional healthcare provider, allowing public hospitals to focus on more critical cases while providing patients with more immediate care options.
4. **Economic Development:** Setting up a private hospital would create numerous job opportunities for the local population, both in healthcare and non-healthcare sectors. The employment generated would support skilled professionals, such as doctors and nurses, as well as unskilled labor, including administrative staff, cleaners, and security personnel. This would stimulate the local economy and contribute to the overall development of the region.
5. **Attracting Medical Tourism:** With improved healthcare facilities, Anantnag could attract medical tourists from other regions in Kashmir and neighboring areas. This could further enhance the region's economy, making it a destination for people seeking specialized medical care.

6. **Emergency and Specialized Care:** A private hospital would provide immediate and specialized emergency services, which are often lacking in rural areas. Services like trauma care, cardiac care, and maternity facilities would ensure that patients receive timely and comprehensive care, improving survival rates and outcomes.

Objectives of Setting Up a Private Hospital in District Anantnag

The establishment of a private hospital in K.P Road Anantnag J&K would have several objectives aimed at addressing both healthcare gaps and socio-economic challenges faced by the region. Below are the primary objectives:

1. **Provide Comprehensive and Quality Healthcare Services:** The foremost objective is to provide high-quality medical care across various specialties, including general medicine, surgery, pediatrics, gynecology, cardiology, and orthopedics. By offering state-of-the-art facilities, patients will receive the best care locally, without the need to travel to larger cities.
2. **Improve Health Outcomes for the Local Population:** The hospital would focus on improving health outcomes by offering timely and effective treatment, preventive healthcare, and health education. This would contribute to better overall health in Anantnag and its surrounding areas, particularly in areas like maternal and child health, which are often underserved.
3. **Enhance Medical Infrastructure and Technology:** The hospital would aim to introduce modern medical technologies and equipment that can significantly improve diagnostics and treatment efficiency. This could include advanced imaging technologies, surgical tools, and laboratory facilities, which are essential for diagnosing and treating complex medical conditions.
4. **Reduce the Healthcare Burden in Neighboring Areas:** The establishment of a private hospital would ease the strain on public hospitals in the region, which often face overcrowding and limited resources. It would serve as a backup, ensuring that local residents have access to prompt medical care without the long wait times that can occur in government-run facilities.
5. **Create Employment Opportunities:** One of the key objectives of setting up a private hospital is to generate employment for both skilled and unskilled workers. Skilled professionals, including doctors, nurses, laboratory technicians, and administrative staff, will find employment. In addition, non-medical roles such as housekeeping, security, and maintenance staff will be hired, ensuring economic growth for the local community.

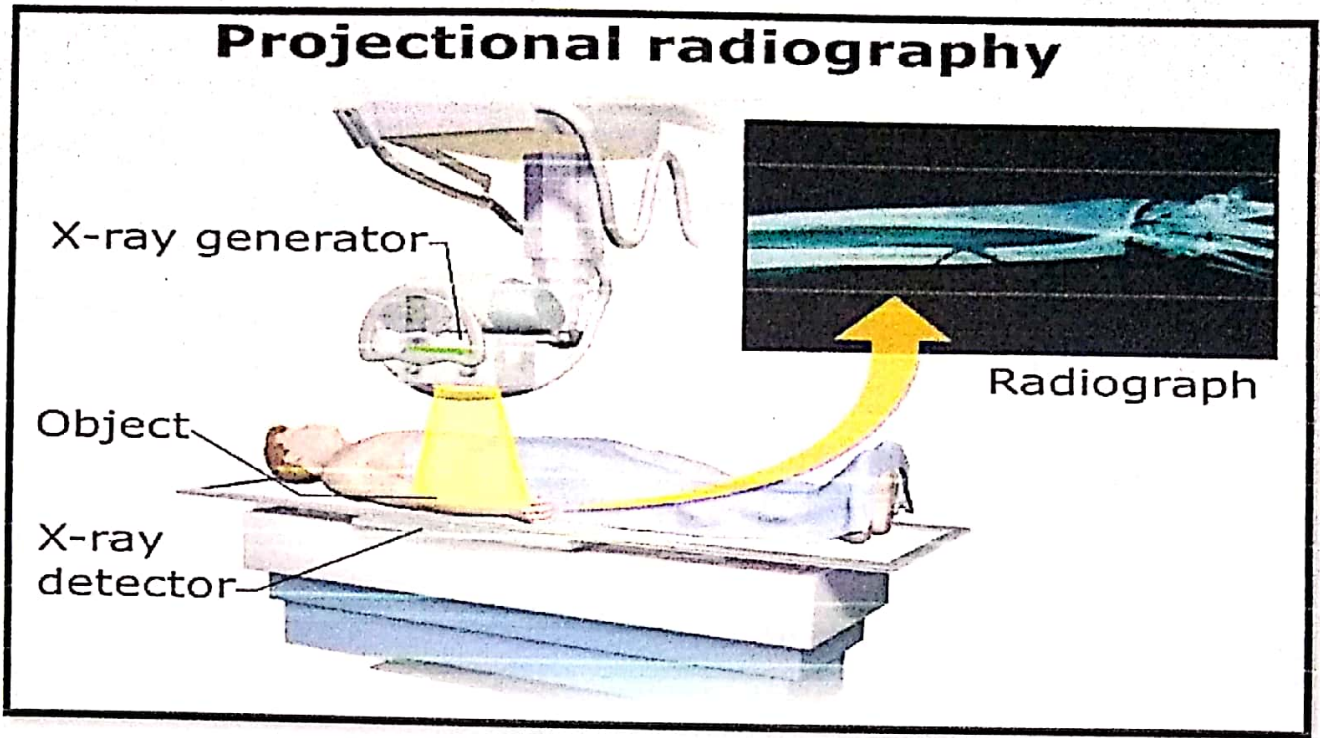
6. **Provide Specialized and Emergency Care:** The private hospital would aim to provide specialized treatments that are not always available in public facilities, such as neurology, oncology, and orthopedics. Moreover, it would be equipped to handle emergencies, ensuring that patients with critical conditions receive prompt attention.
7. **Promote Preventive Healthcare and Wellness:** In addition to curative care, the hospital would focus on preventive healthcare measures, such as regular health check-ups, vaccination drives, health awareness campaigns, and wellness programs. This proactive approach would help reduce the incidence of chronic diseases and promote a healthier lifestyle among the population.
8. **Support Medical Education and Research:** Over time, the hospital could partner with educational institutions to offer training programs for medical professionals. Additionally, it could engage in research to improve healthcare practices and treatments, contributing to the broader medical field.
9. **Support Public-Private Partnerships in Healthcare:** The private hospital can also collaborate with the government and other organizations to offer subsidized treatments for low-income patients, participate in health insurance schemes, and contribute to government health initiatives.
10. **Attract Investment in the Region:** By establishing a modern healthcare facility, the private hospital could attract further investment in Anantnag. This could lead to the development of additional services, industries, and infrastructure, making the region a more attractive place for future investments.

The establishment of a private hospital in Anantnag, Kashmir, would have a profound and positive impact on both the healthcare landscape and the socio-economic development of the region. It would provide accessible, high-quality medical services to the local population, reduce the burden on public hospitals, and create employment opportunities. With state-of-the-art technology and specialized care, the hospital would enhance health outcomes and foster an environment conducive to growth and progress. Additionally, it could serve as a model for future private healthcare ventures in underserved areas of India.



DIAGONASTIC SECTION

1. X-RAY



X-ray is useful in the detection of pathology of the skeletal system but also useful for detection of some disease processes in soft tissue, common chest x-ray, Abodominal x ray et



2. ULTRASONOGRAPHY AND COLOR DOPPLER



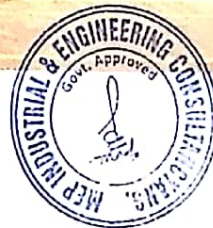
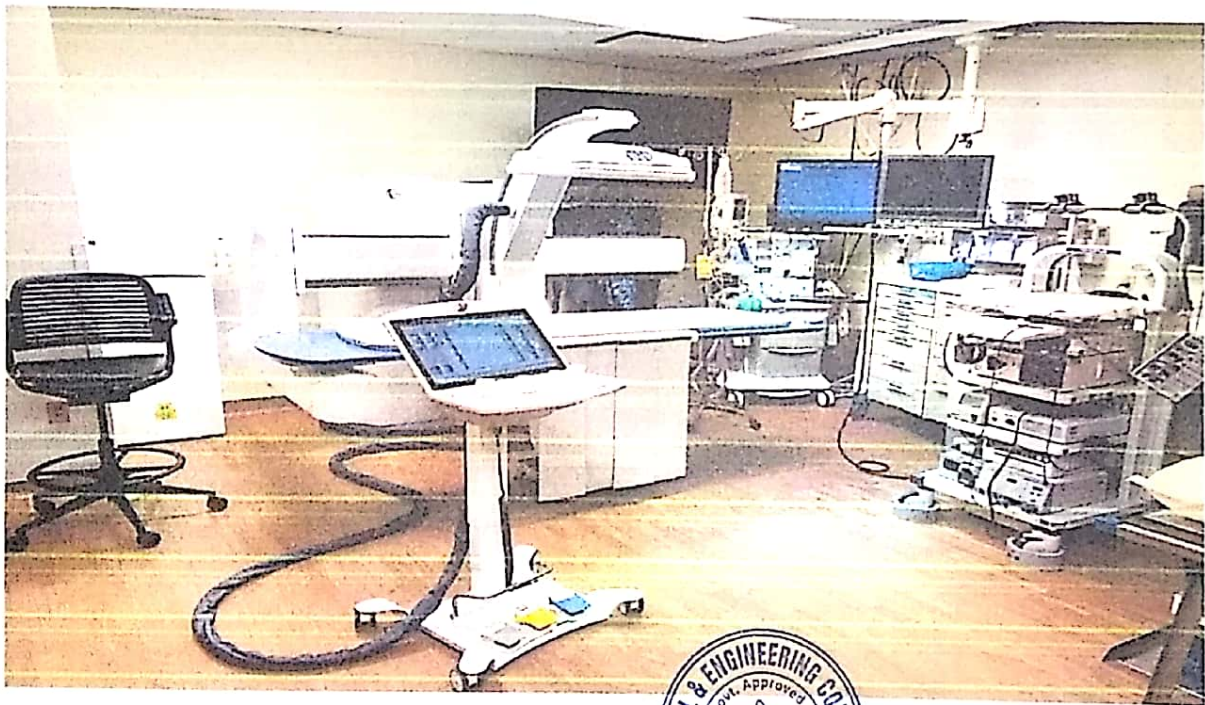
Ultrasonography is used to visualize subcutaneous body structure including tendons, muscles, joints, vessels and internal organs to detect possible pathology or lesions. USG is commonly used during pregnancy and other gynaecology related issues.



3.ENDOSCOPY

An endoscopy is a procedure used in medicine to look inside the body. The endoscopy procedure uses an endoscope to examine the interior of a hollow organ or cavity of the body. Unlike many other medical imaging techniques, endoscopes are inserted directly into the organ.

There are many types of endoscopies. Depending on the site in the body and type of procedure, an endoscopy may be performed by either a doctor or a surgeon. A patient may be fully conscious or anaesthetized during the procedure. Most often, the term *endoscopy* is used to refer to an examination of the upper part of the gastrointestinal tract, known as an esophagogastroduodenoscopy.



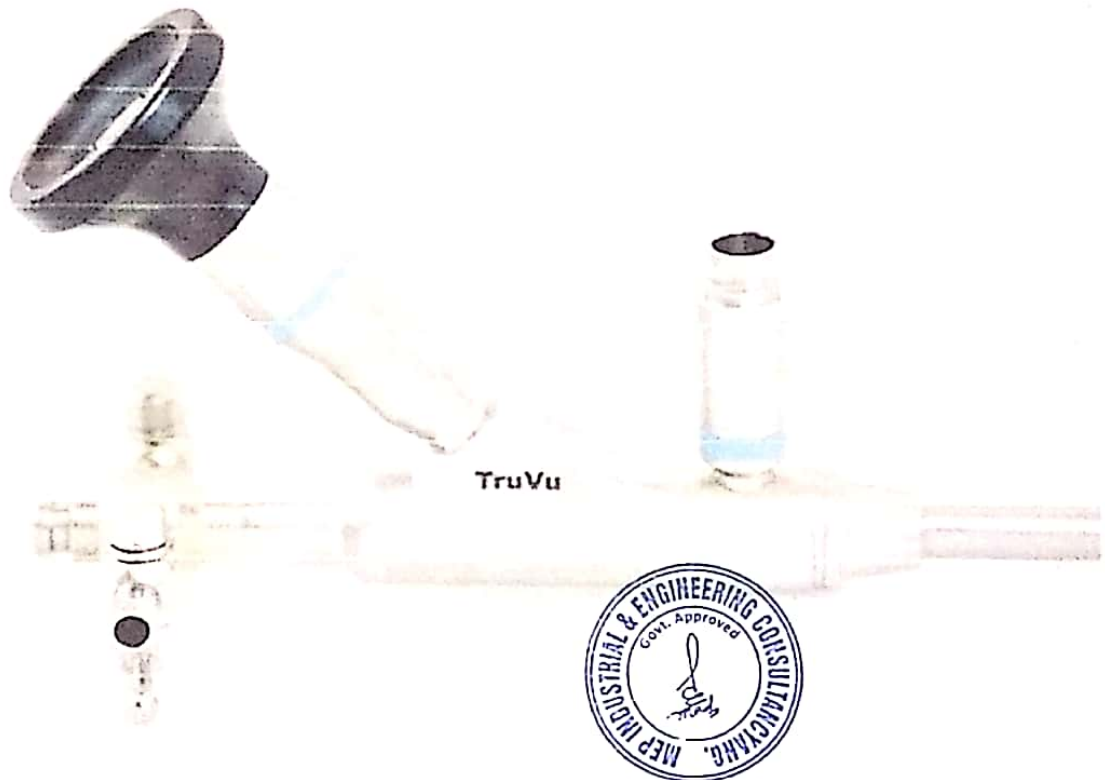
4.ECHOCARDIOGRAM

An echocardiogram, or "echo", is a scan used to look at the heart and nearby blood vessels. It's a type of ultrasound scan, which means a small probe is used to send out high-frequency sound waves that create echoes when they bounce off different parts of the body.



5.NEPHROSCOPE

A nephroscope is used to remove stones measuring one-third of an inch (1 cm) or larger. Nephroscopy is also used to: Remove kidney stone fragments. Remove small tumors. Remove foreign bodies, such as a stent that was previously placed.



6.PATHOLOGY LABORATORY

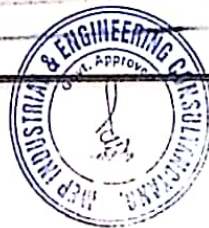
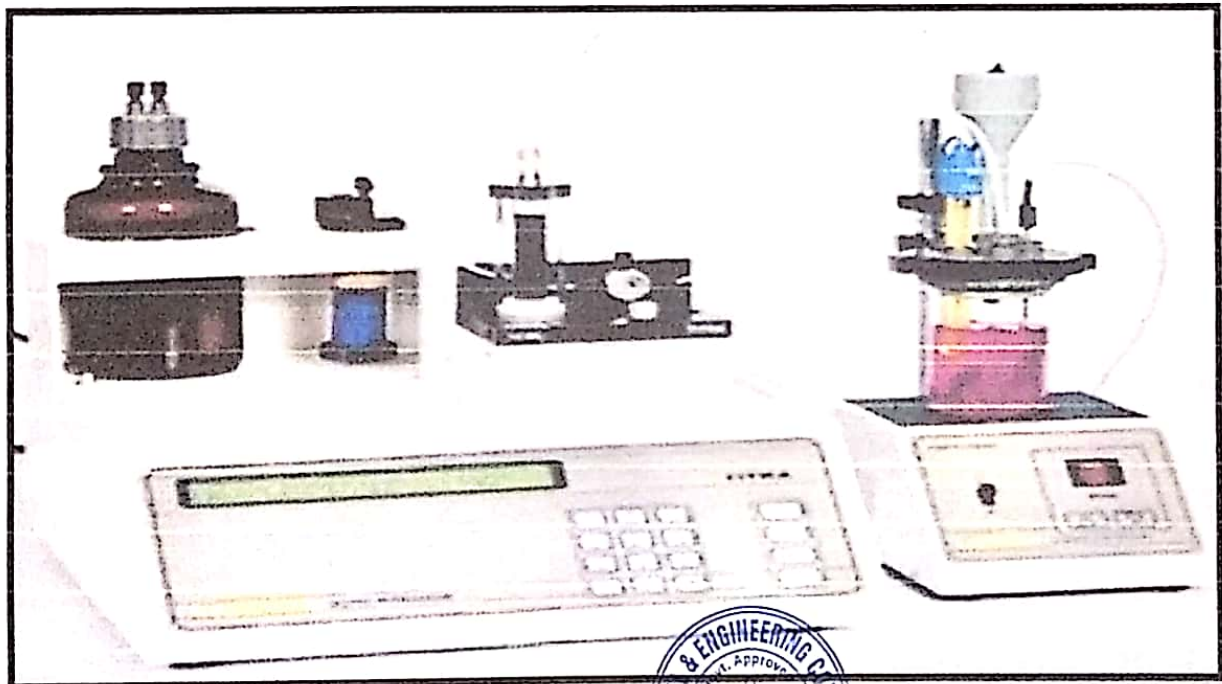
2. Heamotolgy Analyser

3. Electrolyte

4.Urine Analyser etc

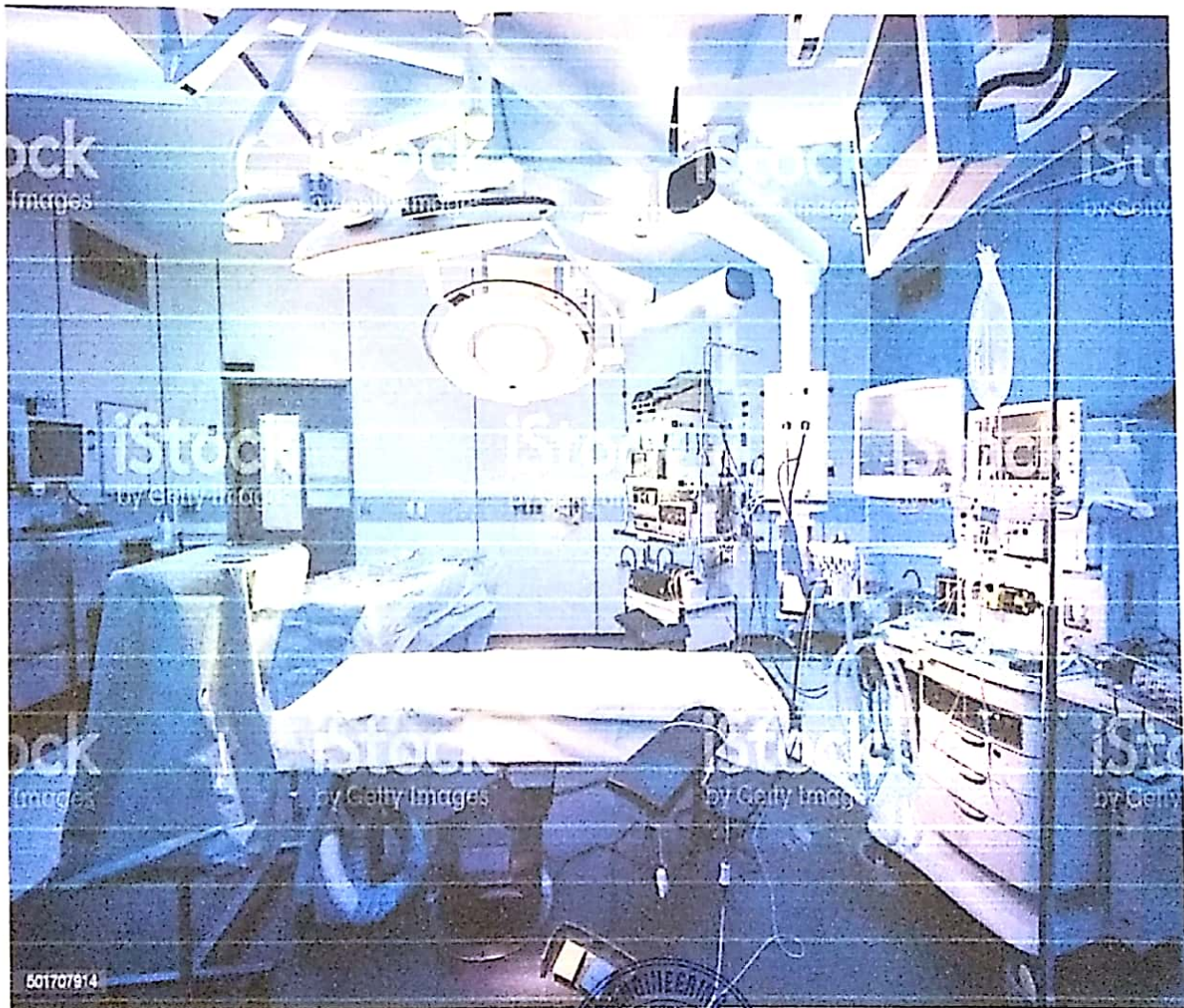
Medical laboratory instrument designed to measure different chemicals and other charcteritics in a no. of biological samples quickly with minimum human assistance,automated cell counters sample with blood and quntify,classify and decrbe cell populations using both electrical and optical techniqunes ,urine analyser exams the urine.

1.Biochemistry Analyser



7.OPERATION THEATER

The proposed Hospital will focus on the use of latest technologies for surgical procedures like minimally invasive surgeries. Laproscopic surgeries have several advantages over conventional procedures like minimal length of stay and minimal usage of antibiotics

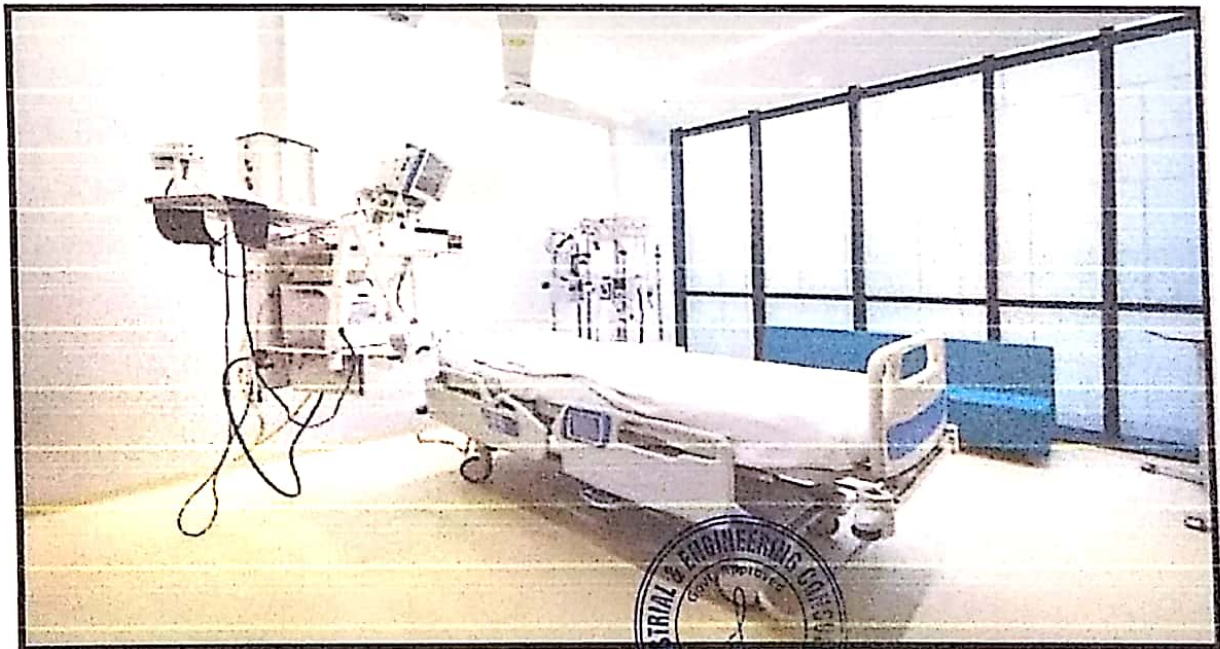


8. ICU (INTENSIVE CARE UNIT)

An intensive care unit (ICU), also known as an intensive therapy unit or intensive treatment unit (ITU) or critical care unit (CCU), is a special department of a hospital or health care facility that provides intensive care medicine.

Intensive care units cater to patients with severe or life-threatening illnesses and injuries, which require constant care, close supervision from life support equipment and medication in order to ensure normal bodily functions. They are staffed by highly trained physicians, nurses and respiratory therapists who specialize in caring for critically ill patients. ICUs are also distinguished from general hospital wards by a higher staff-to-patient ratio and access to advanced medical resources and equipment that is not routinely available elsewhere. Common conditions that are treated within ICUs include respiratory and cardiovascular, as well as neurology.

Patients may be referred directly from an emergency department or from a ward if they rapidly deteriorate, or immediately after surgery if the surgery is very invasive and the patient is at high risk of complication

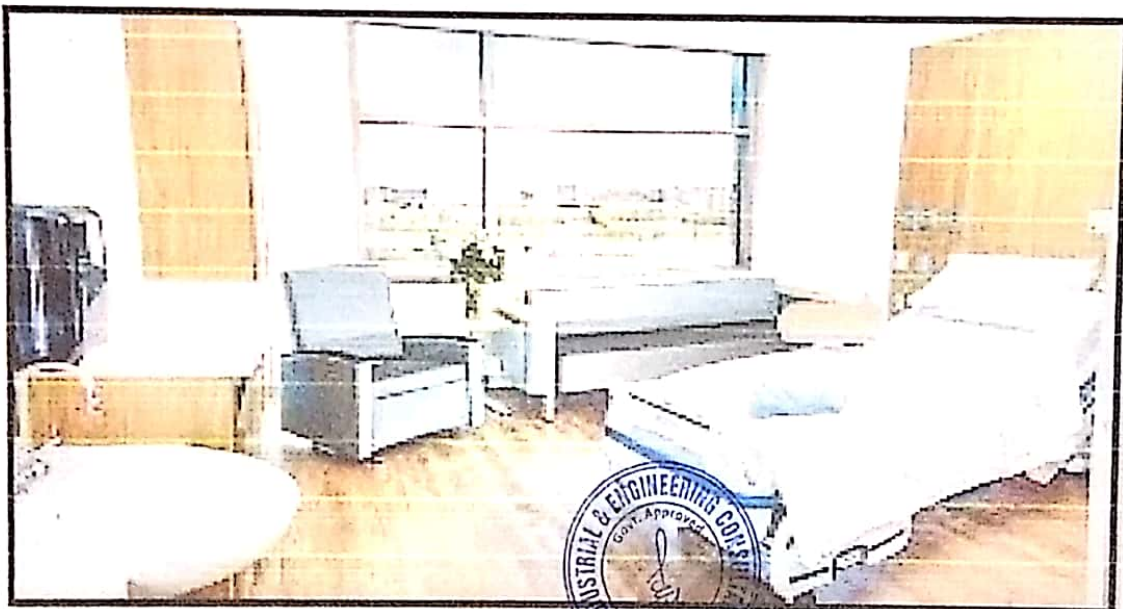


9.INPATIENT DEPARTMENT

IPD is a department in a hospital that takes care of patients admitted in the hospital for at least a night. An Inpatient Ward or Department is fully equipped with medical equipment and beds. The patient admitted to an Inpatient Ward is taken care of by the nurses and doctors for appropriate treatment.

Following are the list of IPD benefits that one may reap as an inpatient in a hospital:

- Constant care of doctors and nurses
- Proper diagnosis of your medical condition through lab tests
- Treatments related to cardiology, neurology, oncology, orthopedics, and general surgery
- After-care due to surgery, childbirth, or traumatic injury
- Pre-planned inpatient care for a knee transplant or bypass heart surgery
- Emergency healthcare for serious conditions like heart attack, accidental injuries



POLLUTION CONTROL

Apart from the other recommendations, the promoter has agreed in principle that he will strictly adhere pollution norms as and when shall be implemented and shall use all possible devices to prevent any sort of pollution and will follow all the guidelines as per the pollution Norms

POLLUTION CONTROL NORMS

1. Biomedical Waste Management

Hospitals generate biomedical waste, which must be managed as per the Biomedical Waste Management Rules, 2016. Key requirements include:

a. Segregation of Waste

- Biomedical waste must be segregated into four categories at the point of generation:
 1. Yellow Bin: Infectious waste (e.g., cotton, bandages, gloves).
 2. Red Bin: Plastic waste (e.g., syringes, IV tubes).
 3. Blue Bin: Glassware and metallic waste (e.g., broken glass, needles).
 4. Black Bin: General waste (e.g., food waste, paper).

b. Storage and Disposal

1. Storage Time: Biomedical waste should not be stored for more than 48 hours without treatment.
2. Treatment and Disposal: Waste must be treated using chemical disinfection before disposal.
3. Authorization: The hospital must obtain authorization from the State Pollution Control Board (SPCB) for biomedical waste management.



2. Sewage and Wastewater Treatment

Hospital must ensure proper treatment of sewage and wastewater to prevent water pollution. Key requirements include:

a. Sewage Treatment Plant (STP)

- Requirement: A 20-bedded hospital must install an STP (Design Calculation With capacity enclosed with the DPR)
- Discharge Standards: Treated sewage must meet the following standards:
 - I. BOD (Biochemical Oxygen Demand): ≤ 30 mg/L.
 - II. COD (Chemical Oxygen Demand): ≤ 250 mg/L.
 - III. TSS (Total Suspended Solids): ≤ 100 mg/L.
 - IV. pH: 6.5–8.5.

b. Effluent Treatment Plant (ETP)

- If the hospital generates chemical or laboratory effluent, an ETP must be installed.
- Treated effluent must comply with CPCB discharge standards.(Capacity and design is enclosed with the DPR)

3. Air Pollution Control

Hospitals must control air pollution from diesel generators (DG sets) as per norms of PCB

b. DG Sets

- Hospitals using DG sets must have antivibration pads and stock height as per PCB norms

4. Hazardous Waste Management

Hospitals generating hazardous waste (e.g., chemicals, expired medicines) must comply with the Hazardous Waste Management Rules, 2016.

a. Segregation and Storage

- Hazardous waste must be stored in labeled containers and segregated from other waste.
- Storage area must be leak-proof and equipped with spill containment measures.



b. Disposal

- Hazardous waste must be disposed of through authorized treatment, storage, and disposal facilities (TSDFs)

6. Noise Pollution Control

Hospitals must ensure that noise levels do not exceed the prescribed limits

All machinery shall be installed in the Hospital building



WATER BUDGET FOR 20 BEDED HOSPITAL

The average daily domestic requirement of water for bathing ,washing and toilet flushing for hospital where no. of beds not exceeding 100 is 350 liters per day per patient , Attendants and Staff is 135 LPD per person , out door patients is 35 LPD per person as recommended by the breau of Indian standards code of practice for water supply. Source of water will be PHE Deptt.

PERTICULARS	QTY	UNIT	AVG. DAILY REQ.
STAFF	17	PERSONS	135 LITERS /DAY/ PERSON
No of Beds	20	Beds	450 LITERS /DAY /BED
WATER CALCULATION BREAK UP			
Water consumption in Hospitals as per NBC 2016	450.00		liters/Bed/Day
Total No of Beds	20.00		Beded
Water consumption from Beds	9000.00		liters/Day
Water Consumption from staff	2295.00		liters/Day
TOTAL WATER CONSUMTION PER DAY	11295.00		liters/Day
Waste water generation (85% of Total Water consumption)	9600.75		liters/Day
Break Down of Waste Water By source			
Gray and sanitary Water –80% (STP)	7680.60		liters/Day
Laboratory and operation Theater waste water –20 % for ETP	1920.15		liters/Day
STP REQUIRED (HIGHER SIDE)	10.00		KLD
ETP REQUIRED (HIGHER SIDE)	3.00		KLD



DESIGN CALCULATION OF 10 KLD STP

STP Components

A typical STP for a hospital includes the following components:

1. Screening Chamber
2. Equalization Tank
3. Aeration Tank
4. Secondary Clarifier
5. Sludge Drying Beds
6. Disinfection Unit

Primary Treatment: Screening, grit chamber, equalization tank

Secondary Treatment: MBBR (Moving Bed Biofilm Reactor) or SBR (Sequential Batch Reactor)

Tertiary Treatment: Filtration and disinfection

Design Calculations

a. Screening Chamber

1. **Purpose:** To remove large solids and debris.
2. **Design:**
 - I. **Flow Rate:** 10 KLD.
 - II. **Size:** 0.5 m (width) x 0.5 m (depth) x 0.5 m (length).
 - III. **Bar Screen:** 10 mm spacing.

b. Equalization Tank

1. **Purpose:** To balance the flow and load variations.
2. **Design:**
 - I. **Volume:** 20-30% of daily flow = 2-3 KLD.
 - II. **Dimensions:** 2 m (length) x 1.5 m (width) x 1.5 m (depth).
 - III. **Retention Time:** 4-6 hours.



c. Aeration Tank

1. **Purpose:** Biological treatment using activated sludge process.
2. **Design:**

I. **Volume:** Based on HRT of 8-12 hours.

$$\text{Volume} = \text{Flow Rate} \times \text{HRT} = 10,000 \text{ L/day} \times 10 \text{ hours} / 24 = 4,167 \text{ liters (4.17 m}^3\text{)}.$$

- II. **Dimensions:** 2.5 m (length) x 1.5 m (width) x 1.5 m (depth).
- III. **Air Requirement:** 1.5-2.0 m³ of air per m³ of sewage.
 - **Air Required** = 4.17 m³ x 1.5 = 6.25 m³/hour.
- IV. **Blower Capacity:** 6.25 m³/hour.

d. Secondary Clarifier

1. **Purpose:** To separate treated water from sludge.
2. **Design:**

- I. **Surface Loading Rate:** 20-30 m³/m²/day.
- II. **Area Required** = Flow Rate / Surface Loading Rate = 10,000 L/day / 25 m³/m²/day = 0.4 m².
- III. **Dimensions:** 1 m (diameter) x 1.5 m (depth).
- IV. **Retention Time:** 2-3 hours.

e. Sludge Drying Beds

1. **Purpose:** To dewater and dry sludge.
2. **Design:**

- I. **Sludge Volume:** 1-2% of sewage flow = 100-200 liters/day.
- II. **Bed Area:** 2-3 m².
- III. **Dimensions:** 2 m (length) x 1 m (width) x 0.3 m (depth).

f. Disinfection Unit

1. **Purpose:** To disinfect treated water before discharge.
2. **Design:**

- I. **Chlorine Dose:** 5-10 mg/L.
- II. **Contact Time:** 30 minutes.
- III. **Tank Volume:** 10,000 L/day x 30 min / 1440 min = 208 liters (0.2 m³).
- IV. **Dimensions:** 0.5 m (length) x 0.5 m (width) x 0.8 m (depth).



Summary of Dimensions

Component	Dimensions (L x W x D)	Volume (m ³)
Screening Chamber	0.5 m x 0.5 m x 0.5 m	0.125
Equalization Tank	2 m x 1.5 m x 1.5 m	4.5
Aeration Tank	2.5 m x 1.5 m x 1.5 m	5.625
Secondary Clarifier	1 m (dia) x 1.5 m (depth)	1.18
Sludge Drying Beds	2 m x 1 m x 0.3 m	0.6
Disinfection Unit	0.5 m x 0.5 m x 0.5 m	0.125

Detailed STP Process Description

1 Collection & Screening

- Wastewater from hospital toilets, kitchens flows into a collection chamber.
- Large solid particles, rags, and plastics are removed using a bar screen filter.

2 Grit Chamber (Pre-Treatment)

- Removes sand, grit, and heavy particles that can damage the STP.
- Prevents clogging in downstream treatment units.

3 Primary Settling Tank (Primary Treatment)

- Slows down water flow to allow heavy solids (sludge) to settle at the bottom.
- Grease and oils float to the top and are skimmed off.

4 Aeration Tank (Secondary Treatment - Biological Process)

- Activated sludge process or MBBR (Moving Bed Biofilm Reactor) system is used.
- Air is pumped into the tank to promote the growth of bacteria that break down organic matter.

5 Secondary Settling Tank (Clarification & Sludge Separation)

- Treated water flows into a secondary settling tank where remaining sludge settles down.
- Some sludge is recycled back to maintain bacterial activity in the aeration tank.

6 Disinfection (Tertiary Treatment)



- Chlorination or UV treatment is used to kill harmful bacteria and pathogens.
- Ensures that the treated water is safe for disposal or reuse.

7 Treated Water Reuse/Discharge

- Treated water can be reused for gardening, flushing, or cooling tower makeup.
- Excess water is discharged into a drain as per PCB norms.

Flow Chart Representation

Wastewater from Hospital



Screening & Grit Removal



Primary Settling Tank



Aeration Tank (Biological Treatment)



Secondary Settling Tank



Disinfection (Chlorination/UV)



Treated Water Reuse/Discharge



DESIGN CALCUALTION OF 3 KLD ETP

A typical ETP for a hospital includes the following components:

1. Collection Tank
2. Equalization Tank
3. Primary Clarifier
4. Aeration Tank
5. Secondary Clarifier
6. Sludge Drying Beds
7. Disinfection Unit

Pre-Treatment: Screening, oil & grease trap

Primary Treatment: Equalization tank, sedimentation

Secondary Treatment: Biological treatment (activated sludge, MBBR)

Tertiary Treatment: Filtration, disinfection (UV, chlorination)

Design Calculations

a. Collection Tank

1. **Purpose:** To collect and store raw effluent.
2. **Design:**
 - I. **Volume:** 1-2 hours of flow = $3,000 \text{ L/day} \times 2 \text{ hours} / 24 = 250 \text{ liters (0.25 m}^3\text{)}$.
 - II. **Dimensions:** 0.75 m (length) x 0.75 m (width) x 0.5 m (depth).

b. Equalization Tank

1. **Purpose:** To balance the flow and load variations.
2. **Design:**
 - I. **Volume:** 20-30% of daily flow = $0.6 - 0.9 \text{ m}^3$.
 - II. **Dimensions:** 1.5 m (length) x 1 m (width) x 1 m (depth).
 - III. **Retention Time:** 4-6 hours.



c. Primary Clarifier

1. **Purpose:** To remove settleable solids.
2. **Design:**
 - I. **Surface Loading Rate:** 20-30 m³/m²/day.
 - II. **Area Required = Flow Rate / Surface Loading Rate = 3,000 L/day / 25 m³/m²/day = 0.12 m².**
 - III. **Dimensions:** 0.5 m (diameter) x 1 m (depth).
 - IV. **Retention Time:** 2-3 hours.

d. Aeration Tank

1. **Purpose:** Biological treatment using activated sludge process.
2. **Design:**
 - I. **Volume:** Based on HRT of 6-8 hours.
 - **Volume = Flow Rate × HRT = 3,000 L/day × 7 hours / 24 = 875 liters (0.875 m³).**
 - II. **Dimensions:** 1.5 m (length) x 0.75 m (width) x 1 m (depth).
 - III. **Air Requirement:** 1.5-2.0 m³ of air per m³ of effluent.
 - **Air Required = 0.875 m³ × 1.5 = 1.31 m³/hour.**
 - IV. **Blower Capacity:** 1.5 m³/hour.

e. Secondary Clarifier

1. **Purpose:** To separate treated water from sludge.
2. **Design:**
 - I. **Surface Loading Rate:** 20-30 m³/m²/day.
 - II. **Area Required = Flow Rate / Surface Loading Rate = 3,000 L/day / 25 m³/m²/day = 0.12 m².**
 - III. **Dimensions:** 0.5 m (diameter) x 1 m (depth).
 - IV. **Retention Time:** 2-3 hours.

f. Sludge Drying Beds

1. **Purpose:** To dewater and dry sludge.
2. **Design:**
 - I. **Sludge Volume:** 1-2% of effluent flow = 30-60 liters/day.
 - II. **Bed Area:** 1-2 m².
 - III. **Dimensions:** 1.5 m (length) x 1 m (width) x 0.15 m (depth).

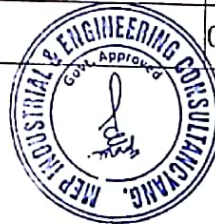


g. Disinfection Unit

1. **Purpose:** To disinfect treated water before discharge.
2. **Design:**
 - I. **Chlorine Dose:** 5-10 mg/L.
 - II. **Contact Time:** 30 minutes.
 - III. **Tank Volume:** $3,000 \text{ L/day} \times 30 \text{ min} / 1440 \text{ min} = 62.5 \text{ liters (0.0625 m}^3\text{)}$.
 - IV. **Dimensions:** 0.5 m (length) x 0.5 m (width) x 0.25 m (depth).

4. Summary of Dimensions

Component	Dimensions (L x W x D)	Volume (m ³)
Collection Tank	0.75 m x 0.75 m x 0.5 m	0.28
Equalization Tank	1.5 m x 1 m x 1 m	1.5
Primary Clarifier	0.5 m (dia) x 1 m (depth)	0.2
Aeration Tank	1.5 m x 0.75 m x 1 m	1.125
Secondary Clarifier	0.5 m (dia) x 1 m (depth)	0.2
Sludge Drying Beds	1.5 m x 1 m x 0.3 m	0.45
Disinfection Unit	0.5 m x 0.5 m x 0.25 m	0.0625



Detailed ETP Process Description

1 Collection & Screening

- Effluent from ICU, OT, labs, dialysis, and pathology units flows into a collection chamber.
- Bar screens remove large particles, tissues, and solids.

2 Equalization Tank

- Wastewater is collected in a tank to balance flow & pollutant concentration.
- Prevents shock loads on downstream treatment units.

3 pH Neutralization Tank

- pH is adjusted using acid (HCl) or alkali (NaOH) to bring it to neutral (6.5 - 8.5 pH).
- Protects biological treatment units from damage.

4 Coagulation & Flocculation

- Alum ($Al_2(SO_4)_3$) or Ferric Chloride is added to bind fine suspended particles.
- A flocculant like Poly Electrolyte helps in forming larger particles for easy removal.

5 Primary Settling Tank

- Heavy solids settle at the bottom, forming primary sludge.
- Oils & grease float on top and are removed using skimmers.

6 Biological Treatment (Aeration or MBBR Reactor)

- Moving Bed Biofilm Reactor (MBBR) or Activated Sludge Process (ASP) is used.
- Aeration promotes bacterial growth, breaking down organic & toxic chemicals.

7 Secondary Settling Tank

- Water is sent to a secondary clarifier, where bacteria and solids settle down.
- Some biomass (sludge) is recirculated to maintain bacterial growth.

8 Filtration (Sand & Activated Carbon Filter)

- Sand Filter removes remaining suspended particles.
- Activated Carbon Filter removes toxins, heavy metals, and organic pollutants.

9 Disinfection (UV/Chlorination Treatment)



- UV disinfection or chlorination kills harmful bacteria & viruses before discharge.

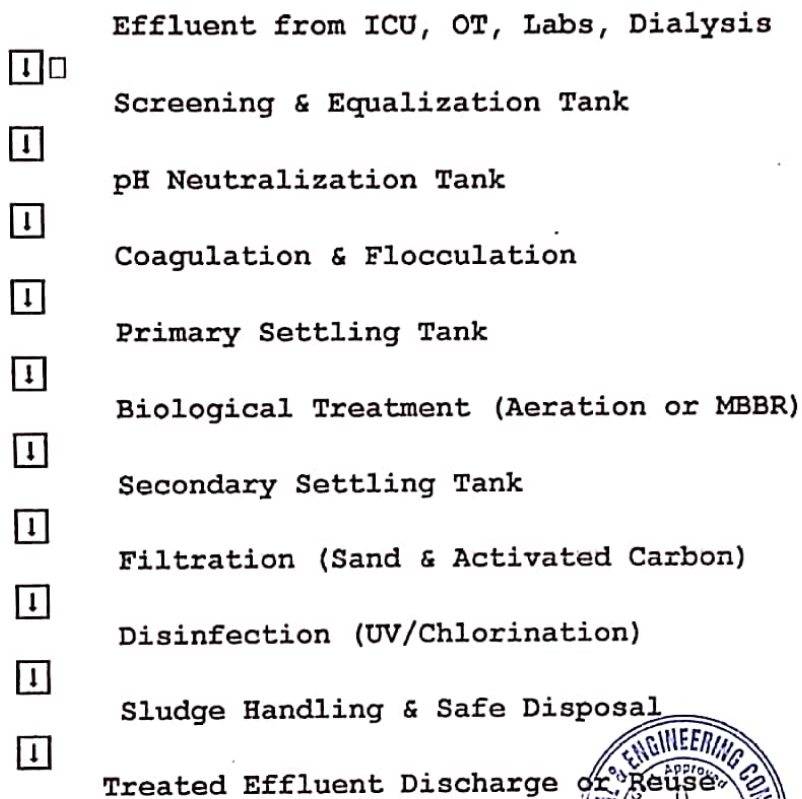
10 Sludge Handling & Disposal

- Sludge from the Primary & Secondary Settling Tanks is sent to a Sludge Drying Bed.
- Dried sludge is disposed of as per CPCB Bio-Medical Waste Management Rules.

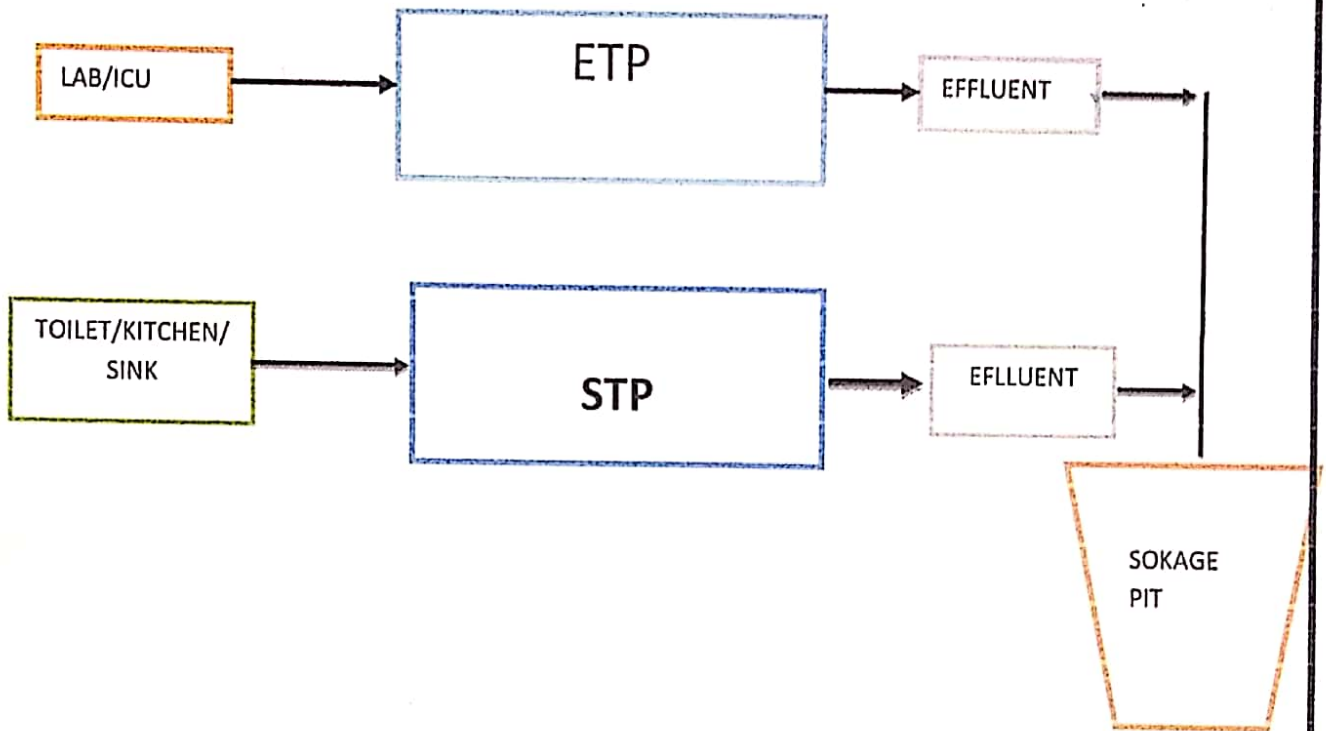
Treated Effluent Discharge/Reuse

- Treated water is safe for discharge into the drain or reused for gardening, flushing, etc.

Flow Chart Representation



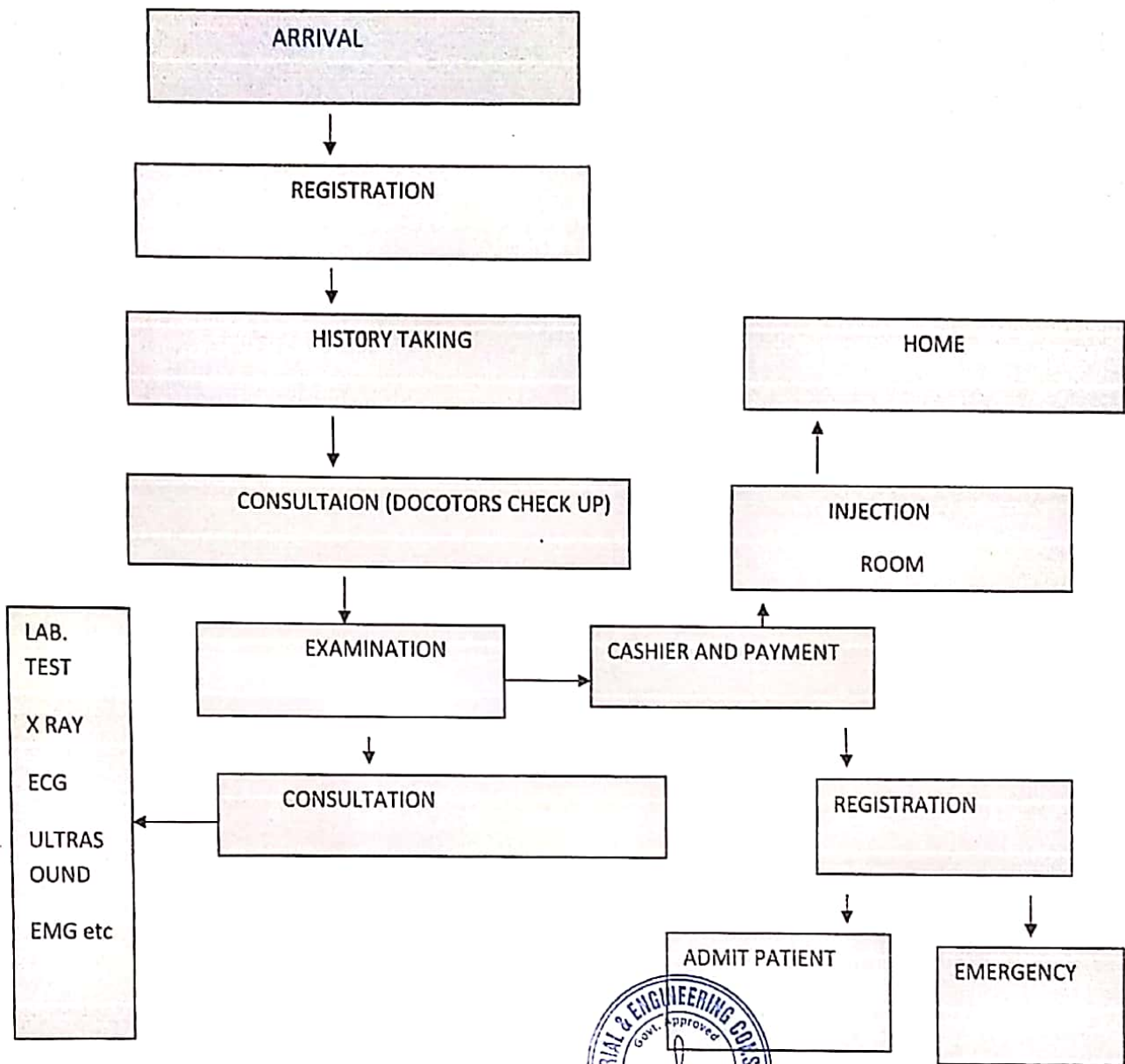
INSTALLATION OF ETP, STP , SOKAGE PIT AT THE BACKSIDE OF THE PROPOSED HOSPITAL



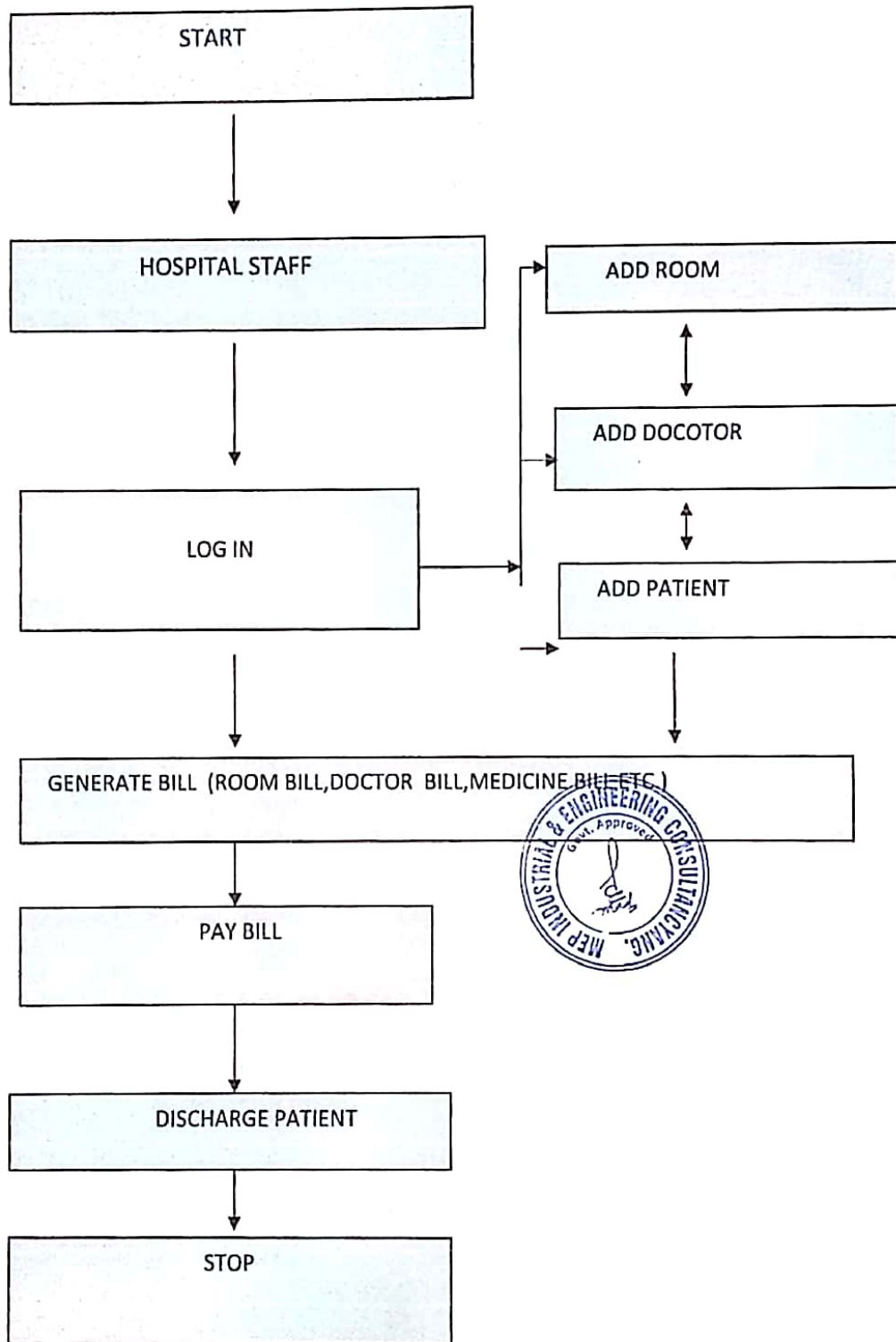
Main Objective of ETP and STP is to remove as much of the suspended solids ,organic matter and chemicals as possible before the waste is discharged to the soakage pit so that the ground water can be prevented from the infectious Diseases .Moreover,the sledge which will produce from the ETP and STP shall be used for Agriculture use as a fertilizer and Landscaping



PATIENT FLOW CHART DIAGRAM IN HOSPITAL



FLOW CHART DIAGRAM FOR HOSPITAL MANAGEMENT SYSTEM



MEP INDUSTRIAL AND ENGINEERING CONSULTENCY ANANTNAG (GOVT. APPROVED)
B.O:- 3rd FLOOR SOFI COMPLEX, OPPOSITE AXIS BANK, NEAR SHAHI BAKERY KP ROAD ANANTNAG.

STATUS OF THE EXISTING HOSPITAL

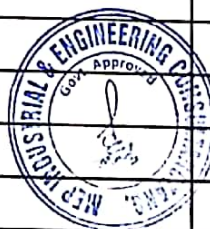
BUILDING	RENTED
TOTAL NO. OF FLOORS	G+2
TYPE OF STRUCTURE	RCC
PLINTH AREA OF THE BULDING IN SQM	111.50 Sqm
PLINTH AREA OF THE BULDING IN SQFT	1200 Sqft
CAPACITY OF THE HOSPITAL	20.0 BEDED



PLANT AND MACHINERY

MEDICAL EQUIPMENTS

SNO.	PERTICULARS	Qty	price(lacs)	Amt(Lacs)
RADIOLOGY AND IMAGING EQUIPMENTS				
1	USG WTH TOUCH SCREEN BROAD BAND ,4C-RS CONVEX PROBE HAVING MULTIAPPLICATIONS WITH ALL STANDARD ACCESSARIES (P9 COLOR DOPPLER AND THERMAL PRINTER)	1	12.50	12.50
2	C-ARM MACHINE WITH 1280X 800 RESOLUTION ,270 DEG. SWIVEL WITH HIGH NO OF PIXEL AND VIDEO BAND WITH ALL ALLID ACCESSARIES	1	10.50	10.50
3	STRYKER LAPROSCOPE WITH ALL ACCESSARIES	1	11.00	11.00
4	CONVENTIONAL 200 MA X RAY MACHINE WITH DARK ROOM ACCESSARIES	1	4.50	4.50
5	MOBILE X-RAY MACHINE WITH STANDARD ACCESSARIES	1	1.50	1.50
6	DIGITAL ECG MACHINE WITH ACCESSARIES	1	0.10	0.10
7	LITHOTRIPTER AND COMPRESSOR	1	0.55	0.55
INSTRUMENTS AND EQUIPMENTS FOR OPD				
1	BP APPARATUS WITH MONITOR	3	0.02	0.06
2	STETHOSCOPE	2	0.005	0.01
3	PULSE OXYMETER	2	0.009	0.02
4	TONGUE DEPRESSOR	1	0.0015	0.00
5	WEIGHT MACHINE AND MEASURING STAND	1	0.02	0.02
6	X-RAY VIEWER BOX	2	0.02	0.04
7	FOETAL DOPPLER	1	0.12	0.12
LABORATORY EQUIPMENTS(BIOCHEMISTRY,CLINICAL PATHOLOGY,STERLIZATION)				
1	AUTOMATED HEMATOLOGY ANANLYSER/CELL COUNTER WITH ALLIED ACCESSARIES	1	2.90	2.90
2	BIOCHEMISTRY ANANLYSER WITH ALLIED ACCESSARIES	1	1.50	1.50
3	ELECTROLYTE	1	0.35	0.35
4	CENTRIFUGE WITH ALL ACCESSARIES	1	0.25	0.25
5	WATER BATH WITH ALL ACCESSARIES	1	0.18	0.18
6	MICROSCOPE WITH ALL ACCESSARIES	1	0.19	0.19
7	FULLY AUTOMATED URINE ANALYSER	1	0.45	0.45
8	VDRL SHAKER WITH ACCESSARIES	1	0.22	0.22
9	HOT AIR OVEN	1	0.20	0.20
10	LAB. REFRIGERATOR	1	0.15	0.15

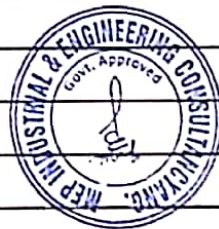


OPERATION THEATER EQUIPMENT

1	OT TABLE FULLY LOADED WITH ALL ACCESSARIES	2	4.50	9.00
2	SEMI FCWLER BED ABS PANEL	2	0.23	0.46
4	ANTHESIA MACHINE WITH VENTILATOR	2	3.50	7.00
5	DELIVERY BED THREE FOLD WITH ACCESSARIES	1	0.32	0.32
6	BED SIDE LOCKER	20	0.09	1.80
7	OVER BED TABLE	20	0.07	1.40
8	BABY WARMER	1	0.97	0.97
9	CRASH CART TROLLEY	1	0.24	0.24
10	OT LIGHT DOUBLE DOM LED	1	0.55	0.55
11	OT LIGHT SINGLE DOM AL 72 LED	2	0.35	0.70
12	SRUB STATION SS WITH OUT SENSE	1	0.90	0.90
13	SRUB STATION SS WD SENSER WALL	1	1.30	1.30
14	THREE FOLD SCREENER	2	0.08	0.16
15	FOGGER MACHINE	1	0.52	0.52
12	DEFIBRILLATOR PHILIPS	1	0.65	0.65

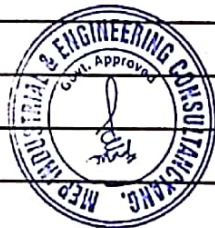
INTENSIVE CARE UNIT (ICU)

1	MULTIPARAMETER PATIENT MONITOR	1	1.60	1.60
2	DEFIBRILLATOR (PACER AND AED)	1	1.20	1.20
4	SYRENCE PUMP	1	0.50	0.50
6	ELECTROCARDIOGRAPH	1	0.3	0.30
7	OXYGEN CONCENTRATOR WITH ACCESSARIES	2	0.35	0.70
8	ICU BED WITH ALL ACCESSARIES	1	0.65	0.65
9	ICU VENTILATORS (PATIENT MONITOR,MECHANICAL VENTILATOR,HUMDIFIER,EXHALED AIR FLOW,FILTR,NEUBLISER ETC) WITH ALL ACCESSARIES	1	8.50	8.50
10	TROLLEY GENERAL PURPOSE	1	0.25	0.25
11	INFUSION STAND	1	0.04	0.04
12	INFANT RADIANT WARMER	1	0.65	0.65
13	REFRIGERATOR	1	0.45	0.45
TOTAL AMOUNT				88.11



MISC. FIXED ASSETS

SNO.	PERTICULARS	UNIT	QTY	RATE	Amt(lacs)
1	Office Furniture and Fixtures(Exective chair,office chair, sofa ,chairs and tables,audio- video system,furnishing items,LED lamps etc.)	LS	LS	LS	0.45
2	Clothing lockers	Nos	2	0.10	0.20
3	Furniture for OPD (Chair,Bench ,Bed, Desk)	Sets	2	0.15	0.30
4	Waiting Chairs for OPD patients	Nos	10	0.03	0.30
5	Tablet counter,Drug cabinet,Trays	set	1	0.50	0.50
6	Desktop with printer and scanner	Nos	1	0.65	0.65
9	Refrigerator ,pharmaceutical	set	1	0.20	0.20
11	Fire extinguisher	No	10	0.06	0.06
12	Container for Disposal items	no.	10	0.05	0.50
17	CC TV System with dome,bullet,desktop,bluetooth ,camera junction,cable,NVR etc (complete set)	set	1.0	0.35	0.35
18	HVAC(Central Heating /cooling system) - VRV type with outdoor and indoor units,AHU, Ducts,cu pipes, refnets -Y joints,Laminar Hood,hepa filter etc .(complete job) as per building plinth area	sqft			3.50
19	Medical Gas pipeline system comprising of oxygen ,carbon dioxide .nitrious oxide,AGSS ,Air -4,Air-7,vaccume outlets,manifolds,pressure alarms,fully automatic gas control system,bed head panells,copper pannelling,cylinder banks,plant equipment such as compressor,vaccume pumps.	Beds			1.50
20	Modular Operation theaters comprising of walls and celing system of operating area,steel frame work,static,disspative flooring,laminar flooring, panael,scrub station,Xray view screen,hatch box,automatic sliding ,doors etc	OT	2.0	350,000	7.00
21	kitchen accessories(cooking pot,gascooker,peeler,food trolley,flasks,oven,refrigerator etc)	set	1.0	0.64	0.64
23	10 KLD STP with all allied accessories	Nos	1.0	3.50	3.50
24	3 KLD ETP with all allied accessories	Nos	1.0	2.30	2.30
25	Color Coded Bins	Nos	4.0	0.03	0.12
26	Conatiner For Mncipilty waste	Nos	1.0	0.10	0.10
TOTAL AMOUNT					22.17



MEP INDUSTRIAL AND ENGINEERING CONSULTANCY ANANTNAG (GOVT. APPROVED)
B.O:- 3rd FLOOR SOFI COMPLEX, OPPOSITE AXIS BANK, NEAR SHAHI BAKERY KP ROAD ANANTNAG.

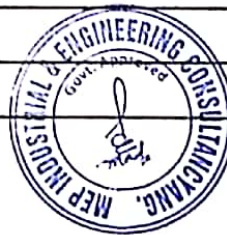
PRELIMINERY AND PREOPERATIVE EXPENSES

SNO.	PARTICULARS	AMOUNT(LACS)
A	PROPOSED PRELIMINARY EXPENSES	
1	Registration fee ,pollution fee, Electrical fee ,Municipality fee if any.	0.20
2	Project report preparation fee, Estimation ,survey, Bulding Plan etc	0.04
B	PROPOSED PREOPERATIVE EXPENSES	
1	Stamp duty, legal documentation, security deposits and start up expenses etc.	0.09
2	Printing and stationery, travelling & conveyance expenses, communication exp. Etc	0.06
TOTAL AMOUNT(A+B)		0.39

PROVISION FOR CONTINGENCIES

Provision for contingencies has been made @2% on non firm costs of the project i.e Equipments, plant and machinery and Misc. fixed assets. This is expected to take care of any unforeseen as well as escalation in the cost of above items during the course of implementation of the project and has been calculated to be 8.00 lacks as summarized below cost of fixed assets.

SNO.	PARTICULARS	AMOUNT IN LACS
1	Plant and machinery Equipments	88.11
2	Misc. fixed assets	22.17
Total		110.28
Contingency@2%		-



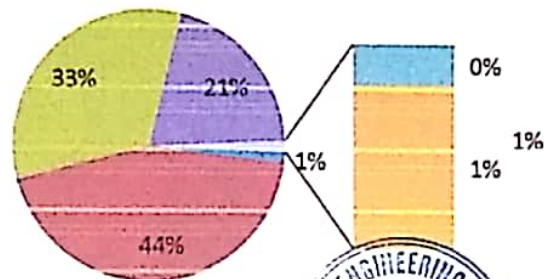
MEP INDUSTRIAL AND ENGINEERING CONSULTANCY ANANTNAG (GOVT. APPROVED)
 B.O:- 3rd FLOOR SOFI COMPLEX, OPPOSITE AXIS BANK, NEAR SHAHI BAKERY KP ROAD ANANTNAG.

COST OF FIXED ASSETS

SNO	PARTICULARS	AMOUNT IN LACS	
1	CIVIL WORKS	Rented	lacs
2	PLANT AND MACHINERY	88.11	lacs
3	MISC FIXED ASSETS	3.50	lacs
4	PRELIMINARY AND PROPERATIVE EXPENSES	0.39	lacs
TOTAL AMOUNT		92.00	lacs

Chart Title

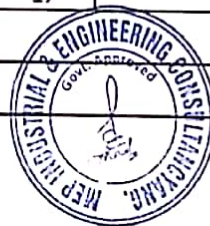
■ 1 ■ 2 ■ 3 ■ 4 ■ 5 ■ 6



B) WORKING CAPITAL

DETAILS OF SALARY WAGES PER ANNUM

SNO.	PERTICULARS	NO.	SALARY/MONTH	SALARY PER ANNUM	
ADMINISTATIVE STAFF					
1	MANAGER	1	15000	1.80	LACS
2	ACCOUNTANT	1	8000	0.96	LACS
3	COMPUTER OPERATER	1	8000	0.80	LACS
4	PEON /CHOWKIDAR	1	6000	0.72	LACS
TECHINICAL/MEDICAL/PARA MEDICAL STAFF					
1	SR. RESIDENT	1	35000	4.20	LACS
2	Jr. RESIDENT	1	25000	3.00	LACS
3	GYNOCOLOGIST	1	40000	4.80	LACS
4	SURGEON	1	35000	4.20	LACS
5	RADIOLOGIST	1	30000	3.60	LACS
6	NURSES	1	10000	1.20	LACS
7	ANESTHETIC DOCTOR	1	25000	3.00	LACS
8	X RAY TECHNITION	1	6500	0.78	LACS
9	LAB TECHNITION	1	6000	0.72	LACS
10	PHARMACIST	1	6000	0.72	LACS
11	OT TECHNITION	1	7000	0.84	LACS
12	DIETICIAN	1	6500	0.78	LACS
14	ELECTRICAN AND PLUMBER	1	6000	0.72	LACS
GRAND TOTAL		17		32.84	LACS
ADD BENEFITS AND FRINGES @ 15%				4.93	LACS
TOTAL WAGES				37.77	LACS



UTILITIES AND OTHER EXPENSES

TOTAL CONNECTED LOAD

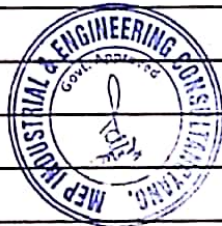
Sno.	Perticulars	load	unit
1	General lighting	2.0	KW
2	Conveince power	4.0	KW
3	work station power including patient bed	1.0	KW
4	HVAC Load	15.0	KW
5	Ventilation Load	2.0	KW
6	plumbing load	1.0	KW
7	fire figting load	10.0	KW
8	STP /ETP	2.0	KW
9	Elevator	8.0	KW
10	Medical Equipment	15.0	KW
11	External/Landscape lighting	2.0	KW
12	UPSC Load	1.0	KW
13	Total load in Kw	63	KW
14	Total Load in Hp	84	HP
3	Total connected load in KVA	78.75	KVA
4	No. of working Days	300.0	days
5	No. of working Hours per days	8.00	Hours
6	power from PDD Department	151,200.0	units
7	power from DG SET	-	units
8	Power Tariff from Pdd Deptt.@ 5.25 /unit	793,800	Rs
9	cost of power from DG set@7.50/unit	-	Rs
TOTAL AMOUNT		7.94	lacs



CONSUMPTION OF MEDICINE/CHEMICALS /FILMS AND SURGICAL ITEMS

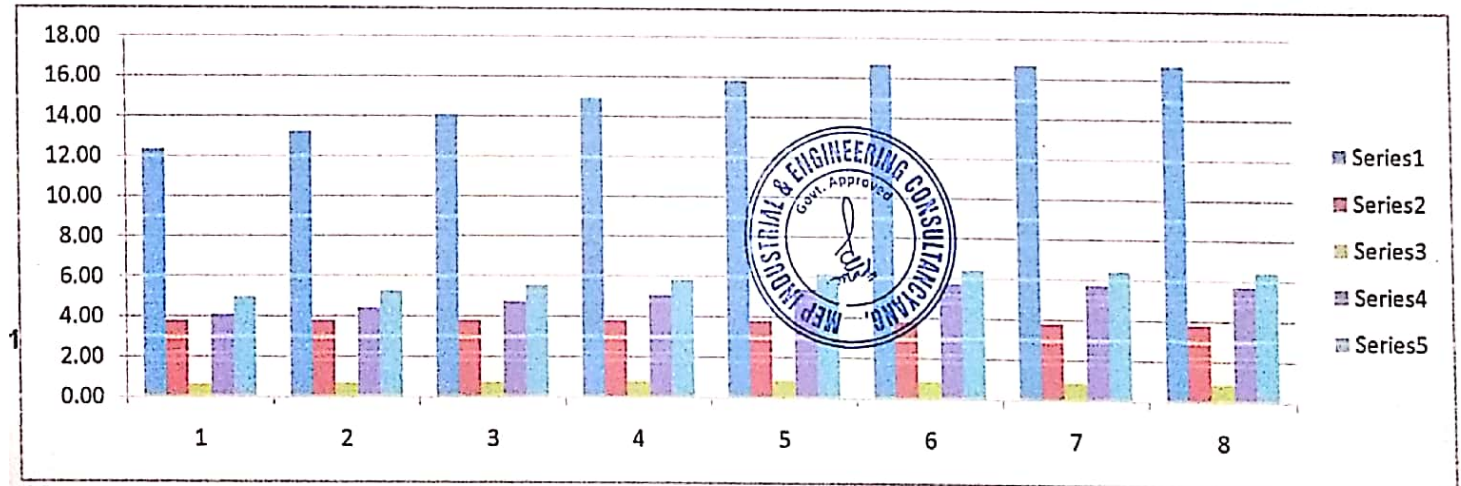
ASSUMPTIONS:

SNO	PARTICULARS	UNIT	QTY	Rate	Amount lacs
A) FILMS/CHEMICAL/KIT FOR TESTS					
1	USG films	ROLL	3,000	500	15.00
3	Slides	Box	2,000	100	2.00
4	Sugar kit	kit	900	800	7.20
5	Uric acid kit	kit	600	1,200	7.20
6	TG kit	kit	400	1,200	4.80
7	Cholesterol kit	kit	200	4,700	9.40
8	HDL kit	kit	900	1,000	9.00
9	Total/Direct Bilerubin kit	kit	900	1,500	13.50
10	OT/PT kit	kit	150	7,000	10.50
11	ALP kit, Total protein ,Albumin kit, serum amylase-calcium-phosphorus kit ,NA-KA kit	LS	LS	200,000	2.00
12	Cover slips, bottles for samples, cotton, disposable syringes, gloves,masks,ECG paper,Gel etc				0.50
TOTAL					81.10
B) X-RAY FILMS FOR TESTS					
1	x-ray film 8x10 /150 films	Boxes	300	8,800	26.40
2	x-ray film 11x14 /150 films	Boxes	85	15,385	13.08
3	x-ray film 14X 17/120 films	Boxes	8	16,385	1.31
4	Envelop/packing material			LS	0.50
TOTAL					41.29
C) MEDICINE/DRUGS AND USE AND THROUGH EQUIPMENTS FOR GYNE PATIENTS					
1	Surgical -Equipment like ceaser ,blades,artry,alles forecep.tooth forcep,plane -forcep,needle holder,retractor,spinal needle.,gloves,dispo items and other consumable items	set	900	3000	27.00
2	Drugs/ointments like Antibiotic,Antipyritic,Aanalgasic,Antiseptic,oxytocin,RL,DNA and other allied Drugs,ointments	3 days/p	500	4500	22.50
3	All Disposal items	LS	LS	LS	3.50
TOTAL					53.00
G.TOTAL					175.39



DETAILS OF WORKING CAPITAL REQUIRED AT DIFFERENT LEVELS

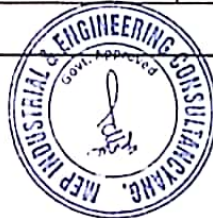
SNO	PERTICULARS	DAYS	1ST YEAR	2ND YE	3RD YE	4TH YE	5TH YEA	6th YR	7TH YR	8TH YR	9th YR	10th YR
1	CAPACITY UTILIZATION		70%	75%	80%	85%	90%	95%	95%	95%	95%	95%
2	St of consumable material	30	12.34	13.21	14.09	14.97	15.84	16.72	16.72	16.72	16.72	16.72
3	Salaries and wages	30	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80
4	utilities and Expenses	30	0.65	0.70	0.74	0.79	0.84	0.88	0.88	0.88	0.88	0.88
5	Debiters	15	4.08	4.41	4.74	5.07	5.40	5.73	5.73	5.73	5.73	5.73
6	Working Expenses	30	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
7	Total Current Asset		21.97	23.22	24.47	25.73	26.98	28.23	28.23	28.23	28.23	28.23
8	Trade Credit for consumable Material	30.0	4.97	5.26	5.56	5.85	6.14	6.43	6.43	6.43	6.43	6.43
TOTAL WORKING CAPITAL REQUIRED			17.00	17.96	18.92	19.88	20.84	21.80	21.80	21.80	21.80	21.80
PROMOTERS CONTRIBUTION @30% MARGIN)			5.00	5.29	5.57	5.86	6.15	6.44	6.44	6.44	6.44	6.44
BANK FINANCE @70%			12.00	12.67	13.34	14.01	14.69	15.36	15.36	15.36	15.36	15.36
INTEREST @ 11.60% (Assumption)			1.39	1.47	1.55	1.63	1.70	1.78	1.78	1.78	1.78	1.78



MEP INDUSTRIAL AND ENGINEERING CONSULTENCY ANANTNAG (GOVT. APPROVED)
B.O:- 3rd FLOOR SOFI COMPLEX, OPPOSITE AXIS BANK, NEAR SHAHI BAKERY KP ROAD ANANTNAG.

TURNOVER / REVENUE / INCOME ESTIMATE

1	OCCUPENCY	80-100%			
2	AVGERAGE LENGTH OF THE STAY	3 Days			
3	TOTAL NO. DAYS	365			
4	NO. OF BEDS	20			
5	NO. OF ADMISSIONS	2433			
Sr. No.	Particulars'	Unit	Qty	Rate	Amount in lacs
1	Income from Major surgery	patients	1800	9000	162.00
2	Income from Minor surgery	patients	1000	6000	60.00
3	Income from Gyne patients	patients	433	1000	4.33
4	Charges on USG	Nos	2000	500	10.00
5	CBC complete test	Nos	2433	500	12.17
6	KFT	Nos	2433	250	6.08
7	LFT	Nos	2433	400	9.73
8	Lipid profile Test	Nos	2433	300	7.30
9	Uric Acid test	Nos	2433	200	4.87
10	Electrolyte test(K,cld,ca)	Nos	2433	300	7.30
11	Blood sugar test	Nos	2433	70	1.70
12	income from 8 x10 x-ray films	Nos	1000	200	2.00
13	income from 14x10 x-ray films	Nos	1200	300	3.60
14	income of 14 x 17 x- ray films	Nos	200	350	0.70
TOTAL AMOUNT					291.77

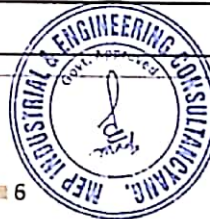


REPAIRS AND MAINTENANCE OF FIXED ASSETS

Sr. No.	year	Total cost of Fixed	COM@0.5 %	Amount
1	First	91.61	1.5%	1.37
2	2nd	91.61	2.0%	1.83
3	Third	91.61	2.5%	2.29
4	Fourth	91.61	3.0%	2.75
5	Fifth	91.61	3.5%	3.21
6	sixth	91.61	4.0%	3.66
7	seventh	91.61	4.5%	4.12
8	eighth	91.61	5.0%	4.58
9	Ninth	91.61	5.5%	5.04
10	Tenth	91.61	6.0%	5.50

PROJECT COST SUMMARY

1	CIVIL WORKS	Rented	LACS
2	PLANT AND MACHINERY	88.11	LACS
3	MISC. FIXED ASSETS	3.50	LACS
4	PRELIMINARY & PREOPERATIV EXP.	0.39	LACS
	FIXED ASSETS	92.00	LACS
6	MARGIN OF WORKING CPITAL REQUIRED	5.00	LACS
	TOTAL COST OF PROJECT	97.00	LACS



2% **Chart Title**

