TECHNICAL REPORT OF

HYGIENE AUDIT

Submitted to

Adhiyamaan College of Engineering,
DR. M. G. R Nagar, Hosur - 635109
Tamil Nadu, India

Date of Audit: 25.03.2022 (Friday)

Submitted by

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1. Introduction

A hygiene audit will provide an insight into how an organization operates in a sustainable manner in terms of hygiene environment to the stakeholders as per the International Standard for Occupational Health and Safety Management Systems (ISOHSMS). If an organization has a hygiene auditing process implemented already, then it should apply environmental context into a clean environment. Environmental audit is a natural management tool and it will become more effective when hygiene audit is added to it. It is an essential requirement to adopt an audit process for a sustained utilization of resources in a hygienic way in both developed and developing countries like India. Hygiene will be of different types such as personal hygiene, environmental hygiene, medical hygiene and public hygiene which are all interrelated between each other in terms of maintaining a hygienic atmosphere to the stakeholders (Chen *et al*., 2015; Jeans *et al*., 2015).

Hygiene audit is a process that leads to extraction of information about guided procedures in hygiene implemented in an organization which provides a realistic assessment of how it protects or affects the health of stakeholders. It also measures the effects and provides solutions to overcome or reduce the adverse effects due to unhygienic conditions. This audit can minimize the hazardous materials (for example: food wastes and human wastes) utility in the campus remarkably which in turn reduce the adverse effects to human beings as a whole (Gould *et al*., 2016). As per the Government norms and guidance, the environmental legislations including food consumption should be followed by all the organizations and necessary steps should be taken to minimize the food waste in any campus. The food wastes will lead to high contamination rates in the campus and also lead to cause diseases to the stakeholders and the public (Gnanamangai *et al*,)

To ensure that the hygienic environmental management system, maintenance of environmental and personal hygiene, availability of clean resources, maintenance of water supply and hygiene, cleanliness ensured at the site of disposal of human waste materials and personal safety in the campus should be implemented effectively. Each year a plan for the hygiene audit should be prepared by the management of an organization (Rajalakshmi *et al*.,). A committee of faculties and student representatives and social aware members appointed to take this plan forward in the beginning of every year will ensure that the entire hygienic environmental management system is implemented in the organization without any hindrance. An effective hygiene practice should be followed among the stakeholders which in turn useful to control a wide variety of disease outbreaks (Roethlisberger and Dickson, 2017).

A healthy population is the essential component of a country's wealth in terms of political, economic and environmental sustainability. In terms of population growth statistics, India is the fastest populating country to strike the second position in total population cover which is about 138 million and constitutes 17.25% of the total global population (IGBC, WGBC). Demographic status of India revealed that if the population increase continues to be at this rate, India is expected to be the most populated country by 2050. Along with the birth rate, social and environmental issues are also increasing and alarming now-a-days. As consequences of over population, social well-being of

man and status of quality environment of the country get affected by the developing pressure on food, clothes, housing and other basic necessities, unemployment, loss of standard of living, decrease of forest cover, environmental pollution, energy crisis, ecological degradation and lack of hygienic condition-resulting in the distortion of well-being of entry (Silvennoinen *et al*., 2015).

2. About Hygiene Audit

According to M/s. Nature Science Foundation's hygiene audit guidelines, hygiene audit is a survey of extracting a cumulative information concerning the status of hygiene and sanitation of respective premises and individuals belonging to any organisation such as academic or non-academic institutes, industries, food establishments and any other enterprises. This audit provides realistic data on how the organisations' cleanliness affects people's health and environment. A set of prominent objectives and goals are predetermined prior to hygiene audit with an aim to reduce the adverse effects of contaminated surfaces to human beings and to eradicate hazardous substances from the compound remarkably to diminish the multiplication of infectious diseases (Prescott *et al*., 2005, Raja Lakshmi *et al*.,).

As per the norms of the Health department of Indian Government, the environmental legislation's guidelines for food consumption should be followed by all the Organizations without any deviations. Hygiene audit process determines to monitor and record the sanitation status and personal hygiene to make strong recommendations for the complete cleanliness of environment and individuals associated with the organisation. The outcome of the hygiene audit suggests to give pure atmosphere to various stakeholders such as employees, faculties, supporting staff members, parents and students those who are depending upon the educational institutions and the employees and customers of other business establishments (Gnanamangai *et al*.,).

To achieve a hygienic environmental management system in an academic institution and industry, maintenance of environmental and personal hygiene, availability of clean resources, maintenance of quality water supply and cleanliness ensured at the site of disposal of human waste materials in the campus should be implemented effectively (Rajalakshmi *et al*.,). A periodic conduction of hygiene audit can ensure these practices in an institution-making both the human health and environmental safety protected which is the key focus of a hygiene audit.

Hygiene auditing is a paradigm and a kind of assessing tool evaluates the hygiene environment systematically and subjected to adopt the sanitization management systems with the following objectives:

- Number of microbial load in the air.
- Methods of disposal of food and human wastes.
- Availability of hand wash, soap, sanitizer, dryer, tissue roll, etc.
- Placing environmental information in the public domain.
- Facilities of sufficient ventilation, napkin disposal and waste management.
- Effective water purification and recycle system for use of hygienic water.

3. Aims and Objectives of the Hygiene Audit

The main objectives of a hygiene audit are to achieve complete safety for both people and the environment of any organization by promoting the hygiene management and sanitization standards in the enterprise. The hygiene audit identifies, quantifies, describes and prioritizes the framework of hygienic environment in standard compliance with the applicable regulations, potential applications, policy matters, data validations and regulatory standards to the stakeholders. The main objectives of a hygiene audit are:

- To assess the diversity and density of microbial wealth in the atmosphere.
- To assess the waste management strategies and methods of disposal of food and human wastes.
- To check the availability of tools and materials for hygiene such as hand wash, soap, sanitizer, dryer, tissue roll, hand gloves, masks, lab coats, etc.
- To be aware of the public domain with personal and environmental hygiene.
- To ensure the facilities of sufficient ventilation, napkin disposal and waste management in the campus.
- To check the availability of effective water purification and recycling systems for ensuring the safety of drinking water.

4. Checklists for the Hygiene Audit

The checklists for the conduct of a hygiene audit, different parameters on personal as well as environmental hygiene have been included. Availability of sanitizing materials like soap, hand wash liquid, detergents, sanitizer, lab coats, hand gloves, towels, tissue paper rolls, etc. nearby washbasins and restrooms should be made available to the customers. Lot of awareness programmes on personal and environmental hygiene, pest management strategies adopted, sanitation methods, hygiene maintenance and instructions to be followed for the stakeholders may be conducted regularly through hygiene clubs, forums, cells and associations. In addition, the details on water purification systems (if any), water recycling, disposal of food wastes, human wastes and other refuse along with the justifications on sufficient ventilation (both natural and mechanical) and proper napkin disposal facility should be made available (Gnanamangai *et al*.,; Vinothkumar *et al*.,).

In order to determine the quality practices undertaken by any organization or FBO (Food Business Operator) and to recommend more convenient strategies to eradicate contaminants coming out from the food wastes. Hygiene audit inspectors follow a set of predetermined checklists as per the International Standard for Occupational Health and Safety Management Systems (ISO,; FSMS.).

5. Procedures followed in the Hygiene Audit

Hygiene auditing ensures the monitoring and safeguarding the standards of sanitation by assessing both the organizations' as well as the associated people's hygiene practices and by suggesting such establishments with proper measures of cleanliness. According to hygiene audit criteria, in order to perform hygiene audit, the methodology included different eco-friendly management tools such as preparation of questionnaire, data validation, physical inspection of the campus, interventions of hygiene studies, observation and review of the documentation of hygiene, interviewing key persons for data collection and its analysis, enumeration of various microorganisms such as bacteria, fungi and actinomycetes in air using suitable basal media, measurements and recommendations (AOAC, 2011; Gnanamangai *et al*.,). As the major contaminants causing hygiene issues and disease outbreaks due to various pathogenic microorganisms in the atmosphere that cannot even seen with naked eyes, it focuses on the enumeration of several microbial colonies in the Petri plates containing nutrient medium (Pelzer *et al*., 2000).

The food base containing nutrients that supports the growth of any microorganism is called culture medium or basal medium. The culture media are formulated in various forms according to the growth habits of microorganisms containing carbon, nitrogen, vitamin, amino acids, mineral and metals (iron, zinc, magnesium, manganese, sodium,). However, the culture media should be prepared under sterile condition by weighing and dispensing the individual ingredients or procuring ready-made medium from the market for culturing the selected microbes under controlled environment. Generally the common nutrient media contain both organic and inorganic nutrients required for the enriched growth of specific microorganisms. Agar can be used to solidly the media and culture plates can be exposed in different areas of an organization. This will help ensuring the maintenance of hygiene and cleanliness of the area.

5.1. Preparation and Cleaning of Glassware and Plastic ware items

Glassware and plastic ware items and culture media were properly cleaned with 10% sodium hypochlorite solution and washed properly with distilled water subsequently sterilized using an autoclave at 120°C temperature and 15 lbs/psi pressure (Cappuccino and Sherman, 2004). To evaluate the contamination source and rate of contaminants in the air at canteens, hostels, cafeterias/food court, seminar halls, auditorium, classrooms and the kitchen in the organization, simple culture media such as nutrient agar (NA), potato dextrose agar (PDA) and casein nitrate agar (CNA) are normally used to enumerate bacteria, fungi and actinomycetes; respectively from the test samples. Conical flask, Sterile water, Non-absorbent cotton, Spatula, Autoclave, pH meter, Electronic balance, Brown paper, Butter paper, etc. were used for the preparation of basal media as well as culturing the microorganism.

5.2. Preparation of Culture Media

Media components for Nutrient agar (NA) medium are Peptone (5.0 g), Sodium chloride (5.0 g), Beef extract (3.0 g), Yeast extract (3.0 g), Agar (30.0 g) and Distilled water (1000.0 ml). Around 600 g of peeled potato (not infected) were boiled in 600 ml of distilled water and subsequently filtered through a muslin cloth thoroughly. It was made up to 1000 ml with distilled water in which 20.0 g each of Dextrose and Agar were added. Starch-casein agar (SCA) medium was prepared by mixing of 10.00 g of Starch, 0.30 g of Casein, 2.00 g each of KNO_3, NaCl, K_2HPO_4, 0.50 g of $MgSO_4.7H_2O$, 0.02 g of $CaCO_3$, 0.01 g of $FeSO_4.7H_2O$, 1 litre of Distilled water and 18.00 g Agar. They were sterilized using an autoclave at 120°C temperature and 15 lbs/psi pressure. After sterilization, these media were poured onto sterile Petri plates and allowed for solidification under sterile condition in a laminar air flow hood.

5.3. Enumeration of Bacteria, Fungi and Actinomycetes in water and air samples

The sterile Petri plates containing nutrient agar (NA), potato dextrose agar (PDA) and casein nitrate agar (CAN) Similarly, for the enumeration of *Escherichia coli* (*E. coli*) were taken for the enumeration of bacteria, fungi and actinomycetes; respectively in air to assess the number aero-flora (IMTECH, 1998). These plates were exposed for 2-3 minutes at specific places where the number of microorganisms as micro flora in the air was to be enumerated. The exposed Petri plates were incubated under room temperature for 24-96 hours. Similarly, one ml of water samples was transferred to the petriplates containing the basal medium and then incubated under the controlled environments.

The number of bacterial colonies grown in the Petri plates containing nutrient agar medium within 24-48 hrs. of incubation period were counted using a Colony counter. In the case of fungal growth, the Petri plates containing potato dextrose agar medium were observed after 72-96 hrs. of incubation. The colony of actinomycetes was recorded in between the incubation period of 48-72 hrs. The bacterial colonies exhibited different shape, size, colour and texture on morphology. Fungal colonies were identified based on visual characteristics such as colony morphology, elevation, colony margin, aerial mycelium and colony colour. Actinomycetes showed a good sporulation with compact and dense, chalk-like dry colonies with powdery mass, different colour variations from pale pink to white colour on the Petri plates and shown a branched filamentous mycelium in their cell / filament morphology similar to fungal characters (Holt, 1989; IMTECH, 1998).

6. about the Organization

6.1. ABOUT ADHIYAMAAN COLLEGE OF ENGINEERING

Adhiyamaan College of Engineering (ACE) is one of the educational institutions developed by Adhiyamaan Educational & Research Institution - a trust, which was started in the year 1987-1988 to cater the needs of the nation in the development of technocrats and to provide facilities for educating and training men and women to meet the entrepreneurial and management needs. The management has created adequate infrastructural facilities and sufficient funds and is keen on developing the institution for higher education.

It is the first Engineering College to be started in the most backward erstwhile Dharmapuri District of the State of Tamilnadu to develop the people academically, socially and economically. It was originally affiliated to University of Madras. When the Periyar University was carved out from the University of Madras; it was affiliated to it. Since the government of Tamilnadu decided to bring all the Engineering and Technical Institutions in the State under one Technological University in the year 2001, Adhiyamaan College of Engineering was affiliated to the Anna University, Chennai. The college is housed in Adhiyamaan Educational & Research Institutions Campus, Dr.M.G.R Nagar, Hosur. The Campus is spread over an area of 250 acres abutting National Highway NH-7.

The Institution is situated 6 kms from Hosur bus stand and railway station. The Institution is well connected to three major Railway Junctions viz., Hosur, Jolarpet and Bangalore.The climate of Hosur is similar to that of Bangalore, which is just 35 kms away. Hosur, because of its proximity to Bangalore, enjoys all the facilities like Highway, Train, Airport and other communication similar to that of a metropolitan city. Hosur is a fast-growing major industrial town with various Industrial Units like TITAN, Ashok Leyland, Hindustan Motors, TVS and a host of other small, Medium Scale Industries. The college has established very good rapport with Industries so that majority of students do their project work in these Industries. The quality policy of ACE is committed to develop skills, knowledge and right attitude among students to meet the expectations of Industry, Parents and Society with continual improvement through dedicated teamwork. The main objectives of ACE are

- To create sustainable teaching - learning process in all academic units that promote pedagogical innovations.
- To transform students by facilitating holistic personality development and sustenance of talent.
- To nurture higher commitment towards learning, research and creative thinking among students and faculty members.
- To enhance industry-institute relationship to accelerate students' industry readiness.

The vision is to foster ACE as a centre for nurturing and developing world class Engineers and Managers who convert global challenges into opportunities through value-based quality education. The mission is to impart value-based quality education through effective teaching and learning processes. To nurture creativity,

excellence, and critical thinking by applying global competency factors to contribute and excel in the rapidly growing technological world. To continuously develop and improve holistic and innovative personality for global mobility. To make ACE a centre for excellence.

6.2. About Nature Science Foundation (NSF)

NSF is a Non-Profit ISO 9001:2015 certified Organization and registered with NGO Darpan NITI Aayog and Ministry of Micro, Small and Medium Enterprise, Government of India functioning energetically towards the noble cause of nature conservation and environmental protection. NSF is managed by a board of trustees of NSF Public Charitable Trust under the TN Societies registration Act 1975 (TN Act 27 of 1975) on 29th November, 2017 at Peelamedu, Coimbatore- 641 004, Tamil Nadu, India with Certificate of Registration No. 114 / 2017. In addition, NSF has 12A, 80G and Form 10AC certificates for income tax exemption. The main motto of the NSF is to "Save the Nature to Save the Future" and "Go Green to Save the Planet". NSF Branch Offices are also functioning effectively at Gorakhpur, Uttar Pradesh and Faridabad, Haryana, India to adopt the 'Go Green Concept'. NSF family is wide spread across India with over 70 state-wise Lead auditors to conduct Green and Environment Audits.

NSF is functioning strenuously to conduct different awareness programmes And implement various schemes to public and school / college students towards the noble cause of nature protection. Some of the programmes are also being organized for the benefit of tribal communities to create the supply chain for biodiversity conservation studies. The objectives along with vision and mission are illustrated to promote educational and environmental awareness programmes through social activities for enhancing the quality of life and to conserve nature from environmental pollutants using traditional and modern technologies for sustainable management.

Audit	**Certified Auditors**	**Certified Auditors**
Green Audit	• IGBC - Indian Green Building Council • GBCRS - Green Building Code and Green Ratings Systems • GRIHA – Green Rating for Integrated Habitat Assessment	➢ Mrs. S. Rajalakshmi ➢ Dr. R. Mary Josephine ➢ Dr. B. Mythili Gnanamangai ➢ Er. Ashutosh Kumar Srivastava ➢ Er. N. Shanmugapriyan
Energy Audit	• BEE - Bureau of Energy Efficiency • LEED - Leadership in Energy and Environmental Design • CII-GreenCo – GreenCo Rating System Felicitator	➢ Er. D. Dinesh Kumar ➢ Er. N. Shanmugapriyan ➢ Dr. N. Balasubramaniam ➢ Dr. P. Thirumoorthi ➢ Dr. G. Murugananth
Environment Audit	• IGBC -Indian Green Building Council	➢ Mrs. S. Rajalakshmi ➢ Dr. A. Geetha Karthi

	• ASSOCHAM - Associated Chambers of Commerce and Industry of India • FSRS – Fire Safety & Rescue Services	➢ Dr. R. Mary Josephine ➢ Dr. B. Mythili Gnanamangai ➢ Er. Ashutosh Kumar Srivastava ➢ Er. N. Shanmugapriyan
Hygiene Audit	• FSMS – Food Safety Management System & • Occupational Safety & Health (ISO 22000:2018) SBICM - Swatch Bharath under India Clean Mission	➢ Mrs. Gaanaappriya Mohan ➢ Er. Ashutosh Kumar Srivastava ➢ Dr. R, Sudhakaran ➢ Dr. N. Saranya
Academic & Administrative Audits	• Academic & Administrative Audits as per the NAAC Criteria	➢ Dr. B. Anirudhan ➢ Dr. B. Shreeram

7. Audit Details

Date / Day of Audit **: 25.03.2022 (Wednesday)**

Venue of Audit **: Adhiyamaan College of Engineering, Hosur.**

Audited by **: Nature Science Foundation,**
Coimbatore - 641 004, Tamil Nadu, India.

Audit typ e **: Green Campus Audit**

Name of ISO EMS Auditor **: Mrs. S. Rajalakshmi,**
Chairman & ISO EMS Auditor, NSF.

Name of the Lead Auditor **: Dr. R. Mary Josephine,**
Board of Directors & Botanist, NSF.

Name of the Hygiene Auditor **: Mrs. Gaanaappriya Mohan,**
FSMS OHS Hygiene Auditor, NSF.

Name of Subject Expert-I **: Er. Ashutosh Kumar Srivastava,**
Lead Hygiene Auditor & ISO FSMS.

Name of Subject Expert-II **: Dr. N. Saranya,**
Lead Auditor & Professor in Biotechnology.

Name of IGBC AP Auditor **: Dr. B. Mythili Gnanamangai,**
IGBC AP, Indian Green Building Council.

Name of Eco & Green Officer **: Ms. V. Sri Santhya,**
Assistant Director, NSF.

Opening meeting with the College Secretary, Principal, IQAC Coordinator, StaffCoordinators and Audit Team of the Nature Science Foundation.

8. Observations of the Hygiene Audit

8.1. Enumeration of Microbes in water and air samples at different locations of the Organization.

The results indicated that Actinomycete colonies were found to be lesser than fungal and bacterial colonies in terms of number of colony forming units (cfu) in all the Localities of the Organization. All the three microbes were found to be high at Indoor Stadium followed by CSE Lab least with Controller of Examination. The number of bacterial, fungal and Actinomycete colonies at HOD Room recorded was 15.6, 12.3 and 10.4 cfu. Similarly, they were 20.9, 08.7 and 07.5 cfu at Principal Room (Table)

Hygiene Audit Team

Total number of microbial colonies showed that bacterial colonies were about 86.7 cfu, fungal colonies were about 54.8cfu and Actinomycete colonies were about 41.2 cfu (Table 1 and Figure 1). Generally, Actinomycete colonies are found to be least (Avg. 09.12 cfu) always in all the places due to generic characteristic features. On the other hand, bacterial colonies are always exhibited higher (17.34 cfu) due to small size and rapid multiplication factors. The fungal colonies are always placed in between two microorganisms (10.96 cfu) such as bacteria and Actinomycete in terms of size, shape, growth, doubling time and generic characters.

S.No.	**Name of the Placein which water samples obtained**	**Number of Microbial colonies (cfu) ***			
		Bacterial colonies	**Fungal colonies**	**Actino mycete colonies**	**Total colonies / Average**
1.	Controller of Examination	10.5	10.5	03.8	26.1(08.7)
2.	Principal Room	20.9	08.7	07.5	37.1(2.36)
3.	CSE Lab	19.5	07.4	13.8	40.7(13.5)
4.	Indoor Stadium	20.2	15.9	05.7	41.8(13.9)
5.	HOD Room	15.6	12.3	10.4	38.3(12.7)
Total/Average number of Microbial colonies		86.7 (17.34)	54.8 (10.96)	41.2 08.24)	182.7(60.9)

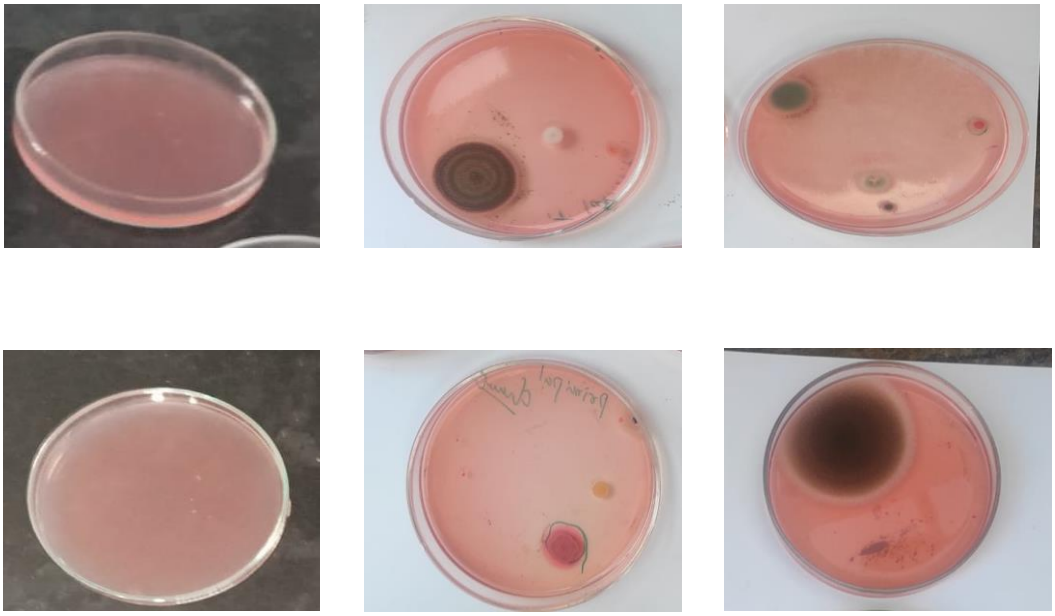
Cfu: Colony forming units
* Average three replicates
** Values in the parentheses are the average number of microbial colonies.

Note:

- Bacterial colonies were enumerated in Nutrient agar plates on 24 hrs interval.
- Fungal clusters were counted in Potato Dextrose agar plates on 72 hrs interval.
- Actinomycete colonies were counted in Casein Nitrate agar plates 48 hrs interval.

Standards (APHA, 2015):

- Number of bacteria maximal limit is 100 cfu
- Number of fungi maximal limit is 65 cfu
- Number of actinomycetes maximal limit is 50 cfu



8.2. Water Quality Analysis and Interpretation

The water samples were analysed for various parameters which includes physical, chemical and biochemical parameters like water pH, turbidity, total soluble solids, conductivity, total hardness and *E. coli* population density for which water samples were collected from RO water units, water doctors and water coolers kept at College canteen, hostels, staff room, laboratories and library. The results indicated that the water quality parameters such as pH, Turbidity, Conductivity, Total hardness and *E. coli* population density were found to be within the permissible limits. The pH value estimated in the water samples were measured from 6.8 to 8.2. The total hardness measured in the water samples was in the range of 80 and 320 mg/l. Both pH and total hardness of water samples were recorded below the permissible limit. The water sample analysis report indicated that the waters supplied to the stakeholders are drinkable one and safe.

Test for *E.coli* population in water samples

[Result: The samples did not turn yellow colour after incubation, therefore *E. coli* is absent in the water samples]

Table 2. Estimation of water quality parameters

Locations	pH Values*	Total hardness (TDS in PPM)**	Results and Observation
Auditorium	8.2	320	Above the permissible limit
Open corridor	7.5	80	Below the permissible limit
Canteen	6.8	90	Below the permissible limit
Staff Room	8.0	120	Below the permissible limit
Laboratory	7.5	240	Below the permissible limit
Library Hall	6.9	110	Below the permissible limit

* Permissible limit is 6.5 – 8.5
** Permissible limit is 300 mg/l

Drinking Water Facilities at ACE Campus

8.3. Observation on Personal Hygiene and Safety measures


Hand wash with a soap

A number of illness and disease outbreaks are reported to be consequences of lack of maintaining proper personnel hygiene among people. By touch, handling of contaminated food, contact with the untidy surfaces can cause invasion of germs and other contaminants. A good personal hygiene is primarily achieved by cleansing hands to remove germs. Soap washing or use of sanitizers ensures removal of 90% of germs and protects the person from catching illness and spreading it to other people. Hence, it is important to create awareness among the stakeholder on personal hygiene.

Washbasins Maintenance at ACE Campus

As far as the stakeholders and employees are concerned, the safety and convenience of everyone working/access to the organization, the suitable safety rules and regulations should be observed at all times. The basic steps should be followed at all times to reduce the contamination of the working environment especially in edible preparation areas. Wearing a laboratory coat or apron along with hand gloves and caps before entering a working environment for protecting clothes from contamination or accidental discolouration by staining solutions are always mandatory in Organization's hygiene. It will be highly useful to offer good hygiene environment to the stakeholders.

The observation on providing hygiene environment to the stakeholders at Aathiyamaan College of Engineering revealed that sanitizing materials such as soap, liquid detergent, tissue paper role, hand gloves, hand towels are made available nearby washbasins and restrooms focussing towards personal hygiene and sanitation related concerns. It is observed that working tables and benches are kept clean at
Laboratories across the Departments. The working tables and benches are regularly cleaning with a disinfectant solution and neat cloth. Equipment and machineries are very neatly maintained without any dusts and covered with the appropriate covers.
Appropriate dustbins and eco-friendly covers are made available at laboratories, canteens, food courts, cafeteria and hostels across the campus. At hostel dining halls

and canteens, food suppliers are tied their long hairs properly and wear disposable hand gloves, full cover aprons and caps minimize contamination and fire hazards.

Details of pest management strategies adopted (cockroach traps, rodents control measures, insect repellents and other control facilities) at ACE campus is very good. Food preparation (kitchen) area at hostels and canteen is very clean, free of insect pests and in good state of ventilation and exhaust system along with proper water supply and drainage. It is observed that waste disposal area and waste disposal collection centre are neat and clean, free of insect pests and free of spillage with no stagnation of water in food zones.

Observation of clean and neatness at Canteen and Hostels at ACE Campus

8.4. Napkin disposal facility

Menstrual Hygiene Management (MHM) is an indispensable part of the Swachh Bharath Mission Guidelines (SBM-G) for adolescent girls and ladies. As in step with MHM hints, 'Safe disposal' method making sure that the process of destruction of used and dirty materials is performed without human touch and with minimum environmental pollutants and 'Unsafe disposal' method throwing used material into ponds, rivers, or inside the fields exposes others inside the vicinity to decaying material and have to be averted. Some of the unsafe practices of napkins include throwing them unwrapped into fields and rooftops, wrapping them in paper/ plastic bags and throwing them outdoors or in dustbins, burying them for de-composting, throwing them in latrine / toilets, burning it. These unsafe practices are to be avoided and rather health practices can be adopted.

The College is implementing the safe practices of disposing of napkins using small scale incinerators in ladies hostels. Incinerators facility and disposal structures in the proper directions and other social stigmas connected to menstruation influences the sanitary waste disposal conduct of women within the campus is very much appreciated. The Management is taking care of adolescent girls and ladies significantly in terms of their personal hygiene and safe.

9. Best Practices followed on Hygiene in the Organization

No person is suffering from a disease or illness or with open wounds or burns among the students, teaching and non-teaching staff members including supportive staff and management people across ACE Campus.

College campus observed during the hygiene audit which indicated the Management Adhiyamaan College of Engineering is very keen interest in providing good hygiene atmosphere to the stakeholders.

- The sanitizing materials such as soap, liquid detergent, tissue paper role, hand gloves, hand towels, etc. are made available nearby the washbasins and restrooms focussing tow
- Towards the personal hygiene and sanitation related concerns to the stakeholders.
- Appropriate dustbins and eco-friendly covers are made available at laboratories, canteens, food courts, cafeteria and hostels across the campus to control the spread

of wastes and contaminants from one place to another place and without harming the environmental health.

- The pest management strategies adopted (cockroach traps, rodents control measures, insect repellents and other control facilities) at ACE campus is very good. The laboratories, classrooms, hostels, canteens, foot courts and toilets / restrooms are very neat and clean with proper ventilation and exhaust system.
- Food handlers are equipped with suitable personal safety materials like disposable hand gloves, full cover aprons and caps to minimize contamination and fire hazards at hostel dining halls and canteens to minimize contamination and fire hazards.
- Maintenance of equipment and machinery items is very good and being carried out regularly as per the instructions of the manufacturer. They are neatly maintained without any dusts and covered with the appropriate covers.
- Pest control programmes for cockroach, house flies, mosquitos, rodents and etc. are effectively implemented and pest control activities (eggs, larvae, pupa, faeces, etc.) are carried out by trained and experienced personnel and no signs of pest activity or infestation in the Organization premises are noticed.

10. Recommendations for Personal and Environment hygiene

- The Quality Policy of the Organization regarding personal, environmental, food, water and occupational hygiene may be developed generously to provide good hygiene to the stakeholders.
- Hygiene audit team comprising of management representatives, faculties, staff members and social aware members may be formed to inspect the different places like laboratories, classrooms, seminar halls, auditorium, hostels, canteens, food courts and toilets / restrooms to check the cleanliness and maintenance.

- In order to conduct hygiene audits effectively in organizations, training of personnel is a prerequisite for which efforts may be taken by the Organization.

- Lot of awareness programmes on personal and environmental hygiene, pest management strategies adopted, sanitation methods, hygiene maintenance and instructions to be followed for the stakeholders may be conducted regularly through hygiene clubs, forums, cells and associations.
- All food handlers have basic food hygiene certificates by attending training programmes, seminars, conferences, workshops and skill up gradation events to update their knowledge as well as to know the latest techniques in food science and technology.

11. Conclusion

Adhiyamaan College of Engineering Campus is a well-established Technical Institute in TamilNadu state and it stands outstanding in India in terms of academic activities, efforts are continuously made in providing an eco-friendly hygiene atmosphere to the students, research scholars, parents and staff members. The laboratories, canteens, food courts, cafeteria, hostels and corridors across the campus are very neat campus which reflected low level of contamination source and rate of contaminants including microflora in the water and air. The air quality is very good in terms of least number of

microflora such as bacteria, fungi and actinomycetes in the air. The water samples were analyzed for various quality parameters such as pH, Turbidity, Conductivity, Total hardness and *E. coli* population density which showed that all parameters were found to be within the permissible limits. The pH and total hardness value were measured from 6.8 to 8.2 and 80 and 320 mg/l. The water sample analysis report indicated that the waters supplied to the stakeholders are drinkable one and safe.

The washbasins and restrooms are equipped with the sanitizing materials such as soap, liquid detergent, tissue paper role, hand gloves, hand towels, etc. and are made available to the stakeholders to improve their personal hygiene and sanitation. Monitoring of efficient hand wash, urinals and latrine and bath room facilities in the campus are highly appreciated. Campus ecosystem is supported in making a sustainable environment to promote sanitation and cleanliness which enhance the teaching and learning. To conclude the hygiene audit report ACE Campus is an eco-friendly campus and providing pure atmosphere and personal safety to the stakeholders in terms of various hygienic measures such as regarding personal, environmental, food, water and occupational hygiene. In addition, a large number of awareness programmes on personal and environmental hygiene, pest management strategies adopted, sanitation methods, hygiene maintenance are being conducted to the stakeholders regularly through hygiene clubs, forums, cells and associations which supports to the nation as a whole in terms of providing hygienic environment.

12. Acknowledgement

Nature Science Foundation, Coimbatore, Tamil Nadu, India is grateful to the Secretary, Principal and IQAC coordinator of the ACE, Hosur, Karnataka, providing us necessary facilities and co-operation during the hygiene audit process. This helped us in making the hygiene audit a success. Further, we hope that the best practices followed by the ACE on environment sustainability with respect to the personal hygiene and safety to the stakeholders and recommendations along with suggestions given by the NSF will boost the new generations to take care of the healthy environment and personal hygiene along with personal safety.

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4. 12A Certificate
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Date of Expiry*	: 07/01/2024		
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Ministry of Micro, Small and Medium Enterprises

MSME
सूक्ष्म, लघु एवं मध्यम उद्यम
MICRO, SMALL & MEDIUM ENTERPRISES

UDYAM
REGISTRATION CERTIFICATE

UDYAM REGISTRATION NUMBER	UDYAM-TN-03-0073706
NAME OF ENTERPRISE	M/S NATURE SCIENCE FOUNDATION
TYPE OF ENTERPRISE *	MICRO
MAJOR ACTIVITY	SERVICES
SOCIAL CATEGORY OF ENTREPRENEUR	GENERAL

NAME OF UNIT(S)

S.No.	Name of Unit(s)
1	Green Campus, Energy and Environment Management Audits

OFFICAL ADDRESS OF ENTERPRISE

Flat/Door/Block No.	LIG-II,2669	Name of Premises/ Building	GANDHIMAA NAGAR
Village/Town	Gandhimaanagar S.O	Block	LIG-II
Road/Street/Lane	Peelamedu	City	Coimbatore South
State	TAMIL NADU	District	COIMBATORE , Pin 641004
Mobile	9566777255	Email:	chairmannsf@gmail.com

DATE OF INCORPORATION / REGISTRATION OF ENTERPRISE	28/11/2017
DATE OF COMMENCEMENT OF PRODUCTION/BUSINESS	12/03/2020

NATIONAL INDUSTRY CLASSIFICATION CODE(S)

SNo.	NIC 2 Digit	NIC 4 Digit	NIC 5 Digit	Activity
1	69 - Legal and accounting activities	6920 - Accounting, bookkeeping and auditing activities; tax consultancy	69201 - Accounting, bookkeeping and auditing activities	Services
2	85 - Education	8542 - Cultural education	85420 - Cultural education	Services
3	85 - Education	8549 - Other education n.e.c.	85499 - Other educational services n.e.c.	Services

DATE OF UDYAM REGISTRATION	26/02/2022

* In case of graduation (upward/reverse) of status of an enterprise, the benefit of the Government Schemes will be availed as per the provisions of Notification No. S.O. 2119(E) dated 26.06.2020 issued by the M/o MSME.

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For any assistance, you may contact:

1. District Industries Centre: COIMBATORE (TAMIL NADU)

2. MSME-DI: CHENNAI (TAMIL NADU)

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Welcome, Nature Science Foundation

Your Unique Id: TN/2018/0187711

PROCEEDINGS OF THE COMMISSIONER OF INCOMETAX (EXEMPTIONS),
III FLOOR, ANNEXE BLDG, NO.121, MAHATMA GANDHI SALAI, CHENNAI-34

Present : G.M.DOSS, I.R.S
Commissioner of Income Tax (Exemptions)

** URNo. AACTN7857J/05/18-19/T-1105 Dated:03/09/2018

Sub: Registration u/s. 12AA of the Income tax Act 1961 - in the case of

"Nature Science Foundation"
LIG-II, 2669, Gandhimaa Nagar, Peelamedu, Coimbatore – 641 004.

Ref : Application in form 10 A filed on 28/03/2018

ORDER UNDER SECTION 12AA OF THE INCOME TAX ACT 1961.

1. The above **Trust/~~Society/Association/ Company/ others/~~,** bearing **PAN AACTN7857J** was constituted by **Trust Deed / ~~Memorandum of Association~~** dated **29/11/2017** registered with **Sub-Registrar's Office/ ~~Registrar of Societies~~**/~~Registrar of Companies/others~~ on **29/11/2017.**

2. ~~The Trust Deed / Memorandum of Association has subsequently been amended / modified / altered by a Codicil / Supplementary Deed / Amendment Deed / Alteration to Memorandum of Association/others dated XX/XX duly registered on XX/XX.~~

3. The above **TRUST** filed an application seeking Registration u/s 12 AA of the Income tax Act, 1961.

4. On going through the objects of the **TRUST** and its proposed activities as enumerated in the **Trust Deed / ~~Memorandum of Association,~~ I** am satisfied about the genuineness of the **TRUST** as on date.

5. The application has been entered at **Sl.No.1105** maintained in this office. The above **Trust** is accordingly registered as a **PUBLIC CHARITABLE TRUST** u/s 12 AA of the Income Tax Act, 1961 with effect from **29/11/2017**.

6. It is hereby clarified that the Registration so given to the **Trust/~~Institution~~** is not absolute. Subsequently, if it is found that the activities of the **Trust/~~Institution~~** are not genuine or are not being carried out in accordance with the objects and clauses of the **Trust Deed / ~~Memorandum of Association~~** submitted at the time of registration or modified with the approval of the **Commissioner of Income-tax (Exemptions), Chennai** or there is a violation of the provisions of Section – 13, **the** Registration so granted shall be cancelled as provided u/s 12 AA (3) or 12AA(4) of the Income Tax Act. Further, this approval is also subject to the **Trust/~~Society/Association/Company/ Others/~~** complying to the provisions of the proviso to sec 2(15) of the Income Tax Act 1961.

7. **Granting of Registration u/s 12AA** does not confer any automatic exemption of income from taxation. The **Trust/~~Institution~~** should conform to the parameters laid down in Sections 11, 12, 13 and 115 BBC of the I.T. Act, 1961, to claim exemption of its income on year to year basis before the Assessing Officer.

** This Unique Registration No. URNo. **AACTN7857J/05/18-19/T-1105** Should be mentioned in all your future correspondence.

Sd/-
(G.M.DOSS, I.R.S)
Commissioner of Income-tax(Exemptions), Chennai.

Copy to:
1. The Assessee.
2. The ACIT(Exemptions), Coimbatore Circle.
3. Office Copy.

//CERTIFIED TRUE COPY//

(N SRINIVASA RAO)
Asst. Commissioner of Income-tax (H.Qrs)(Exemptions),
Chennai.

F.2984

GOVERNMENT OF INDIA
INCOMETAX DEPARTMENT
OFFICE OF THE COMMISSIONER OF INCOME TAX (EXEMPTIONS)
Aayakar Bhawan, Annexe III Floor, 121 M.G. Road, Chennai 600 034

URNo. AACTN7857J/05/18-19/T-1105/80G Date: 10.04.2019

Name of the Trust ~~/Society /Company/Institution~~	:	NATURE SCIENCE FOUNDATION
Address	:	LIG II 2669, GANDHIMAA NAGAR, PEELAMEDU, COIMBATORE - 641 004
PAN	:	AACTN7857J
Date of Application	:	12.11.2018

Received
Rajesh 17/07/2019
E. Ponnuraj 17/07/19

APPROVAL UNDER SECTION 80G(5)(vi) OF THE INCOME TAX ACT, 1961

The aforesaid Trust~~/Society/Company/Institution~~ has been registered u/s.12AA of the Income Tax Act with effect from **29.11.2017** vide **AACTN7857J/05/18-19/T-1105** dated **03.09.2018.** It is certified that donation made to **NATURE SCIENCE FOUNDATION** at **LIG II 2669, GANDHIMAA NAGAR, PEELAMEDU,COIMBATORE - 641 004** shall qualify for deduction u/s 80G(5)(vi) of the Income Tax Act, 1961, subject to the fulfillment of conditions laid down in clauses [i] to [v] of sub-section (5) of section 80G of the I.T Act, 1961.

2. This approval shall be valid in perpetuity with effect from **A.Y. 2019-20** unless specifically withdrawn. **The details and validity of the certificate is available @ office.incometaxindia.gov.in**

3. The Return of Income along with the Income & Expenditure Account, Receipts and Payments Account and Balance Sheet should be submitted annually **to** the Assessing Officer having jurisdiction over the case.

4. No change in the Trust Deed/~~Memorandum of Association~~ shall be effected without the prior approval of the undersigned i.e. **Commissioner of Income Tax (Exemptions), Chennai**.

5. Every receipt issued to a donor shall bear the **Unique Registration Number** i.e. **URNo. AACTN7857J/05/18-19/T-1105/80G** and date of this order i.e. **10.04.2019.**

6. Under the provisions of section 80G(5)(i)(a), the institution/fund registered u/s.12A, u/s.12AA(1)(b) or approved u/s.10(23C), 10(23C)(vi)(via), etc., shall have to maintain separate books of accounts in respect of any business activity carried on and shall intimate this office within one month about commencement of such activity.

Sd/-
(G.M.DOSS, I.R.S)
Commissioner of Income Tax (Exemptions)
Chennai.

Copy to:
1. The applicant
2. Guard File
3. The DCIT(Exemptions) Coimbatore Circle.

//Certified True Copy//

(N. SRINIVASA RAO)
Assistant Commissioner of Income-tax (H.qrs)
(Exemptions), Chennai.

FORM NO. 10AC

(See rule 17A/11AA/2C)
Order for registration

1	PAN	AACTN7857J
2	Name	NATURE SCIENCE FOUNDATION
2a	Address	
	Flat/Door/Building	LIG-II, 2669
	Name of premises/Building/Village	GANDHIMAA NAGAR
	Road/Street/Post Office	Coimbatore South
	Area/Locality	COIMBATORE
	Town/City/District	Gandhimaanagar S.O
	State	Tamil Nadu
	Country	INDIA
	Pin Code/Zip Code	641004
3	Document Identification Number	AACTN7857JE2021501
4	Application Number	739995830271021
5	Unique Registration Number	AACTN7857JE20215
6	Section/sub-section/clause/sub-clause/proviso in which registration is being granted	01-Sub clause (i) of clause (ac) of sub -section (1) of section 12A
7	Date of registration	03-11-2021
8	Assessment year or years for which the trust or institution is registered	From AY 2022-23 to AY 2026-2027
9	Order for registration:	
	a. After considering the application of the applicant and the material available on record, the applicant is hereby granted registration with effect from the assessment year mentioned at serial no 8 above subject to the conditions mentioned in row number 10.	
	b. The taxability, or otherwise, of the income of the applicant would be separately considered as per the provisions of the Income Tax Act, 1961.	
	c. This order is liable to be withdrawn by the prescribed authority if it is subsequently found that the activities of the applicant are not genuine or if they are not carried out in accordance with all or any of the conditions subject to which it is granted, if it is found that the applicant has obtained the registration by fraud or misrepresentation of facts or it is found that the assessee has violated any condition prescribed in the Income Tax Act, 1961.	
10	Conditions subject to which registration is being granted	
	The registration is granted subject to the following conditions:-	

	o. This certificate cannot be used as a basis for claiming non-deduction of tax at source in respect of investments etc. relating to the Trust/ Institution.	
	p. All the Public Money so received including for Corpus or any contribution shall be routed through a Bank Account whose number shall be communicated to Office of the Jurisdictional Commissioner of Income Tax.	
	q. The applicant shall comply with the provisions of the Income Tax Act, 1961 read with the Income Tax Rules, 1962.	
	r. The registration and the Unique registration number has been instantly granted and if, at any point of time, it is noticed that form for registration has not been duly filled in by not providing, fully or partly, or by providing false or incorrect information or documents required to be provided under sub-rule (1) or (2) of rule 17A or by not complying with the requirements of sub- rule (3) or (4) of the said rule, the registration and Unique Registration Number (URN), shall be cancelled and the registration and URN shall be deemed to have never been granted or issued.	
	Name and Designation of the Registration Granting Authority	Principal Commissioner of Income Tax/ Commissioner of Income Tax (Digitally signed)

Digitally Signed by SIBICHEN K MATHEW
Date: 2020.11.03 15:52:36 IST

Certificates of Hygiene Auditors

1. ISO ‘Environment Management System’ (14001:2015) of Mrs. S. Rajalakshmi, Founder & Chairman of NSF.

2. Lead Auditor in ‘Food Safety Management System and Occupational Health & Safety (ISO 45001:2018)’ of Er. Ashutosh Kumar Srivastava, Board of directors of NSF.

3. Lead Auditor in ‘Food Safety Management System (ISO 22000:2005)’ of Mrs. Gaanappriya Mohan, NSF Hygiene Auditor.

4. ‘Personal Safety and Occupational Health’ of Institute of Health Safety & Environment Council of Mrs. Gaanappriya Mohan, NSF Hygiene Auditor.

5. ‘Accredited Professional’ of Indian Green Building Council of Dr. B. Mythili Gnanamangai, Vice-Chairman of NSF

6. ‘Certified Professional’ of Associated Chambers of Commerce and Industry of India of Dr. B. Mythili Gnanamangai, Vice-Chairman of NSF.


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at Delhi, India.

Shashi Nath Mishra
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K S Venkatagiri
Executive Director
CII-Godrej GBC

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Indian Green Building Council

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17 April 2021

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Chairman, GEM

GEM CP 20/649

Deepak Sood
Secretary General, ASSOCHAM