



# Institute of Chemical Technology, Mumbai

Deemed to be University under Section 3 of UGC Act 1956  
Elite Status and Centre of Excellence, Govt. of Maharashtra

## BEST PRACTICES IN MY INSTITUTION

### BEST PRACTICE# 1

#### **1. Title of the practice**

Smart Learning/ Smart Classroom Teaching

#### **2. The context that required the initiation of the practice**

The institute believes in advanced pedagogy practices with a major focus on enhancing the performance of students.

#### **3. Objectives of the practice**

To include: 1) Lecture Recording System 2) Use of smart Board to teach Engineering Drawing 3) Use of Wi-Fi connected LCD in all classrooms 4) Use of e-Books and e-Journals 5) E-Attendance System in the existing teaching and learning systems at the Institute

#### **4. The Practice**

To improve understanding of the course content of students the institute has built and installed custom-made lecture recording systems in all the classrooms. The Institute emphasizes the use of modern teaching tools like PowerPoint presentations, demonstrative videos, and other e-files for a better understanding of the subjects. The e-library platform helps to check the availability of particular books on the shelf anytime and easier record management. The recorded lectures are available on the institute website and students can revisit these recorded lectures and clear their doubts at their convenience. The concept of smart boards is introduced in teaching to demonstrate several simulation software and engineering drawings for a better understanding of the subject. All classrooms are equipped with Wi-Fi-enabled LCD projectors to show PowerPoint presentations, videos, etc. during classroom teaching. The Institute has

developed a custom-made biometric attendance system for student's attendance and to ensure delivery of the content. The main objective of having such a system was to attract students who tend to stay away from the lectures because of several distractions in terms of internet surfing and mobile apps. The system is based on wireless transmission of the attendance to a central server. Each class has a safe biometric lock which is opened only by the faculty member. The faculty initiates the lecture by selecting his/her course and class in a drop-down menu using the app on a tablet. A biometric machine is circulated amongst the students with preregistered fingerprints, so that each student, present in the class gets registered on the machine. At the end of the class when the app is closed, the names of registered students are sent to the central server.

#### ***5. Obstacles faced if any and strategies adopted to overcome them***

Initial instalment and implementation of the necessary software led to several obstacles with respect to optimization of the system. But consistent and dedicated efforts by the ICT team have resulted in smooth functioning of the module.

#### ***6. Impact of the practice***

Improved learning system helps students to get access to the recorded lectures as and when required. The average attendance post-implementation of the E-system has improved from 50-60% to more than 90%. This new system has not only has ensured the attendance of the students but also helped in conducting timely lectures by the faculty. Students have the provision of giving feedback at the end of the class which is noted by teachers. Besides, students' performance is enhanced as now they do not miss out on the continuous assessment tests that teachers conduct, sometimes as surprise tests.

The e-library platform helps to check the availability of particular books on the shelf anytime and easier record management. The institute has electronic access to world-class leading research journals.

#### ***7. Resources required***

Recording gadgets, Smart Boards, Wi-Fi connectivity, Projectors & LCDs, subscription to e-Books and e-Journals, Tabs for E-Attendance

## 8. About the Institution

***i. Name of the Institution:*** Institute of Chemical Technology, Mumbai

***ii. Year of Accreditation:*** 2017

***iii. Address:*** Nathalal Parekh Marg, Matunga, Mumbai - 400019

***iv. Grade awarded by NAAC:*** A++

***v. E-Mail:*** vc@ictmumbai.edu.in

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***vii. Website:*** <https://www.ictmumbai.edu.in/>

## BEST PRACTICE# 2

### ***1. Title of the practice***

Waste Management

### ***2. The context that required the initiation of the practice***

The institute premises has residential as well as hostel facilities for accommodation of faculty and students. As a result, significant amount of waste (biodegradable as well as non-biodegradable) is generated. ICT is a responsible institute which consciously works for development of waste management technologies under different research sections and hence believes in managing the waste generated.

### ***3. Objectives of the practice***

To manage disposal of 1) Kitchen Waste 2) Hazardous Waste 3) E-Waste

### ***4. The Practice***

The institute encourages the management of waste generated within the campus and conducts regular workshops and seminars on waste disposal, their source, classification as well as pest control. The Institute practices efficient waste management of kitchen waste from hostel messes and, canteens which serve meals to around 1000 students per day. The cooked and uncooked waste generated from these messes is treated in the waste disposal and management plant set up on the campus and is converted to biogas and manure. The Biogas is used for running kitchen stoves and the manure is used as a fertilizer supplement in gardening.

The institute has prohibited the use of plastic bags within the campus premises. Electronic goods are put to optimum use, repaired, and reused until completely out of order. The staff and laboratory assistants are well trained to perform minor repairs while professionals are hired for major repairs. Electronic goods are put to optimum use, repaired, and reused until completely out of order. The staff and laboratory assistants are well trained to perform minor repairs while professionals are hired for major repairs.

The UPS batteries are recharged/repaired/exchanged by the suppliers. The obsolete computers and other wastes generated from the electronic equipment are auctioned to authorized e-waste dealers and the hazardous materials are removed and disposed of as per norms.

The Institute in collaboration with the Waste to Energy Research and Technology Council India (WERT- India), hosted the fourth annual conference on waste management of industrial, construction/demolition, municipal solid, and e-wastes as an uninterrupted resource for recovery of the valuables and energy on November 26 and 27, 2015 at ICT.

#### ***5. Obstacles faced if any and strategies adopted to overcome them***

ICT follows proper norms for waste management. However, the Institute decided to upgrade the existing practices with much more defined protocols and rules. The existing support staff was encouraged to adopt the waste segregation and management practices. Proper rules for waste segregation were imposed on the residents of the campus. The support staff and workers were trained for the waste management practices. Proper policies for discharge and discard of hazardous chemical and effluents were laid and circulated to all departments.

#### ***6. Impact of the practice***

ICT today manages its waste efficiently and moving towards a greener, cleaner and environmentally friendly campus. The campus has provision for composting the organic fractions generated from hostel and residential quarters. The fertiliser made from the process is used for enriching the garden plants in the Campus premises.

#### ***7. Resources required***

Composting systems and pits, manpower for segregation

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### **BEST PRACTICE# 3**

#### ***1. Title of the practice***

Management Information System (MIS)

#### ***2. The context that required the initiation of the practice***

Efficient and minimal error prone functioning of academic and administrative activities through online management system in order to achieve targeted accomplishments in the prescribed timelines.

#### ***3. Objectives of the practice***

To manage all academic and administrative activities through online system for easy and monitorable functioning

#### ***4. The Practice***

The Institute has adopted a new Management Information System (MIS) which takes care of all the activities related to academics, research, students, library, employees life cycle analysis, regulatory bodies compliance and accreditation, back-office work related to salaries, maintenance of leave musters, inventory stock, hostels, mess, library, etc. with a single database. The MIS system has been implemented for faculty recruitment, official documentation, attendance system, examination process, thesis approvals and submission formalities, grievances, counseling, admissions, appointment procedures, Internal quality assessment, etc. There are many modules of this system that have helped in streamlining and transparent functioning of various activities at the Institute. The MIS helps declare results of the Masters and Ph.D. entrance exams on the same day. The store inventory management including order placement, collaboration with the finance department has become much streamlined and sorted. The complete information of different modules and respective data in those modules including the feedback surveys is available 24x7 as the entire campus is Wi-Fi enabled. The information is also available on the cloud and can be accessed through a mobile application.

### **5. Obstacles faced if any and strategies adopted to overcome them**

Initial stages of development for MIS platform involved difficulties in integrating several academic and administrative modules like admission process, examination centre activities, result declaration, attendance of students and faculty, purchase department activities, accounts and salary disbursement, faculty profiles and leave management, students and alumni feedback, research activities including Ph.D Thesis evaluation etc. However, consistent efforts towards addressing all minor and major issues finally led to proper and smooth functioning of MIS.

### **6. Impact of the practice**

Proper management of each and every module on MIS has led to streamlined, timely and paperless functioning of various administrative and departmental activities at the Institute.

### **7. Resources required**

Internet service, software development, integration and optimization

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## **BEST PRACTICE# 4**

### ***1. Title of the practice***

Environmental Consciousness and Energy Conservation

### ***2. The context that required the initiation of the practice***

The Institute believes and follows in practicing environment friendly approach for a sustainable future. The Institute is committed to energy conservation and focuses on measures that help conserve energy

### ***3. Objectives of the practice***

To maintain green, sustainable and environment friendly campus premises

### ***4. The Practice***

Environment consciousness is enshrined in the mission of the Institute and irrespective of its urban surroundings, the Institute has a lush green campus. Tree plantation is the major concern to maintain the pristine purity and beauty of the institute and provide a congenial atmosphere for academic and non-academic pursuits. Even though no formal green audit is conducted, a lot of dedicated effort is put in to make the campus eco-friendly. There are 25 gardeners to carry out the horticulture work and the Institute has won the best garden award for several years. Informal green audit of the campus is carried out by the staff periodically by supervising the maintenance of the existing trees and locating places for planting new trees. Nurturing plants is one of the non-academic pursuits that develop eco-concern among the students. Efforts are made to make the Institute a polythene-free zone by removing plastic covers periodically from the campus. The Institute closely monitors the energy consumption and the superintendents meticulously keep a check on various activities. The notices displayed near the switchboards prevent wastage of energy. All departments have timer introduced air conditioners. All the motor pumps have a sensor-based switch on and off mechanism. The institute has replaced all incandescent bulbs with highly efficient CFL and LED bulbs.

The Institute has two rainwater harvesting structures for the reuse of rainwater in washrooms and other purposes. A concept of eco-campus incorporating treatment and reuse of greywater, rain-water harvesting is being worked out to manage water usage.

The institute has adopted use of renewable energy platforms to reduce the burden of energy consumption and thus the energy bills. The institute has installed 730 kW solar panels has led to a reduction of power bills of up to Rs. 20 lakh per month. The High-performance computational lab in the institute is equipped with Solar-powered air-conditioners. The hostels have solar water heaters installed for the hot water supply.

Research groups work on innovative concepts in the area of renewable energy such as solar-powered lights, cookers, dryers and, have received recognition from industrial and agricultural fields.

The institute constantly thrives to maintain a carbon efficient and a pollution-free campus. The Institute undertakes several measures to reduce carbon emissions. Various types of trees are planted inside and outside the campus which help maintain the ecosystem and reduce carbon emissions. Planting of saplings by the chief guests of various functions evinces the eco-consciousness inherent in the institute practices. Natural fertilizers are used for gardening on the campus. Circulars are sent through emails for minimizing the use of paper and the Institute is gradually moving towards a paperless system.

#### ***5. Obstacles faced if any and strategies adopted to overcome them***

The people of the Institute have been made aware and conscious of benefits green and renewable energy sources and their impact on sustainable living.

#### ***6. Impact of the practice***

The institute has installed 730 kW solar panels has led to a reduction of power bills of up to Rs. 20 lakh per month. The use of vehicles is discouraged inside the campus to maintain a pollution-free campus. The rain harvested water is reused in the hostel toilets and bathrooms and indirectly helps reduce water usage.

#### ***7. Resources required***

Thoughtfulness and conscious efforts towards minimising wastage of natural resources and conservation of energy sources.

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