HANDBOOK: 2016-2017

INSTITUTE OF CHEMICAL TECHNOLOGY
(Deemed-to-be-University under Section 3 of the UGC Act 1956)
Elite Status and Centre of Excellence - Govt. of Maharashtra
GRADE ‘A’ BY MHRD

The Only State Funded Deemed University in India
World Renowned for Quality of Education, Research and Connectivity with Industry
University Par Excellence

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Institute of Chemical Technology, Mumbai.

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Mumbai.
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1. **ABOUT ICT**

1.1 **IMPORTANT INSTRUCTIONS**

1. The fees for a single form to a particular course including the Handbook are as follows. Candidates desirous of applying for additional courses must buy relevant form by paying additional fee at the same rate.

<table>
<thead>
<tr>
<th>Course</th>
<th>Open Category</th>
<th>Backward Class Category**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postgraduate</td>
<td>Rs.1000/-.***</td>
<td>Rs. 500/-.***</td>
</tr>
</tbody>
</table>

** Fees for Backward class candidates are applicable to the candidates from the State of Maharashtra only.

*** online payment charges applicable

2. Anybody, not belonging to the backward class category, and paying online application fee under that category will be disqualified.

3. **Please read the Handbook carefully before filling the admission form.**

4. **Changes if any, in the contents of this printed copy, shall appear in the soft copy of the handbook displayed on** [www.ictmumbai.edu.in](http://www.ictmumbai.edu.in).

5. Due to circumstances beyond control of authorities, the schedule of admission may change and it will be notified on the website. Candidates are advised to watch the website frequently.
6. Merit list/schedule of admission rounds for all PG courses will be displayed on www.ictmumbai.edu.in and the ICT Notice Board. Please note that no individual correspondence will be made in this regard and it is the responsibility of the candidates to visit the webpage regularly. PG candidate must visit ICT website time to time to check the timetable for written test & interview and changes if any.

7. Pleading ignorance about information displayed on the web shall not be entertained.

8. Admission to hostel is as per the rules laid down and the quota for various courses.

9. Merit is the only criterion for admission to any course and seats are reserved as per Government of Maharashtra’s directives in this connection.

10. There are no agencies operating on behalf of the institute and there is no capitation fee or donation in regard of admissions. Be careful of any persons claiming to offer admission to the ICT or knowing authorities. No extraneous considerations should be brought to exert pressure on the Admission Committee. It will be strictly dealt with. We take pride in fairness and openness in admissions and all matters and give justice to one and all.

11. All correspondence regarding admissions should be addressed to the Registrar, Institute of Chemical Technology, Nathalal Parekh Marg, Matunga, Mumbai-400019 (admission@ictmumbai.edu.in; +91-22-33611111/ 2222; Fax: +91-22-33611020).

1.2 APPROACH ROUTES TO ICT AND LANDMARKS

A location map of the ICT, available on Google maps, is provided on next page and the various access routes are described from nearby railway stations, bus stops and the airport.

Landmarks in the vicinity of ICT

The VJTI (Veermata Jijabai Technological Institute) (Backside), Khalsa College, Don Bosco Church are well-known landmarks adjacent to the ICT on the Nathalal Parekh Marg. The Main Security Hub of ICT prominently depicts
its name both in English and Devanagari scripts and cannot be missed (picture given below). The main building is constructed of a yellowish Malad stone, surrounded by excellent greenery and beautiful gardens. The ICT campus is one of the most picturesque and quiet place. It is located on a 16-acre plot, surrounded by Nathalal Parekh Marg (front side), Puranmal Singhani Marg (between Don Bosco and ICT), R.A. Kidwai Marg (backside) and P.B. Sule Marg.

Most of the long distance trains on the Central and Western Railways halt at the Dadar Railway Station (see routes D and E below). All buses operated by the Maharashtra State Road Transport Corporation and private carriers stop at Dadar bus station on Dr. Babasaheb Ambedkar Road near Jagannath Shankarshet Flyover and Khodadad Circle (or popularly called Dadar TT).

A. From Matunga Railway Station (Central Railway-Main Line)

The ICT can be reached in about 15 minutes on foot following L. Nappu Road, Bhandarkar Road, Maheshwari Udyan (King’s circle), Don Bosco Church/ High School/ Khalsa College.

B. From Wadala Railway Station (Harbour Line of Central Railway)

It is about 12 minutes walk. Exit on the western gate on the Rafi Ahmed Kidwai Road; walk straight on D.S.Barato Road in front of the station to Wadala Church and turn right on Nathalal Parekh Road (backside of VJTI). It will take about 5 minutes to reach the ICT.

C. From King’s Circle Railway Station (Harbour Line of Central Railway)

Get down on Dr. Babasaheb Ambedkar Road and walk southward towards Arora Cinema and then along Nathalal Parekh Road towards Don Bosco Church/ High School and ICT. It is about 10 minutes walk.

D. From Dadar Railway Station (Central Railway)

Walk towards Dr. Babasaheb Ambedkar Road via Pritam Hotel. Take BEST Bus No.64 to Maheshwari Udyan (King’s circle) and get down at the ICT / Don Bosco Church/ High School bus stop exactly opposite to ICT’s main gate.

E. From Dadar Railway Station (Western Railway)

Exit on the western gate to Senapati Bapat Marg and walk on Ranade road and N.C. Kelkar Road to Plaza Cinema. Board on Bus No. 169 towards Pratiksha Nagar and alight at the ICT / Don Bosco Church/ High School bus stop.
exactly opposite to ICT’s main gate. You can also get on to Bus No. 63 to Chunabhatti and get down at the Bus stop called Gate No 4. Walk along the R.A. Kidwai Marg and enter through the rear gate for the ICT hostels.

F. **From Chhatrapati Shivaji Terminus (CST): Main Central Railway Station**

Board a Harbour train to Wadala station and follow route B. Else board a Main line train to Matunga Central Station and follow route A.

G. **From Kurla Terminus Railway Station**

Board a Harbour train to Wadala station and follow route B. Else board the Main line train to Matunga Central Station and follow route A.

I. **From Chhatrapati Shivaji Internation Airport - Domestic Terminal, Santacruz (East)**

Rent either a pre-paid taxi or hire a taxi for Maheshwari Udyan (King’s Circle), Don Bosco Church/ High School and ICT. The maximum fare for a regular taxi should be around Rs. 130, without any traffic jams. It takes about 30-40 minutes.
PROLOGUE

PROFESSOR DR. G. D. YADAV


Vice-Chancellor and R. T. Mody Distinguished Professor
Jagdish Chandra Bose National Fellow (DST-GOI)
Adjunct Professor, RMIT University, Australia
Adjunct Professor, University of Saskatchewan, Canada

Welcome

Dear Student,

On behalf of the Institute of Chemical Technology (ICT), which is now ranked as Number 2 among all universities in India by the National Institutional Ranking Framework (NIRF) by the MHRD, Govt of on 4th April 2016, I offer you my most heartfelt congratulations on your sterling performance in the recent examination. Like an explorer on the frontiers, you now stand peering at the horizon, wondering about the prospects that lie ahead for you. Although exhilarating, it could also be unnerving; and many of you may have sought the counsel of your elders to guide you through these unfamiliar waters. Regardless of the path that you ultimately choose, I am certain that success will be your companion and in due course, I hope, you will be successful in your endeavours. As the Vice Chancellor of this institute, I sincerely hope that your credentials and merit fetch you admission to the desired course here and ultimately you would be our proud alumnus, like scores of others who have brought laurels to us.
Genesis and Growth

Established on October 1, 1933 as the UDCT – University Department of Chemical Technology of the University of Bombay (now Mumbai), with the noble intention of advancing India’s knowledge reserves in chemical science and technology, the Institute has grown to become a premier (deemed) university devoted to education, training, research and industrial collaboration in chemical engineering, chemical technology, applied chemistry, pharmacy, biotechnology and bio-processing. The Institute’s alumni have distinguished themselves in all walks of life, be it in industry, academia, government or public service in India as well as abroad. Indeed the Institute has produced 19 Padma awardees so far: 3 Padma Vibhushan, 8 Padma Bhushan and 8 Padma Shri. The Chancellor Dr R.A. Mashelkar is Padma Vibhushan and the Vice Chancellor, yours truly, is Padma Shri. This is indeed unique in the history of any institute in India. Some of the rare international honours have been bestowed upon them and some have been role models, serving the nation. The ICT is a rare institute of its kind.

When compared with a large number of engineering and technological institutes, which mushroomed during past 2-3 decades, the genesis of ICT, still popularly called UDCT/UICT by many, is beyond fathom and imagination. Its low profile in common man’s vocabulary is both bane and benefit. Even our neighbours have never known what we do or what we stand for- for them it is a ‘dagdi’ (stone) college or a hospital, at the most; they are intrigued and bewildered whereas it is a benefit for us from the academic view point since we continue to work quietly, sans the typical college atmosphere, impart high class education, and conduct research par excellence, having a direct relevance to solving societal problems and adding to quality of life. Philanthropy, visionary leadership of the University of Bombay (now Mumbai), active participation of the industry to create endowments for faculty positions and laboratories, and the support of the then Governor of the Province of Bombay, which extended to almost 10% of India, led to the foundation of the University Department of Chemical Technology on October 1, 1933. The Vice Chancellor Sir Vithal Chandavarkar, an industrialist, educationist and proponent of textile industry, put all his valour behind the fledgling UDCT and assisted in creating a far-sighted roadmap. The Committee constituted by the University for establishing the UDCT was chaired by none other than the great civil engineer Bharat Ratna Sir M. Visvesaraya, and comprised of, among others, such stalwarts as Sir K.M. Munshi, the Founder of BharatiyaVidyaBhavan, and Shri KapilramVakil, a doyen of inorganic chemical industry in India. Research was incorporated as an integral part of the UDCT right from inception, and the first batch of students for the B. Sc. (Tech.) - a two-year post-B Sc. Course, with Textile Chemistry and Chemical Engineering as the branches, was admitted on 4th August, 1934. With the growth in demands for chemicals, drugs, polymers and materials after World War II, other branches of chemical technology embracing Foods and Drugs, Oils, Plastics, Paints, Varnishes, Intermediates and Dyes, Pharmaceuticals and Fine Chemicals, were added and these courses were later reorganized to give a distinct flavour to
all branches of Chemical Technology. Birth of several industries was a direct result of UDCTs’ activities. In 1951, Chemical Engineering branched out as a post-Inter Science four-year degree programme, B. Chem. Eng., which has been the most sought after ever since. The B.Sc. (Tech.) courses were converted into post-B.Sc. three-year courses in 1966 and finally further converted into B. Tech. programmes, which are post-HSSC (12th Standard) in 1998.

The ICT is a vibrant and invigorating institute, a symbiosis of academic excellence, culture, ethos, value systems, and architect of new and useful knowledge, standing tall among all institutes of national importance.

Deemed University; Elite Institute and Centre of Excellence Status

The UDCT grew in stature over the years and was granted partial autonomy by the University of Mumbai in 1985, which was taken to the next echelon under the concept of autonomy propagated by the University Grants Commission (UGC). Financial, academic and administrative autonomy was conferred during the Diamond Jubilee in 1993-1994 for a period of five years, which was extended for next 5 years in 1998, followed by another extension of five years. The University thought it appropriate to rename it as the University of Mumbai Institute of Chemical Technology (UICT) on 26 January 2002 to distinguish its grander academic programmes and accomplishments surpassing those of a typical University department. The UICT was granted full autonomy in June 2004 by the State of Maharashtra under the Technical Education Quality Improvement Programme (TEQIP) of the World Bank with complete assistance of the University. Upon a strong recommendation of the UGC through a peer review process, the autonomous institute status was finally converted in to a Deemed-to-be-University by the Ministry of Human Resource Development (MHRD), Govt. of India, on 12 September 2008; a strong recommendation was made that the ICT should be fully supported and its activities strengthened by the Government and the new (deemed) University should commence its functioning from academic year 2009-10.

Based on its stellar performance and national and international accolades, the ICT was declared as Elite Institute and Centre of Excellence by Government of Maharashtra on 20 April 2012 in the State Assembly, on par with national institutes of importance such as IITs, IISc and IISERs. This is a unique distinction in India for a state owned university of any kind and it speaks volumes about the sagacity of the government. It has been made possible through dedicated services, hard work and talent of our faculty, students, alumni and support staff. Now as an Elite Institute, we would like to be an INNOVATION UNIVERSITY, in tune with modern concepts and contemporary speed of creation and dissemination of knowledge; a new trinity based on expansion, inclusion and quality will be our soul. We will create new knowledge to solve the problems of chemical, biological, materials and energy industries in service of the nation and in turn the world. Our vision and mission are thus redefined.

Engineering Challenges and Relevance of Courses

If you are admitted to this grand institution, which is strictly based on merit, it is assured that the education you receive will be of the highest order and, in the years to come, will place you at the cutting-edge of science and technology where you will develop products and services that greatly improve the lives of those around you. Do you wonder as to what relevance these courses have vis-a-vis ‘white collared’ engineering programmes and are these courses as rewarding? No virtual world can be created without materials produced by niche and eco-friendly technologies. We all live in the world of chemicals, molecules, if you may, and products, which are transformed to give quality and longevity to life. In this context, let me direct your attention to the “Grand Challenges”, as they are referred to by the US Academy of Engineering, and which include:
All these challenges are uniquely physicochemical in nature and an education in chemical engineering or chemical technology particularly empowers you to tackle these herculean tasks. There is a confluence of chemical sciences and engineering with biological sciences and engineering. The technologies related to producing advanced materials, clean energy generation and storage, medicines, high-end drugs, nutraceuticals, food products, fertilizers, agrochemicals, polymers, surface coating materials, laser dyes, colorants, pigments, adhesives, textiles, fibres, oleochemicals, surfactants, lubricants, water treatment and purification, air pollution abatement, bio-processing, downstream processing and a myriad of related issues involve high degree of science and engineering. How are we going to feed billions of people, remain in harmony with nature, and develop sustainable processes and technology? What will be their energy and material needs? Life expectancy is getting extended. Addressing these challenges requires a multifaceted effort that traverses the fields of chemistry, engineering, biotechnology, information technology and nanotechnology, engineering mathematics, environmental engineering and the curriculum and courses offered at the Institute have judiciously incorporated subjects from all these disciplines. Our courses directly allow being on the forefront of these rewarding careers.
More importantly, you will be instructed by some of the nation’s most eminent scientists and engineers who themselves are at the vanguard of research in these fields, thereby ensuring that the knowledge passed onto you is pertinent, real experience and updated. Teaching without research is barren and our planners thus were visionary in bringing research component in our teaching to solve real problems. These researcher-cum-teachers are always on their toes and work longer hours to be on the forefront. This invigorating atmosphere is witnessed in my institute. There is no nine-to-five culture; working extended hours is a habit here imbibed by students and teachers alike. Besides, a large number of the ICT faculty acts as consultants/advisors to industry with a strict condition that no institutional material facility is used for these industrial consultations. Research projects investigated in our labs are of both academic sanctity and industrial relevance. So the proverbial ‘Practise what you preach’ is indeed executed by the faculty; many of them actually earn their salaries through the one-third share of the consultation fees paid to the institute.

**National and International Acolades and Ranking**

As mentioned earlier, ICT is ranked number 2 among all Indian universities behind IISc Bangalore in NIRF-MHRD which is a unique distinction for a State Owned University.

The Institute’s strong multi-disciplinary research programmes have helped create a unique learning environment that places great emphasis on synergizing knowledge from several sources to develop creative and effective solutions to many of the problems faced in industry and society and it this eclectic combination of a rigorous and up-to-date curriculum, excellent laboratory and demonstration facilities, world-renowned faculty and a conducive learning environment brimming with the next generation of great minds that sets the Institute apart from its competitors. The ICT is held in high esteem by other premier institutes, industry and government for many of its unique characteristics and achievements. All of them deem that ICT is different; distinctly different; incredibly different! They wonder how a small university department, with poor funding has managed to excel and that too without any public glare or publicity? The magic mantra for our success is a concoction of dedicated faculty, meritorious students, admirable support staff, distinguished alumni, strong connectivity with industry, and assistance to all needy students, a grand alumni association and above all relevance of our courses in wealth creation. It is unsurprising thus that the Institute of Chemical Technology is ranked as the best chemical engineering and chemical technology teaching and research institute in India and now stands at number 4 in the world in an annual ranking of chemical engineering programs conducted by the Georgia Institute of Technology, USA in January, 2012. Different authorities have duly recognized our spectacular performance over the years. The P. Rama Rao Committee appointed by the AICTE as well as the P. Rama Rao IIT Review Committee has recognized the ICT as the best post-graduate technical educational centre in India. The Indian Institute of Management, Bangalore, after surveying a large number of industries in the country, identified the ICT as the best on the basis of its contribution to the development of chemical and pharmaceutical industry. The Directorate of Technical Education, Government of Maharashtra, has awarded Grade ‘A+’ to the Institute. The National Board of Accreditation (NBA) had accredited all Bachelors and Masters Courses taught by us and renewal of accreditation has happened in almost all Masters courses and the remaining will be reviewed soon. ICT is also part of Rashtriya Uchhatar Shiksha Abhiyan (RUSA) and is a leader of the innovation part.

**RECENT ACCOLADES AND RECOGNITIONS GALORE**

1. The DBT-ICT’s 2G-Ethanol Demonstration Plant set up at India Glycols Limited, Kashipur, Uttarakhand was inaugurated in the hands of Hon’ble Dr. Harsh Vardhan, Minister of Science and Technology and Earth Sciences inaugurated on 22 April 2016. It is indigenous, unique and globally competitive technology developed by DBT-ICT-Centre for Energy Biosciences at ICT and with the support from Department of Biotechnology, Government of India.
2. ICT has been awarded the 2nd Rank in the ranking of 3600 institutions under the National Institutional Ranking Framework (NIRF) of MHRD. On April 4, 2016, Vice Chancellor, Professor G.D. Yadav received a certificate of ranking from Hon’ble Smriti Irani, Minister of Human Resource and Development, Government of India.

3. D.Y. Patil University, Kolhapur has conferred D.Sc. (Honoris Causa) to Vice Chancellor, Professor G.D. Yadav during its Fourth Convocation function held on April 13, 2016.

4. Two former Directors of CSIR Calcutta, Dr. P. K. Ghosh, CSMCRI, Bhavnagar, and Dr. M. Lakshmi Kantam, IICT, Hyderabad have joined on prestigious Chairs - Shri K. V. Mariwala, Dr. J. B. Joshi Distinguished Professor of Chemical Engineering and Dr. B. P. Godrej Distinguished Professor of Green Chemistry and Sustainability Engineering, respectively.

5. The ICT has developed many technologies and has undertaken projects supported by industry under the Corporate Social Responsibility (CSR) activities. The clearing of Rankala Lake in Kolhapur was successfully done by ICT’s technology supported by Aarti Industries Ltd.

6. Two prestigious awards for Research and Faculty were bestowed on ICT in November 2015 by the FICCI - Federation of Indian Chamber of Commerce and Industries at the hands of Professor Debroy, Member NITI Ayog in Delhi. ICT was the only Institute getting two awards.

7. H.H. Sri Jayendra Saraswathi Swamiji’s Sathabishekam Mahotsavam has honoured our Vice Chancellor, Professor G.D. Yadav with “National Eminence Award for 2015” which was bestowed at the hands of the Hon’ble Governor of Maharashtra on 16th November, 2015.

The research funding received by ICT is through a highly competitive peer reviewed processes, for which again all these elite institutes are in the race. These statistics are highlighted to demonstrate the uniqueness of ICT.

**Fifth Convocation function of ICT**

Hon’ble Shri Devendra Fadnavis, Chief Minister, Government of Maharashtra was the Chief Guest for the Fifth Convocation held on 3rd March, 2016 where the next batch of the students 89 Doctorates, 220 Masters; 258 graduates and 7 PGDCTM degrees were awarded.
Quality of Faculty

Except three, all members of faculty have doctoral degrees to their credit; several of them have been trained abroad in prestigious institutes after their Ph.D.s, and almost all of them are engaged in research. Over 80% of faculties have been active consultants to industry. Those without Ph.D. are also registered for Ph.D.s. The faculty is highly accomplished, with multi-disciplinary interests and decorated with national and international awards and honours, having live connections with industry. These include: Padma awards of Government of India, Fellowship Royal Society, London, Fellowship of Royal Academy of Engineering, UK, Foreign Associateship of US National Academy of Engineering, Fellowship of TWAS- The Academy of
ICT’S PADMA Awardees

**PADMA Vibhushan**

1975
**DR. HOMI SETHNA**
Chairman, Atomic Energy Commission

2014
**DR. R.A. MASHELKAR**
National Professor
Chancellor, ICT

2001
**PROFESSOR M.M. SHARMA**
Former Director, UDCT/ICT

**PADMA Bhushan**

1961
**PROF. K. VENKATARAMAN**
Director, National Chemical Laboratory, Pune and Former Director, UDCT

1972
**PROF. B.D. TILAK**
Director, National Chemical Laboratory, Pune and Former Professor of Dyestuff Technology, UDCT,

1987
**PROF. M.M. SHARMA**
Professor of Chemical Engineering, UDCT

2000
**DR. R.A. MASHELKAR**
Director General, CSIR

2014
**PROF. J.B. JOSHI**
Former Director, UICT

2016
**DR. A.V. RAMARAO**
Chairman, AVRA Labs, Hyderabad
Former Director, IICT, Hyderabad

**PADMA Shri**

1959
**DR. HOMI SETHNA**
Director, BARC

1968
**DR. G. P. KANE**
Former Director, DGTD, and Former Professor of Chemical Engineering, UDCT

1991
**DR. R.A. MASHELKAR**
Director, NCL, Pune

1991
**DR. A.V. RAMARAO**
Director, ICT, Hyderabad

2001
**DR. K. ANJI REDDY**
Chairman, Dr. Reddy’s Laboratory, Hyderabad

2012
**DR. NITYA ANAND**
Former Director, CDRI, Lucknow

2016
**DR. K.H. GHARDA**
Chairman & Managing Director, Gharda Chemicals Ltd

2016
**PROF. G.D. YADAV**
Vice Chancellor & R.T. Mody Distinguished Professor, ICT

**THE HIGHEST CIVILIAN HONOURS CONFERRED BY THE PRESIDENT OF INDIA ON THE OCCASION OF REPUBLIC DAY - 26TH JANUARY**
the Developing World, Trieste, Jagdish Chandra Bose National Fellowship, Fellowship of the Royal Society of Chemistry, UK, S.S. Bhatnagar Prizes of CSIR, Young Scientist medals of the Indian National Science Academy, Fellowship of Indian National Science Academy (INSA), Fellowships of the Indian Academy of Sciences, Fellowship of National Academy of Sciences, India (NASI), Fellowship of Indian National Academy of Engineering, Young Engineer award of Indian National Academy of Engineering, Gold Medal of the Society of Dyers & Colourists, UK, etc. Currently three faculty members of Chemical Engineering are fellows of INSA, which is a unique distinction in the country. The honour of rejuvenating and heading the IIChe in 2001 came to the author when a record number of 51 national awards were created through endowments. All major awards of the Indian Institute of Chemical Engineers – Hindustan Lever Award, Herdillia Award, HL Roy Founders Lecturers, several Chemcon Distinguished Speaker Awards, Amar Dyechem Award, A.V. Ramarao Best Ph.D. thesis award, and awards and honours from other professional bodies have been bestowed on the ICT faculty. The Home Paper/Design project awards for chemical engineering have been bagged consistently since 1972 every year except one and it could be a record. Our faculty and alumni have been presidents of several esteemed professional bodies such as Indian Institute of Chemical Engineers, Association of Food Scientists and Technologists, Oil Technologists Association, Colour Society; some of the regional centres of such bodies have been functioning from the premises of our institute.

Culture of Ph.D.s

The first ever Ph.D. degree in Engineering and Technology stream in India was awarded by the ICT in 1941; it was Dr Kudwa, a chemical engineer, who specialized in Polymers and Paints and was a revered paint technologist. In fact, first 5 PhDs in Engineering and Technology in India were awarded by Mumbai University for students of ICT. Since then there is a continuous flow of doctorates and the UGC used to grant us 19 PhD (Tech) fellowships per year up to 2005-06. During 1990s, the number of PhDs produced increased to about 40 per year. For several years the output of doctorates from the ICT remained about 55 per year. However, during 2009-10, exactly 100 Ph.D.s were produced, which is the highest in the country in Chemical Science, Engineering and Technology.

Culture of Endowments

Right from the foundation of the ICT in 1933, several endowments have been created, through munificent donations by philanthropists, industrials houses and alumni, for supporting maintenance of faculty positions, welfare of support staff, fellowships, visiting faculty, infrastructure, domestic and foreign travel, research, library, scholarships, infrastructure, gardens and emergency services. This is an outstanding attribute of the ICT. There are now 45 visiting faculty/fellowship endowments which have helped us immensely in attracting the best professionals to the Institute from all over the world. Visiting faculty interact with UG and PG students, faculty and alumni. The honoraria range from Rs. 5000 to 1.25 lakhs for a period of one day to 15 days. Some eminent faculty from institutes such as Massachusetts Institute of Technology, Purdue University, University of Twente, Groningen University, Monash University, University of California, Berkeley, University of California, Santa Barbara, National University of Singapore, Montreal, University of Michigan, Michigan State University, University of Alberta, RMIT Australia, IIT-Chicago, Cambridge University, University of Manchester, IIT-Bombay, IIT-Kanpur, IIT-Madras, National Chemical Laboratory, have taught UG and PG courses in ICT under the aegis of these endowments. These lectures form part of audit and credit courses for research students. Besides, public lectures are organized under each endowment.
Collaborations with Other Institutes and Industries

The ICT has been held in high esteem by both Indian and foreign universities and institutes. A large number of Memorandum of Understanding (MOU) have been signed to have faculty and student exchange, research programmes and joint projects and symposia. We have signed MOUs with IIT-Bombay, VJTI Mumbai,

MOUs with Indian Academia and Industries

1. Akzo Nobel India Ltd. (ANIL)
2. Bio-Rad Laboratories India Pvt. Ltd.
3. Cellworks Research India Pvt. Lt.
4. Coca Cola Ltd.
5. College of Engineering, Pune
6. CSIR-Central Drug Research Institute (CDRI)
7. CSIR-Central Salt and Marine Chemicals Research Institute (CSMCRI), Bhavnagar
8. CSIR- Indian Institute of Chemical Technology, Hyderabad
9. CSIR- Indian Institute of Petroleum (IIP), Dehradun
10. CSIR- National Chemical Laboratory, Pune
11. CSIR-National Environmental Engineering Research Institute (NEERI), Nagpur
12. Dow Chemicals, USA
13. GlaxoSmithKline Consumer HealthCare Ltd., Gurgaon
14. Healers Neutraceuticals India
15. Hindustan Petroleum Corporation Ltd
16. HomiBhabha National Institute, Mumbai
17. Huntsman, USA
18. IIT-Bombay
19. India Glycol Ltd
20. India Glycols Ltd. Uttarakhand 21. Indian Oil Corporation
22. M/s Sanzyme Limited (Formerly Uni-Sankyo Limited)
23. Marico Industries Ltd
24. Mitsubishi, Japan
25. Neurosci Inc. USA
26. ONGC
27. Pepsi, USA
28. Pfizer Ltd
29. Phoenix Pharmaceuticals USA (3 Projects)
30. Privi Organics Pvt.
31. Queensland University of Technology, Australia
32. RCF Ltd
33. Reliance Industries Ltd
34. SaifeVetmedPvt. Ltd.
35. Shivaji University, Kolhapur
36. Sun Pharmaceuticals
37. Tata Chemicals Ltd
38. Tata Steel Ltd
39. Trilok Food India
40. Triple Pee Solution Pvt. Ltd.
41. Unilever Industries Pvt. Ltd.
42. VJTI, Mumbai
43. Wockhardt Ltd
44. Wool Research Association, Thane
45. Yokogowa, Middle East
46. Tata Institute of Social Sciences
47. ONGC Energy Centre Trust
48. GE – Health

MOUs with Foreign Academia

1. AIST, Sendai, Japan
2. British Council Division, India British High Commission
3. Ethiopian Textile Industry Development Institute (TIDI), Ethiopia
4. GEMS France
5. Hokkaido University, Sapporo, Japan
6. IIT-Chicago, USA
7. Indiana University, USA
8. INPT, Toulouse, France
9. International Centre for Genetic Engineering and Biotechnology (ICGEB)
10. Purdue University (since 2000)
11. Queensland University of Technology, Australia
12. RMIT U Australia
13. TUHH, Hamburg, Germany
14. U of Birmingham, UK (since 1999)
Affordability of Education and Financial Assistance

If you still haven't been convinced about joining this elite institute, not knowing what future it unfolds or you did not hear about us in today's publicity-hungry institutes which proclaim greatness, our proponents are our alumni and their employers who quietly promote our reputation. It has been more through the 'word-of-mouth' that our uniqueness is spread in student community. You might surely be wondering about extraneous factors such as cost of education and living facilities, among others. After all, how can such a world-class education be affordable? Some of you might be wondering about job opportunities once you have completed your education. Some might hold aspirations of joining prestigious institutions abroad to further their education. Many of you might even be considering joining the ICT as post-graduate students. Those of you who are not residents of Mumbai might feel intimidated by the prospects of living in this megacity. Then there might be some who are wondering about the affordability of educational resources such as textbooks, technical publications, handbooks and other materials. What about the campus culture?

With regards to affordability of education, the Institute offers the best value for education in the nation. It is the cheaper than nearly all other engineering colleges in Mumbai and this is a remarkable fact given the high quality of the education that we offer. The fees are decided by the State Government and are the lowest for the quality of education and facilities provided by us. There are now 277 scholarships for UG students, ranging from Rs. 3000/- to 75000/- per student. A few scholarships take care of all fees, lodging and boarding. A large reason for this is the generosity of the Institute's huge and accomplished alumni body that includes some of India's leading industrialists, entrepreneurs and businessmen. Their donations have helped create several merit- and need-based scholarships that have helped fulfill the dreams of many students. A few alumni are mentoring some students, not only with monitory support but also continuous monitoring. This number is ever growing. It is my personal desire that every student joining the institute should get some assistance. No other institution in the nation matches the Institute of Chemical Technology in offering scholarships. It has been our endeavour to provide assistance to all needy students. Once you become our student, we will help you. The Ministry of Finance (Department of Revenue, Central Board of Direct Taxes) has granted the ICT a privilege by which 100% income tax benefits to donors for all donations under 80G. Also under notification issued on 16th April, 2015, under section 35 of Income Tax Act 1961 (clause ii, sub-section (1) with rules 5C and 5E of the IT rules, 1962) for donations for scientific research are eligible for tax benefit which is 175%. The companies can also contribute to the ICT for many of its welfare and societal programmes under the Corporate Social Responsibility (CSR) requirement.

Splendour and Serenity of Campus

The campus is located in one of the best, quietest, and beautiful neighbourhoods of Mumbai and is in the vicinity of some other prestigious Mumbai schools and institutions. Living in Mumbai is an unforgettable experience and the very fact that it is considered one of the most vibrant cities in the world
is testament to this. No city this large is as safe and hospitable. The **hostels of the Institute are among the best equipped in the nation** and students have access to **computing, internet, television and laundry facilities**. The Institute has hostels for boys, girls as well as post-graduate students. In addition, we believe that a healthy body is essential for a fertile mind and our campus also **boasts of several athletics facilities**. A few courses/workshops are conducted for the benefit of the students like yoga, stress management, time management, interpersonal skills, communication skills, presentation skills and interview skills. The Bombay Technologist is an annual technical journal of the Technological Association, started in 1951. The journal publishes technical articles written by the students and the faculty of the Institute. The Institute publishes in-house student magazine, ‘The Spirit’, in which students contribute on non-technical topics. Dr. B.P. Godrej Students’ Centre provides facilities for indoor games. The necessary sports materials as well as music instruments for cultural activities are provided.

The vibrancy of Mumbai rubs onto our students and the **cultural events on campus that are organized and coordinated entirely by our students have become local attractions**. Our faculty members strongly encourage our students to **think creatively** and one of the requirements for creative thinking is the ability to **express oneself creatively**, be it in the classroom, on the playfield or on the stage.

**Is the Future as Bright?**

Reaching the zenith is one part of story but remaining there without being complacent is the most difficult part and challenging. Unless we innovate in all aspects of academic, research, administrative and industrial activities, we will not be able to make a dent in future. Technology is a capital and ICT has been fully geared to develop new technology in its sphere of activities to sustain the growth and glitter. You could be part of this process.

I would like to give a glimpse of some the plans which we have made. Thus frontiers of research where we have now focused are:

- Biotechnology & biomedicine
- Nanotechnology and materials science
- Energy science and engineering
- Process systems engineering
- Green chemistry and engineering
- Environmental protection and Hazardous waste management
- Product Engineering
- Under the aegis of these areas, our research will focus on:
  - Developing greener chemical processing platforms producing a much wider range of products; green technology; product engineering.
  - Developing technologies for generating, storing and transporting unlimited and inexpensive energy sources; energy engineering
  - Developing therapy strategies for incurable diseases; pharma and healthcare.
  - Designing better materials whose properties can be predicted, tailored and tuned; materials engineering; nanotechnology
Closing Remarks

I am sure by now you would have realized as to why the ICT is held in high esteem and its uniqueness and heritage among all institutes of higher learning in India. Great institutes are not built overnight. My experience as an academic, researcher, consultant to industry, member of several important professional bodies and government committees, and my interactions with alumni, government officials, faculty from leading institutes in India and abroad, have revealed a trend- that is- quality of education, the brand name of institute and future prospects, far outweigh any other consideration on the minds of students and employers alike, while choosing an institute, than the cost of education. Indian parents sacrifice many things to educate their off-springs in the best of schools and colleges; many times not fully knowing about the institute or course. There is too much of peer pressure. The purpose of my writing this long prologue is thus to communicate with you directly and place statistics and standing of ICT before you, since several of your questions and doubts would not be answered by an impersonal compilation in this handbook.

If you get selected through our admission process, which is transparent and strictly on merit, with all government policies in place, my congratulations and best wishes to you. I hope I have convinced you, to join my institute. The opportunities that lie in store for you during your years with us and once you graduate will truly be enormous. If you are unlucky this time because you fail short of the cut-off criteria, try again for master’s and Ph.D. programmes after your graduation. Should your destination be some other place for whatever compelling reasons, let me wish you the very best for all your future endeavours. Remember what I have written in some the beautiful posters in the institute.

The Rich. The Poor. The Marginal. The Privileged. The Underprivileged They studied here. They made it BIG.

Do not ask how to do. Do it. Underestimate NOT, who you could be. Think Big. Dream Big. Do not dismiss your dreams. To be without dreams is to be without hope; to be without hope is to be without purpose.

The very best to you; wherever you go.

Professor G.D. Yadav

April, 2016
NATIONAL AND INTERNATIONAL RANKING OF ICT: INDIAN CHEMICAL ENGINEERING SCHOOLS DURING 2007-2011

(Surveys of World Chemical Engineering Schools: Professor Jude Sommerfeld, Georgia Institute of Technology, USA, 10 April10)


<table>
<thead>
<tr>
<th>SCHOOL</th>
<th>LOCATION(S)</th>
<th>PUBS. 2010</th>
<th>TOTALS 2010</th>
<th>RANK 2010</th>
<th>PUBS. 2011</th>
<th>TOTALS 2011</th>
<th>RANK 2011</th>
<th>World Ranking</th>
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<tbody>
<tr>
<td>Mumbai (ICT)</td>
<td>Bombay, Mumbai</td>
<td>185</td>
<td>960</td>
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<td>198</td>
<td>1025</td>
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<td>Bombay (IIT)</td>
<td>Bombay, Mumbai</td>
<td>72</td>
<td>368</td>
<td>2</td>
<td>75</td>
<td>393</td>
<td>2</td>
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<tr>
<td>Kanpur (IIT)</td>
<td>Kanpur</td>
<td>72</td>
<td>356</td>
<td>3</td>
<td>80</td>
<td>378</td>
<td>3</td>
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<tr>
<td>Kharagpur (IIT)</td>
<td>Kharagpur</td>
<td>68</td>
<td>301</td>
<td>4</td>
<td>59</td>
<td>305</td>
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<tr>
<td>Madras (IIT)</td>
<td>Madras, Chennai</td>
<td>60</td>
<td>263</td>
<td>5</td>
<td>55</td>
<td>281</td>
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<tr>
<td>Anna</td>
<td>Madras, Chennai</td>
<td>39</td>
<td>257</td>
<td>6</td>
<td>56</td>
<td>261</td>
<td>6</td>
<td></td>
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<tr>
<td>Bangalore (IIS)</td>
<td>Bangalore</td>
<td>42</td>
<td>204</td>
<td>7</td>
<td>51</td>
<td>225</td>
<td>7</td>
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<tr>
<td>Roorkee (IIT)</td>
<td>Roorkee</td>
<td>30</td>
<td>188</td>
<td>8</td>
<td>31</td>
<td>205</td>
<td>8</td>
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<tr>
<td>Delhi (IIT)</td>
<td>Delhi, New Delhi</td>
<td>43</td>
<td>169</td>
<td>9</td>
<td>43</td>
<td>188</td>
<td>9</td>
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<tr>
<td>Guwahati (IIT)</td>
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<td>Minnesota</td>
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<td>211</td>
<td>1067</td>
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<tr>
<td>Georgia Tech</td>
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<td>197</td>
<td>942</td>
<td>4</td>
<td>234</td>
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<td>Texas</td>
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<td>3</td>
<td>171</td>
<td>986</td>
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<tr>
<td>Cal/Berkeley</td>
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<td>146</td>
<td>812</td>
<td>5</td>
<td>177</td>
<td>899</td>
<td>5</td>
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<tr>
<td>Cal/Davis</td>
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<td>160</td>
<td>808</td>
<td>6</td>
<td>165</td>
<td>874</td>
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<tr>
<td>Delaware</td>
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<td>123</td>
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<td>191</td>
<td>784</td>
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<tr>
<td>Alberta</td>
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<td>193</td>
<td>861</td>
<td>1</td>
<td>222</td>
<td>980</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Imperial College London</td>
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<td>178</td>
<td>875</td>
<td>1</td>
<td>222</td>
<td>1009</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

NB: Most of the Chemical Engineering programmes worldwide are interdisciplinary and versatile which include biochemical engineering, materials science, polymer engineering, petroleum engineering, etc. A majority of chemical engineering faculty have published in interdisciplinary area apart from traditional areas such as nanotechnology, drug delivery, nanobiotechnology, nanomaterials, energy engineering, and the like.
Ministry of Human Resources Development
Government of India

NATIONAL INSTITUTIONAL RANKING FRAMEWORK

India Rankings 2016

Institute of Chemical Technology, Mumbai

is ranked Number 2 amongst Universities.

Chairman, NBA

Member Secretary, NBA