



INSTITUTE OF CHEMICAL TECHNOLOGY

(University Under Section 3 of UGC Act-1956)

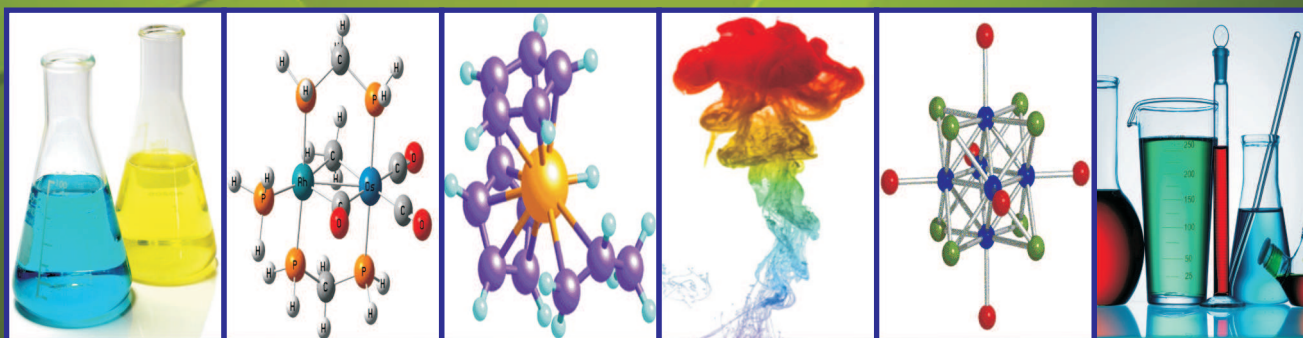
First Elite Institute & Centre of Excellence of
the Government of Maharashtra

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INSTITUTE OF CHEMICAL TECHNOLOGY

**HANDBOOK
2014-15**



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Institute of Chemical Technology
Mumbai

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
NBA ACCREDITATION FOR ALL COURSES**

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



HANDBOOK: 2014-2015

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MUMBAI - 400 019
INDIA

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Foundation	UDCT	MUICT	Autonomous Institute	Deemed University
October 1, 1933	University of Bombay	University of Mumbai 2002	University of Mumbai 2004	September 12, 2008

CONTENTS

Section	Title	Page
	Important Instructions	1
	Approach Routes to the ICT and Landmarks	2
	Prologue: Are You Poised to Join the ICT	4
1	National and International Ranking of the ICT	22
2	Courses Offered	23
3	Institute Authorities	25
4	A) Heads of Departments and Coordinators of Centres	26
	B) Admission Committee	27
5	Important Functionaries and Support Staff	28
6	Faculty of Institute and Distinguished Visiting Faculty	30
7	Profiles of Departments and Centres Of Excellence	78
8	Admission to Bachelor's Courses	101
9	Admission to Master's Courses	103
10	Admission to Doctoral Courses	115
11	Admission to Post Graduate Diploma Course	131
12	Examination Pattern	132
13	Eligibility, Enrolment and Transfer / Leaving / Migration Certificates	142
14	Commencement of Academic Year, Code of Conduct and Discipline	143
15	Professor M. M. Sharma Library	146
16	Hostels and Counseling Services	147
17	Technological Association	151
18	UDCT Alumni Association	152
19	Endowments	153
20	Various Government Concessions in fees and their requirements	159
21	Anti-ragging Laws and Notifications of UGC	161
	Annexure I: Undertakings by students	
	Annexure II: Anti-ragging Undertakings (by Students and parents)	
	Annexure II: Various Forms & Pro Forma	

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.

Course	Open Category		Backward Class Category**	
	At Counter	By Post ***	At Counter	By Post ***
Postgraduate	Rs.1000/-	Rs.1100/-	Rs.500/-	Rs.600/-

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

*** To obtain the admission form and Handbook by post, the payment should be made only by a **Pay Order/DD** of any Nationalized/ Scheduled/ Private Sector Commercial Bank drawn in favour of "**Institute of Chemical Technology, Mumbai**", payable at Mumbai and it is non-refundable and non-transferable under any circumstances. **Payment by cheque or money order will not be accepted.** A copy of the Handbook along with the admission form will be sent by Registered Post Parcel.

2. The handbook along with the admission form will also be available at the ICT Counter (11 am. to 4.30 pm.) by payment in cash except on Sundays, 2nd and 4th Saturdays and holidays, from the date announced in the schedule of admission process at ICT for various courses.
3. The admission form may be downloaded from the ICT website, www.ictmumbai.edu.in. The duly filled form may be submitted in person at the ICT counter or sent to the ICT along with the Pay Order/ DD of the amount equal to the "By Post" amount mentioned above. The **Institute of Chemical Technology (ICT) is not responsible for any postal delay.** The Receipt will be sent by Registered Post A/D and ICT Handbook will be sent by Registered Post Parcel.
4. Anybody, not belonging to the backward class category, found buying application form under that category will be disqualified.
5. **Please read the Handbook carefully before filling the admission form.**
6. **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.**
7. 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.
8. **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.**
9. Pleading ignorance about information displayed on the web shall not be entertained.
10. Admission to hostel is as per the rules laid down and the quota for various courses.
11. Merit is the only criterion for admission to any course and seats are reserved as per Government of Maharashtra's directives in this connection.
12. 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.
13. 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).

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), Purnamal 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 International 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.

APPROACH ROUTES TO ICT AND LANDMARKS



PROLOGUE



Professor Dr. G. D. Yadav

B.Chem. Eng., Ph.D.(Tech.), F.T.W.A.S., F.N.A., F.N.A.Sc. F.R.S.C.,
Ch.E., F.I.Chem.E.(UK), F.M.A.Sc., F.I.I.Ch.E., F.I.C.S.

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

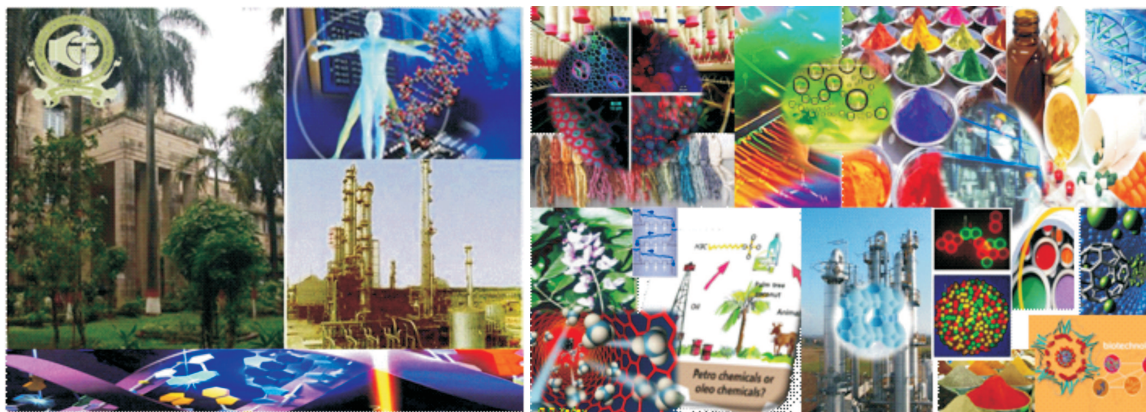
Welcome

Dear Student,

On behalf of the Institute of Chemical Technology (ICT), 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 ICT entered into the 80th Foundation Year on October 1, 2012, which was celebrated on November 24, 2012 along with announcement of a dozen Super Stars of ICT who have been responsible for growth of ICT, for its glory and glitter over last 8 decades. The list of achievements of this great centre of learning is voluminous and ever since its inception, the Institute has been a fertile breeding ground for some of India's most gifted minds. **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.** Some of the rare international honours have been bestowed upon them and some have been role models, serving the nation.



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 Bharatiya Vidya Bhavan, and Shri Kapilram Vakil, 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 an architect of new and useful knowledge, standing tall among all institutes of national importance.

Deemed University 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. A grand ceremony was launched to mark this occasion on 21st May, 2009 with announcement of the new Director (Vice Chancellor), which is occupied by yours truly. It is a unique Deemed University, with unparalleled record, funded by the State of Maharashtra, receiving various grants and projects from the UGC, DAE, DBT, DST, CSIR, ICMR, MFC, MOEF and other agencies including Indian and foreign industries. Several Centres of Excellence have been created through the support of central agencies, which have been mainly responsible to nurture quality in education and research. In a recent review of all deemed universities in the country, the MHRD granted A grade to the ICT, which is the only one in the State of Maharashtra along with three institutes - TIFR, TISS and CFRI, all of which are funded by the Central Government ministries.

Elite Status and Centre of Excellence of Govt of Maharashtra

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 20th 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 leave 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:

1. Advancing health informatics	2. Engineering better medicines
3. Making solar energy more affordable	4. Providing access to clean water
5. Reverse-engineering the human brain	6. Advancing personal learning
7. Engineering tools for scientific discovery	8. Managing the nitrogen cycle
9. Providing clean energy from fusion	10. Securing cyberspace
11. Preventing nuclear terror	12. Enhancing virtual reality
13. Developing new methods of carbon sequestration	14. Restoring and improving urban infrastructure



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) of the AICTE has accredited all Bachelors and Masters Courses taught by us in February 2008.

ACCOLADES AND RECOGNITIONS GALORE

1. Based on its stellar performance and national and international accolades, the ICT is declared as Elite Institute and Centre of Excellence by Government of Maharashtra on 20th April 2012 in the State Assembly, on par with national institutes of importance such as IITs, IISc and IISERs.
2. The MHRD had evaluated all deemed universities in 2009 and granted "A" grade only to 38 universities among 135. The ICT is rated with "A" grade. It is the only one among 4 in Maharashtra State, the other 3 being centrally funded TIFR, TISS and CIFE.
3. The ICT has also been rated as Number One Institute by National Project Implementation Unit (A Govt. of India Unit for World Bank Assisted Project for Technical education) in its study on 'Impact Evaluation of Technical Education Quality Improvement Program (TEQIP - I)' among 127 World Bank's TEQIP funded Institutes, all over India published in October, 2010. Now TEQIP-II has begun and we are once again the leader. The second phase of TEQIP has begun with several innovative concepts and the ICT has been granted a Centre of Excellence in Process Intensification for Process Industries. The ICT is identified as the lead institute and will mentor some others.
4. Biospectrum magazine in August 2011 has also rated ICT's programme as Number One among all biotechnology programmes in the country two years in succession.
5. A survey was published by Professor Jude Sommerfeld of Georgia Tech., USA in January 2012 showing that the ICT is Number One Institute in India far ahead of several others including IITs, and it is also number 4 in the world in Chemical Engineering. This rank has been maintained since 1970s. The ICT produced 405 research papers in international journals during 2012-13 which is a record in India for a faculty strength of 75.
6. The UGC decided to recognize faculty who has supervised as single guides at least 15 PhDs, of which at least 5 should be during last 5 years. The ICT has a record of 13 faculty who qualified for special grants. The Vice Chancellor Professor G. D. Yadav is the topmost among all academics with supervision of 72 PhDs. and 68 Masters degree holders. He is the only serving faculty in the State to be a Fellow of the TWAS- the Academy of the Developing World, Trieste, Italy, including Fellowship of INSA.. He was recently invited by the Royal Society of Chemistry, UK, to be Fellow for his truly outstanding contributions to chemical sciences and particularly as Vice Chancellor and R.T. Mody Distinguished Professor for promotion of ICT.

7. Indeed, the ICT, with a meagre budget, is number one in terms of publications and citations per faculty in the country and in world as well.
8. All admissions are on basis of merit and as per government policy in place as regards reservations. No Ph D candidate is admitted without fellowship (JRF:Rs 14000 p.m. (Non-GATE+ 30% HRA) and Rs. 16000 (GATE) plus 30% HRA. There were 639 Ph D students and 451 Masters students on the roll during 2012-13, which is a record for a monolithic institute on a campus of 16 acres. Besides, UGC-SBR (SAP) Fellowship: 380, UGC-Single Girl Child Fellowship:6, DST-INSPIRE Ph D Fellowships: 8. The UGC has sanctioned 380 SBR Ph D. fellowships during 2012-13, which itself is a record.
9. There are 325 UG scholarship including merit-cum-means scholarships which range from Rs 10,000 to Rs 1,00,000 per student per annum which have been created through endowments, donations, trusts, philanthropists and industries.
10. The UDCT Alumni Association (UAA) helps the ICT in several activities and have the strongest connectivity with the ICT. UAA has been helping the students in many of their programmes, including interest-free loans.
11. The First Convocation of the ICT was held on March 6, 2012 which was addressed by Hon.'ble Shri Prithviraj Chavan, Chief Minister of Maharashtra, Hon.'ble Shri Rajesh Tope, Minister for Higher and Technical Education, and Padma Bhushan, Dr R.A. Mashelkar, Chancellor of ICT. It was a grand function witnessed by over 1500 persons including distinguished alumni, parents of graduating students, past directors, past presidents of UAA, well wishers, and industrialists and a galaxy of achievers, The Second Convocation was addressed by Shri Mukesh Ambani, Chairman and Managing Director, Reliance Industries Ltd, and also one of our most Distinguished Alumni and Superstars on 15th March, 2013. Shri Rajesh Tope was the Guest of Honour. The Maharashtra Government has promised land for a satellite campus in addition to the existing campus.
12. The UGC has started a unique scheme called Faculty Recharge under which 6 positions have been sanctioned during 2012-13 who will receive salaries and benefits like central university faculty. This is again a great achievement. Four INSPIRE fellows of DST have been working on the campus.
13. A large number of Memoranda of Understanding (MOU) have been signed for academic and research collaboration with foreign and Indian universities, Indian and foreign industries. Purdue University, University of Illinois, Urbana Champaign, University of Saskatchewan, University of British Columbia, University of Waterloo, University of Alberta, Western University, Canada, RMIT, Australia, Bradford University, UK, GEMS, France, are a few foreign universities. The CSIR laboratories- Central Drug Research Institute (CDRI), Indian Institute of Petroleum (IIP) Dehradun, Indian Institute of Chemical Technology (IICT), Hyderabad, National Environmental Engineering Research Institute (NEERI), Nagpur, National Chemical Laboratory (NCL), Pune, Central Salt and Marine Chemicals Research Institute (CSMCRI), Bhavnagar, IIT-Bombay, Department of Atomic Energy's Homi Bhabha National Institute (HBNI), Mumbai, Shivaji University, Kolhapur and College of Engineering Pune (COEP) are some of them.

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.

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 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 IICChE 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.

Prof. M.M. Sharma, an alumnus and former Director of ICT, was awarded Padma Vibhushan by the President of India in 2001, having already decorated with Padma Bhushan in 1987; he was the only serving faculty in Mumbai University then to be so honoured for his work in the ICT and services to the profession. He also happened to be the second engineer from India, and first chemical engineer, to be elected to the prestigious fellowship of Royal Society. He is the Chairman of Empowered Committee of MHRD to support higher education, and also the Chairman, Board of Governors, IIT-Madras. Another record was created when the Chairman of our Board of Governors and the highly accomplished Dr R.A. Mashelkar was elected to this fellowship. Dr Mashelkar's Ph D in chemical engineering is from the ICT and he is a public figure. He is currently the Chancellor of the ICT.

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. Since then there is a continuous flow of doctorates and the UGC used to grant us 19 Ph D (Tech) fellowships per year up to 2005-06. During 1990s, the number of Ph.Ds 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. During 2012-13, 639 full-time Ph.D. students with fellowships and 407 Master's students were on the roll. This will certainly place ICT in an enviable position as a research institute, with production of at least 150 Ph.Ds per year.

It has been our policy now that no PG or Ph D student will be admitted without fellowship. This has been possible due to the award of meritorious fellowships under UGC-SAP, various Centres, individual research grants, industrial projects and endowments. Meritorious fellowships are accorded to all UGC- SAP departments as well as non-SAP department every year, which range from 5-20 fellowships per SAP department, depending on their track record of research. The ICT has received 325 such fellowships from the UGC during 2011-12. **This is again a record. There are 13 faculty members who have produced more than 15 Ph Ds and 6 of them have produced more than 30 and one more than 70.**

We are pro-active and would like to attract talented students and teachers from various engineering colleges for the Ph.D. programmes under the UGC Networking Resource Centre in Chemical Engineering. The AICTE has now identified us for QIP for teachers. India needs a lot of Ph.Ds in engineering and technology to remain at the forefront to be a developed nation; ICT's role is therefore of grandeur. Several colleges with teachers without Ph.D. will be detrimental for future of education. So, if you fall into this teacher's category, ICT should be on your radar. Further, those of you who fall into the category of 'Single Child-Girl, there is a scheme of super-numerary Ph.D. fellowships in all our UGC-SAP departments. The UGC has also introduced Rajiv Gandhi Fellowships for SC/ST, and Minority Students Fellowships. These fellowships amount to Rs 14,000/- p.m. for non-GATE and Rs. 18,000/- p.m. + 30% HRA for GATE qualified students by all Govt agencies. There are DST-INSPIRE fellowships to first rankers in all branches of science and engineering for conducting doctoral research (www.dst.gov.in). Those who are desirous of post-doctoral fellowship should apply for the D.S. Kothari Fellowships of the UGC (www.ugc.ac.in). More information could be gathered from the UGC website. We have also established Pildite-Professor Man Mohan Sharma Distinguished Doctoral Fellowship in Chemical Engineering, with a fellowship of Rs 30,000/- p.m. This is the highest fellowship offered anywhere in India. There are also schemes by both UGC and DST to offer fellowships to women scientists who have taken a break in their careers. We have attracted a few such candidates including DST's Fast Track Fellowships.

Centres of Excellence and Courses

Upon achieving the Deemed University status, we have revised all our course curricula; a system of continuous evaluation with 60% of marks during the semester and 40% at the final examination has been adopted with CGPA; the repeat final examination is held within a month. There are tutorials for both UG and PG students.

All Ph.D. students with fellowships are mandatorily required to assist teachers in running labs, tutorials and grading of tests. Course work has been introduced at Ph.D. level. We offer 24 different programmes. A large number of Ph.D. (Science) students also are supervised by faculty chemical engineering and chemical technology, in inter-disciplinary areas. If you are seeking admissions for a higher degree, you would be interested in knowing, if there are fellowships and facilities created in the institute to generate advanced knowledge.

The ICT functions through 11 full-fledged departments and several centres of excellence, which have a long track record of running quality courses at Master's and Doctoral level:

1. Department of Chemical Engineering (1933)
2. Department of Dyestuff Technology (1944)
3. Department of Fibres and Textiles Processing Technology (1933)
4. Department of Food Engineering and Technology (1943)
5. Department of Oils, Oleochemicals and Surfactants Technology (1943)
6. Department of Pharmaceutical Sciences and Technology (1943)
7. Department of Polymer and Surface Engineering (1946) (Department of Polymer Engineering and Technology and Department of Surface Coating Technology were merged into one in March 2009)
8. Department of Chemistry (1952)
9. Department of Physics (1966)
10. Department of Mathematics (1966)
11. Department of General Engineering (1952)

Every major department of the ICT is recognized by the UGC under its Special Assistance Programmes (SAP) such as COSIST, DRS, DSA and Centre of Advanced Studies (CAS), which are as follows:

1. CAS in Physico-Chemical Aspects in Textiles, Fibres, Dyes, and Polymers (since 1963, currently in

Phase VII)

2. CAS in Chemical Engineering (since 1990, currently in Phase IV)
3. Networking Resource Centre in Chemical Engineering (since 2008)
4. CAS in Food Engineering and Technology (since 2008)
5. CAS in Pharmaceuticals Sciences and Technology (since 2009)
6. DRS for Department of Chemistry (2009)

The Department of Oils, Oleochemicals and Surfactants Technology is recognised as a non-SAP department with 2 Ph D fellowships per year.

Under the University with Potential for Excellence (UPE) programme of the UGC, the University of Mumbai had received support for establishment of Centre for Green Technology at the Kalina campus, which was mainly based on ICT's contributions and this Centre is now run in a joint collaboration.

Centres of Excellence were established in Energy Engineering due to the initiative of Department of Atomic Energy (DAE) and Department of Biotechnology (DBT), with a specific mandate in view of the expertise and accomplishment of the ICT.

1. DAE-ICT Centre for Knowledge Based Engineering (CKBE) (2002)
2. DBT-ICT Centre for Energy Bio-sciences (2007)
3. ICT-DAE Centre for Chemical Engineering Education and Research (Both BARC and IGCAR, 2008)
4. Centre of Excellence in Process Intensification for Process Industries (TEQIP-II, April 2013)

Indeed, the ICT has earned maximum number of collaborative projects with DAE establishments and the DAE acknowledges ICT's contribution to solving real problems, which cover (a) Chemical Engineering, (b) Process Technology, (c) Bio-technology, and (d) Materials Technology. Provision for an intake of 20 Ph.D. fellowships per year is an important feature of this Centre. There is a frequent exchange of scientists and students, leading to mutual benefit. A new building housing academic and energy engineering is planned and its construction will start soon to accommodate the state-of-the art high-end material characterization and instrumental laboratories, lecture and seminar halls, CAD-CAM laboratory and Computer Centre, research laboratories, pilot scale equipment, testing facility and services for the laboratories. We have also signed an MOU with the Homi Bhabha National Institute (HBNI), which is a DAE's deemed university, for academic and research collaboration.

The ICT's innovative work in the area of bio fuels and downstream processing, leading to commercialization, has been highly appreciated by the Department of Biotechnology (DBT), to establish the DBT-ICT Centre for Energy Biosciences, with induction of several faculties in bio area and Ph.D. fellowships. The modernized building and advanced equipment are a main source of attraction for visitors from abroad and industry. Very recently an MOU was signed with International Centre for Genetic Engineering and Biotechnology (ICGEB) to foster collaboration among faculty, provide opportunities for students, scientists to gain global experience and to facilitate the advancement of knowledge on the basis of reciprocity.

Under the Funding for Infrastructure in Science and Technology (FIST) programme of Department of Science and Technology (DST), Govt. of India, we have received infrastructural support, to build advanced instrumental facilities in Departments of Chemical Engineering (Phase-I and Phase-II), Fibres & Textile Processing Technology (Phase-I), Food Engineering and Technology (Phase-I), Pharmaceutical Sciences and Technology (Phase-I), Polymer and Surface Engineering (Phase-I).

The DST's PURSE programme had reviewed the research contributions of all universities in India and declared University of Mumbai as one of top universities; the contributions of ICT were overwhelming in research and we have received grant under this programme which will be utilized for renovation of library, e-library and creation databases useful for research and for benefit of chemical and allied industries.

Grants have also been received from the AICTE under their various grants-in-aid schemes to remove obsolescence and promote research.

Over the years, because of the above mentioned programmes or schemes, which are highly competitive in nature, our laboratories are equipped with state-of-the-art instruments. Some of the sophisticated equipment which have been acquired and used continuously are: GC-MS, LC-MS, SEM, TEM, AFM, IC, FTIR, HP-TLC, HPLC, GC, XRD, DSC, DTA/TGA, AAS, Laser-Doppler anemometer,, image analysers, pore and particle size analyzers, computer workstations, and many others. Advanced instrumental facilities have been created under industry sponsored projects as well. These instruments are operated by research students themselves, giving them a hands-on-training; this practice is greatly appreciated by the funding agencies and industries where they get employment.

All our UG students have to undergo a six-week in-plant training at the end of the third year in a manufacturing facility, for which handsome stipend is offered by the industry. The value of research at UG level is also recognized and every SAP department can accommodate a few second year students as summer research fellows. Several students from other institutes are also accommodated by individual departments including the Summer Fellowship programme of national academies of sciences, operated by the Indian Academy Sciences, Bangalore under the Fellows tutelage.

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. Homi Bhabha 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. Saife Vetmed Pvt. 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. Yokogawa, Middle East

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)
15. U of British Columbia, Canada
16. U of Cape Town, South Africa (1996-2002)
17. U of Groningen, The Netherlands (1997-2000)
18. University of Aberty Dundee, Scotland, UK
19. University of Bradford, UK
20. University of Illinois, Urbana-Champaign
21. University of Kansas
22. University of Nottingham
23. University of Saskatchewan U, Canada
24. University of Turin, Italy
25. University of West Hungary, Hungary
26. US Army Medical Research Institute of Infectious Diseases, Maryland, USA

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 325 scholarships for UG students, ranging from Rs. 10,000/- to 1,00,000/- 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 monetary 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. I am sure our students will in an enviable position in near future. In fact, many of our faculty members hold endowed chairs that have been solely instituted by the largesse of our alumni, philanthropists and industries. You may not believe a few great souls have bequeathed their property to the institute. Additionally, the high impact and original research being conducted in our laboratories has attracted the interest of many industries, funding bodies and government agencies, and research groups have been duly awarded **with sizable funds for attracting talented young researchers and graduate students and purchasing state-of-the-art equipment**. This has helped the Institute offer full merit- and need-based scholarships even at the post-graduate level and has greatly aided in keeping education costs at low levels. Once you become our student, sky is the limit for your goals; we have never shirked in our commitment to help students, who need assistance of any kind. This tradition has evolved over the years through the selfless services of our faculty and alumni. **No other institution in the nation matches the Institute of Chemical Technology in offering scholarships**. Almost 52% students admitted to the ICT are on freeships in tuition fees as per government norms. It has been our endeavour to provide assistance to all needy students. Once you become our student, we will help you. Our minimum expectation from you will be a clear pass, a desire to study and sincere efforts to overcome barriers. Where else will you find such a caring atmosphere the students? Many of alumni will vouch for my statement. It is not a mere rhetoric.

Training and Placement

There is no chemical and allied industry in the country that does not employ graduates of the ICT. Alumni are at the helm of affairs of large number of renowned chemical industries. A placement cell is now launched with the participation of the UDCT Alumni Association (UAA) to assist campus placement which begins in the month of July, and continues throughout the year, before the students graduate. **The Institute's graduates are highly-sought after by the Indian and global chemical industry** and their **salaries rank among the highest in the country**, even dwarfing the salaries of graduates of the premier branded institutes; placements achieved via campus interviews fetch emoluments ranging from Rs. 3.50 to Rs 14.00 lakhs per annum. What is most striking is that these placements are in hard-core industries relevant to the students training and education, and not in the software industry, which has been

a major source for employment for graduates of some of the best institutes in India. With regards to post-graduate research opportunities, a good number of our students are offered admission by some of the world's best universities to pursue graduate studies. **The Institute is one of the few institutions in Asia that is regularly represented in the graduate student bodies of prestigious institutes such as the Massachusetts Institute of Technology, Stanford University, University of California, Berkeley, Caltech, UCSB, Princeton, University of Michigan, Ann Arbor, University of Texas, Carnegie Mellon University, Purdue University, University of Massachusetts, Cambridge University, Imperial College, Manchester University, Twente University, Monash University,** to name a few. All of them receive full financial support. Several universities write to us to recommend good students. Leading foreign universities have signed MOUs for student exchange through proper support for the exchange. This would not have been without the merit of the students, and reputation of faculty and institute. On an average, about 75 students from various degree programmes get such fellowships. Quite a few Ph.D. holders go abroad for post-doctoral studies in reputed institutes; this is directly linked to the quality of research produced and personal standing of the faculty in international community.

Library and Internet

The Professor M.M. Sharma Library is a treasure house of books, leading journals, encyclopaedias, reports, theses, abstracts, reference books, microfilms, guides, text-books, and rare volumes, not found in most of the libraries in the country. Except four public holidays in a year, the library is always open for 12 hours on all working days and for 7 hours on public holidays. Several readers including industrialists are frequent visitors to the library and some of them have organizational membership. Although we have adequate intranet and internet facilities (both LAN and wi-fi) in the Information Processing Centre (IPC), we have recently undertaken a massive revamping exercise to enhance bandwidth and accessibility. The students have been provided with smart i.d. cards. to access library facilities. The INFLIBNET, DELNET, and INDEST consortia memberships are also accorded to our library, having access to the latest publications. We have renovated the library building aesthetically and provided faster e-accessibility for readers. In the IPC, as well as, in all UG and PG labs, we have provided computers with relevant software, numbering over 700. The entire campus is now wired and security surveillance is in place.

Distinguished Alumni and First Generation Entrepreneurs

The ICT has been cited as a role model for industry-institute-government relationship. Several first generation entrepreneurs in chemical and allied industries, numbering over 500 are the alumni of the institute. They have pioneered in setting up of many chemical industries in and around Mumbai and in Western India. A galaxy of world-renowned scientists, academics and industrialists including fortune-500 personalities -who's who- have been our alumni and some of these luminaries are our pride and proponents of the legacy:

Some Distinguished Alumni

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| <ul style="list-style-type: none"> ◆ Dr. A.V. Rama Rao (Director, IICT, Hyderabad and Chairman, AVRA Labs), ◆ Dr. B.D. Tilak (Director, NCL, Pune) ◆ Dr. Dinesh Patel (Chairman, Themis Pharmaceuticals) ◆ Dr. Haren Gandhi (Ford Fellow, Member US NAE and President's Medal, AIChE Top 100 of Century Awardee), ◆ Dr. Homi Sethna (Chairman, Atomic Energy Commission) | <ul style="list-style-type: none"> ◆ Dr. John Kapoor (Industrialist and John Kapoor Foundation, USA) ◆ Dr. K. Anji Reddy (Chairman, Dr Reddy's Laboratory Ltd), ◆ Dr. K.H. Gharda (Gharda Chemicals), ◆ Dr. Nitya Anand (Director, CDRI, Lucknow), ◆ Dr. R.A. Mashelkar (Chemical Engineering; FRS, Director General, CSIR; President INSA) ◆ Prof. J.B. Joshi, former Director, ICT |
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- ◆ Prof. Arun S. Mujumdar (McGill University; National University Singapore)
- ◆ Prof. Arvind Kudchadker (Former Deputy Director, IIT-Bombay)
- ◆ Prof. D. Ramkrishna (Distinguished Professor, Purdue University; Member US NAE),
- ◆ Prof. M.M. Sharma (FRS, Director, ICT and President, INSA,)
- ◆ Prof. N.R. Kamath (Former Deputy Director, IIT-Bombay)
- ◆ Prof. R. Krishna (Director, IIP, Dehradun and Distinguished Professor, University of Amsterdam),
- ◆ Shri. Ashwin S. Dani (Vice Chairman and MD, Asian Paints Ltd),
- ◆ Shri. C. J. Bhumkar (Chairman, Soujanya Chemicals)
- ◆ Shri. Chandrakant V. Gogri (Chairman, Aarti Industries and Aarti Group of Companies)
- ◆ Shri. D.M. Trivedi (Famous Textile Technologist)
- ◆ Shri. J.R. Vyas (CMD, Dishman Pharmaceuticals and Chemicals)
- ◆ Shri. J.R. Shah (Former President, Plastindia Foundation; Chairman, Jayvee Organics and Polymers)
- ◆ Shri. Kishore V. Mariwala (Bombay Oil Industries, Marico Industries, Former President, ICMA/ICC)
- ◆ Shri. Madhukar B. Parekh (Managing Director, Pidilite Industries)
- ◆ Shri. Manubhai Shah (Minister for Commerce in Pandit Nehru's Cabinet in 1950s),
- ◆ Shri. Mukesh D. Ambani (CMD, Reliance Industries Ltd),
- ◆ Shri. Narendra Parekh (Chairman, Pidilite Industries)
- ◆ Shri. Narotam Sekhsaria (Founder & Managing Director, Gujarat Ambuja Cement Ltd; Sekhsaria Chemicals)
- ◆ Shri. Nikhil R. Meswani (Tech. Director, Reliance Industries Ltd)
- ◆ Shri. Parimal Desai (Managing Director, Aarti Healthcare Ltd)
- ◆ Shri. Prakash Kamat (Managing Director, Fine Organics Ltd)
- ◆ Shri. Prakash Patil (Managing Director, Aarti Drugs Ltd)
- ◆ Shri. Rajendra V. Gogri (Managing Director; Aarti Industries and Group of Companies)
- ◆ Shri. S.M. Mokashi (Managing Director, Xytel India)
- ◆ Shri. U. Shekhar and Shri Sudhir Patil (Galaxy Surfactants Ltd)
- ◆ Shri. V.G. Rajadhyaksha (Chairman, Hindustan Lever Ltd),
- ◆ Shri. Vijay B. Samant (CEO and President, Vical Inc. USA)
- ◆ Shri. Yogesh M. Kothari (CMD, Alkyl Amines Chemicals Ltd)

This list is partial and there are many more who have added to our reputation. Several of our alumni have come from abject poverty, with limited resources, born of illiterate or semi-literate parents, and having studied in vernacular media; they have excelled themselves in life, attained positions of prominence and made us proud by their stellar achievements. Many have created unprecedented value for their companies through their ingenuity and hard work, and some of our alumni are famous CEOs or managing directors of the nation's and world's mega companies and organizations. The reputation of the Institute of Chemical Technology and its graduates is unparalleled in India and abroad and it is not all that surprising to find that **our alumni body boasts several Padma awardees** (Padma Vibhushan, Padma Bhushan and Padmashri) in its ranks.

On an average, until 1980s, 20-30% of graduates from every class have started their own industries as SME or MMEs; consultancy and design companies. Most of them did not have any family background in business and have literally created empires out of nothing. The ICT has continued to be an oasis of generating new knowledge and creating wealth. In order to sustain the entrepreneurship culture, a part-time 3-semester certificate course in Chemical Technology Management for Ph.D. students was started in 2001 with the participation and support of the UDCT Alumni Association; it has been converted into a 2-year Diploma course from January 2010. Indeed, we have also established an Entrepreneurship Development Cell very recently.

The UDCT Alumni Association

The UDCT Alumni Association (UAA), founded in 1989, with a current membership of over 3500, not only has past students as members but also several others who are our well wishers, without being formal graduates. Some alumni chose to come to us due to the influence of acquaintances and hearing their success stories, whereas some have landed by a passion to do a course offered by us. Once they become our students, we take care of them by standing with them in times of thick and thin. They have reciprocated to the institute in ample measures. The alumni are one of our greatest strengths. Without their support, love and affection for the institute, the ICT would not have been where it is today. When the alumni of different vintage meet for the first time and come to know they are UDCT alumni, a very affectionate bond is developed instantaneously. The older they grow, the more eager they are to visit the campus and peep through the classrooms and sit on the benches where they sat and had their moorings. They reminisce and enjoy; some have eyes in their tears in gratitude. You have to be a UDCTian or ICTian to unravel the power of my thought. Some visit the hostels to have nostalgic memories of the mess food and the rooms where they dwelled; some bring their families and meet 'old' professors to catch up with time. Some have changed their attires and accents, look prosperous and happy, whereas some are the same simpletons still fearing the grades they would perhaps get! Let me assure, the value of being an alumnus of this great institute is beyond description. Our class reunions of decades, two decades, silver jubilee, golden jubilee during the month of December is a chance to meet and have fun and frolic. You have to be an alumnus to witness such a great camaraderie. In fact, many current students have sought admission to the institute due to advice of our alumni. All current students can enroll into the membership to carry on the legacy. The UAA has been our constant source of help and inspiration. Financial assistance provided by the UAA in training, placement, factory visits, scholarships, prizes, field trips, sports, intercollegiate festivals and social service is beyond words.

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.

The entire campus will be given a face lift in near future to reflect ICT's world-class status. Construction of a new faculty tower, academic and energy engineering block has just begun. A new ladies hostel will also be built. Classrooms, lecture halls and offices are being renovated. To make effective use of the infrastructure, a staggered time table for classes and laboratories will be implemented. A concept of eco-campus incorporating use of solar powered lights and air-conditioning, biogas generation, treatment and reuse of gray water, rain-water harvesting, and LED lighting is being worked out to minimize water and energy

usage. If you had visited a year earlier, you would see that the campus has undergone a sea-change.

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

Plans for future expansion have been made for creation of centres of excellence::

1. Entrepreneurship resource centre
2. Interactive student services portal
3. Centre for Undergraduate Research In Engineering (CURIE)
4. Centre for Process Intensification and Innovation
5. Centre for Product Engineering
6. Centre for Infectious Disease Control and Prevention
7. Technology Incubation Centre
8. Technology Transfer Cell
9. Creation of Visiting Professorships endowments
10. Distinguished Adjunct Professors
11. Group consultations: Adoption of sick industries.
12. Increasing international collaborations (Joint projects with leading institutes (Joint degrees, UG exchange, PG exchange)
13. Creation of institute professorships

The new courses started in 2010-11 were M. Sc. (Chemistry and Textile Processing) and M. Tech. in Green Technology (multi-disciplinary; 4-semester full time; extended 6-semester for industrial practitioners).

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 exponentiate. 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.

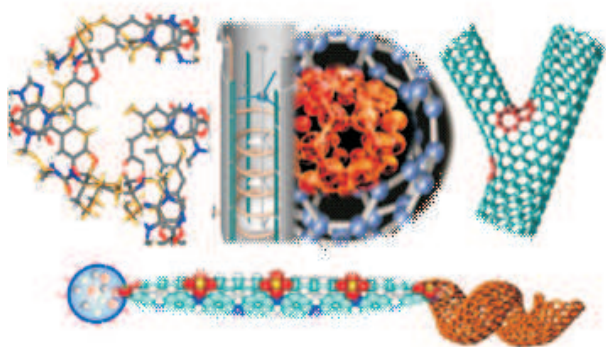
The Rich. The Poor. The Marginal. The Privileged. The Underprivileged. They studied here. They made it BIG.

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 2, 2014



1. 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)

WORLD RANKING OF CHEMICAL ENGINEERING SCHOOLS (2007-11)

(Prof. Jude Sommerfeld, USA, 22nd Jan. 2012)

INDIA								
SCHOOL	LOCATION(S)	PUBS. 2010	TOTALS 06-10	RANK 06-10	PUBS. 2011	TOTALS 07-11	RANK 07-11	World Ranking
Mumbai (ICT)	Bombay, Mumbai	185	960	1	198	1025	1	4
Bombay (IIT)	Bombay, Mumbai	72	368	2	75	393	2	
Kanpur (IIT)	Kanpur	72	356	3	80	378	3	
Kharagpur (IIT)	Kharagpur	68	301	4	59	305	4	
Madras (IIT)	Madras, Chennai	60	263	5	55	281	5	
Anna	Madras, Chennai	39	257	6	56	261	6	
Bangalore (IIS)	Bangalore	42	204	7	51	225	7	
Roorkee (IIT)	Roorkee	30	188	8	31	205	8	
Delhi (IIT)	Delhi, New Delhi	43	169	9	43	188	9	
Guwahati (IIT)	Gauhati	34	100	12	46	138	10	
USA								
Mass. Inst. Tech.		269	1470	1	341	1624	1	1
Minnesota		202	1014	2	211	1067	2	2
Georgia Tech		197	942	4	234	1061	3	3
Texas		175	985	3	171	986	4	6
Cal/Berkeley		146	812	5	177	899	5	8
Cal/Davis		160	808	6	165	874	6	9
Delaware		123	647	10	191	784	7	10
CANADA								
Alberta		193	861	1	222	980	1	7
UK								
Imperial College London		178	875	1	222	1009	1	5

NB: Most of the Chemical Engineering programmes worlds wide 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.

2. COURSES OFFERED

BACHELOR'S COURSES [See Section 8 for details]

Admissions to B.Chem.Engg. and B.Tech. (seven branches) :

- 70% for State of Maharashtra and
- 30% for All India (all States and Union Territories including Maharashtra)

Admissions to B.Pharm.:

100% for State of Maharashtra.

1. Bachelor of Chemical Engineering (B.Chem.Engg.)	
2. Bachelor of Pharmacy (B. Pharm.)	
3. Bachelor of Technology (B. Tech.) in	
a. Dyestuff Technology	b. Fibres and Textiles Processing Technology
c. Food Engineering and Technology	d. Oils, Oleochemicals and Surfactants Technology
e. Pharmaceutical Chemistry and Technology	f. Polymer Engineering and Technology
g. Surface Coating Technology	

MASTER'S COURSES [See Section 9 for details]

1. Master of Chemical Engineering (M. Chem. Engg.) (Full-time 2-years & Sponsored 3- years)			
2. Master of Pharmacy (M. Pharm.) (Full-time 2-years) in			
Pharmaceutics	Pharmaceutical Chemistry	Medicinal Natural Products	
3. Master of Technology (M. Tech.) (Full-time 2-years & Sponsored 3- years) in			
Dyestuff Technology	Fibres and Textiles Processing Technology		
Food Engineering and Technology	Oils, Oleochemicals and Surfactants Technology		
Pharmaceutical Science and Technology	Polymer Engineering and Technology		
Surface Coating Technology	Green Technology		
Perfumery and Flavour Technology	--		
4. Master of Technology (M. Tech.) (Full-time 2-years) in			
Bioprocess Technology	Food Biotechnology		
5. M.E. (Plastic Engineering) (Full-time 2-years & Sponsored 3- years)			
6. M.Sc. (By Papers) (Full-time 2-years) in			
Chemistry	Engineering Mathematics	Physics (Material Science)	Textile Chemistry

DOCTORAL COURSES [See Section 10 for details]**1. Ph.D. (TECH.) & INTEGRATED PH.D. (TECH.) in**

Bioprocess Technology	Chemical Engineering
Dyestuff Technology	Fibres and Textile Processing Technology
Food Biotechnology	Food Engineering and Technology
Green Technology	Nanotechnology
Oils, Oleochemicals & Surfactants Technology	Pharmacy@
Pharmaceutical Technology	Polymer Engineering and Technology
Surface Coating Technology	Plastic Engineering
Perfumery & Flavour Technology	

Ph.D. (TECH.) in

Civil Engineering	Electrical Engineering
Electronics Engineering	Mechanical Engineering

@ Ph.D. (Tech.) in Pharmacy has following four branches:

Pharmaceutics	Pharmaceutical Chemistry	Pharmacology	Pharmacognosy
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2. PH. D. (SCI.) in

Biochemistry	Biotechnology	Chemistry (Inorganic/Organic/Physical)	Physics	Mathematics
Food Science	Textile Chemistry			

All Ph D programmes are now redesigned with course work as per UGC regulations.

POST GRADUATE DIPLOMA [See Section 11 for details]**POST GRADUATE DIPLOMA (2years-4 semesters) [conducted on Saturdays and Sundays only]**

Chemical Technology Management

HIGHLIGHTS:

1. A candidate, who fails to accept an offer of admission to any of the courses, made by the Institute, for whatever reasons, forfeits his/her claim for admission for that academic year (1st July to 30th June) and the seat may be offered to the next eligible candidate in the order of merit. The acceptance of the offer implies payment of the prescribed fees and deposit along with relevant documents by the date specified in the offer letter.
2. The Institute shall not enter into any correspondence with the candidates in the matter related to admission, such as incomplete forms, non-submission of necessary documents in given time period, non-submission of pay order/ demand draft of necessary application fees along with filled application form, absenteeism at the institutional tests for entrance tests for Master's and Ph D programmes, for any reason, non-acceptance of the offer of admission to any of the courses in given time period, etc.
3. No age limit is prescribed for admission to the ICT.

All Rights regarding the admissions at the ICT are reserved with the Vice Chancellor, ICT.

3. INSTITUTE AUTHORITIES



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- * R.T. Mody Distinguished Professor
- * J.C. Bose National Fellow (DST-GOI)
- * President, Technological Association

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4. A. HEADS OF DEPARTMENTS & COORDINATORS OF CENTRES



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4. B. Admission Committee

UG Admission



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Co Chair



Professor S.R. Shukla
Registrar



Dr. R.R. Deshmukh



Shri Amogh S. Lokhande



Dr. C.S. Mathpati



Smt. S.S. Chavan
A.R. (Acad)

PG Admission



Professor B.M. Bhanage
Co Chair



Professor S.R. Shukla
Registrar



Professor M. D. Teli



Dr. S. T. Mhaske



Dr. C.S. Mathpati



Smt. S.S. Chavan
A.R. (Acad)



Dr. Amit Pratap

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Dr. P. D. Vaidya

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6. FACULTY OF INSTITUTE AND DISTINGUISHED VISITING FACULTY

6.1. VICE CHANCELLOR



Prof. G. D. YADAV

B. Chem. Eng.(Mumbai, 1974). Ph.D. (Tech.) (1980), F.T.W.A.S., F.N.A., F.N.A.Sc., Ch.E., F.I.Chem.E.(UK), F.M.A.Sc., F.I.I.Ch.E., F.I.C.S. F.R.S.C. (UK)

R. T. Mody Distinguished Professor

Jagdish Chandra Bose National Fellow (DST-GOI)

Adjunct Professor, RMIT University, Australia

Subjects Taught : Fundamentals of Green Chemistry and Technology, Nanotechnology in Green Chemistry

Research Interests : Green Chemistry and Technology (Fundamental and applied aspects of green chemistry and engineering, particularly in the design and development of benign and eco-efficient processes in the chemical and allied industries such as bulk chemicals, intermediates, pharmaceuticals, fine chemicals, perfumes and flavours, and inorganics); Catalytic Science and Engineering (New catalytic materials, phase transfer catalysis, ionic liquids, reactions in supercritical carbon dioxide, catalysis modelling and simulation, biocatalysis in non-aqueous media, synergism of chemical catalysis with microwaves and ultrasound, and cascade engineered catalysis, renewable materials as feedstock for value added chemicals, biorefinery); Nanomaterials and nanocatalysis (Solid acids, superacids and bases, supported metals as nanocatalysts, sulphated zirconia, UDCaT series of novel catalysts, ion exchange resins, heteropoly acids, clays, and zeolites, novel redox materials, carbon nanotubes); Biotechnology (Enzyme catalysis in pharmaceutical transformations in non-aqueous media, chiral separations, biomass conversion, biorefinery, Synergism of Microwaves and Enzymes); Energy Engineering (Petroleum Engineering, Flow through porous media, Network modelling, Novel methods of enhanced oil recovery; Coal conversion, Hydrogen generation and storage)

Recognized Research guide for Ph.D. (Tech.) in Chemical Engineering, Bioprocess Technology, Green Technology, Ph.D. (Science) in Chemistry

Research Students		Patents	Research Publications	Sponsored Projects	
Guided (single supervisor):	Ongoing	National and International	International	Government	Private
Ph.D.- 72 Masters- 68	Ph.D.- 27 Masters- 12	63	267	Completed - 45 Ongoing- 05 International-4	Completed - 18

6.2. DEPARTMENT OF CHEMICAL ENGINEERING

Head: Professor S.S. Bhagwat



Prof. S. S. Bhagwat

B. Chem. Eng. (Mumbai, 1984), M.Chem.Eng. (Mumbai, 1986), Ph.D. (Tech.) (Mumbai, 1989)

Head, Department of Chemical Engineering, Co-ordinator PGDCTM, CoE-PI.

Subjects Taught : Chemical Engineering Thermodynamics I, Chemical Engineering Thermodynamics II, Interfacial Science and Engineering.

Research Interests : Interfacial Science and Engineering, Microemulsions,

Energy and Exergy Engineering, Absorption Cycles, Utilization of low grade energy, applications of artificial neural networks

Recognized Research guide for Ph.D. (Tech.) in Chemical Engineering, Bioprocess Technology, Ph.D. (Science) in Chemistry

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Ph.D.- 28 Masters- 63	Ph.D.- 14 Masters- 05	03	53	Completed - 04 Ongoing- 01	Completed - 11 Ongoing- 08



Prof. V. G. Gaikar, F.N.A.E.

B.Chem.Eng (Mumbai, 1982), M.Chem.Eng. (Mumbai, 1984), Ph.D. (Tech.) (Mumbai, 1986)

Bharat Petroleum Professor of Chemical Engineering

Co-ordinator, ICT-DAE Centre for Chemical Engg. Education & Research

Co-ordinator - Technical Education Quality Improvement Programme

Subjects Taught : Process Engineering, Advanced Separation Processes

Research Interests : Renewable Energy Resources, Reactive Separation Processes, Molecular Simulation for Reactive Sorption and Metal Ion Complexation, Interfacial Science and Engineering and Hydrotrophy, Complex Fluid Behaviour, Synthesis of nanoparticles and development of applications.

Recognized Research guide for Ph.D. (Tech.) in Chemical Engineering, Bioprocess Technology, Ph.D. (Science) in Chemistry, Green Technology.

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Ph.D.- 31 Masters- 72	Ph.D.- 12 Masters- 04	04	136	Completed - 15 Ongoing- 01	Completed - 02 Ongoing - 03



Dr. V. H. Dalvi

B.Chem. Eng. (Mumbai, 2002), M.S., P.D.ENG. (Enschede, The Netherlands, 2005), Ph.D. (Austin, USA, 2009)

R.A. Mashelkar Asst. Professor.

Subjects Taught : Industrial Engineering and Chemistry, Simulation Laboratory

Research Interests : Molecular Simulations, Process Simulations, Solar Thermal Systems, Statistical Thermodynamics.

Recognized Research guide for Ph.D. (Tech) in Chemical Engineering

Research Publications	Sponsored Projects
International	Government
03	Ongoing- 01



Dr. P. R. Gogate

B.Chem.Eng. (Mumbai, 1996), M.Chem.Eng. (Mumbai, 1998), Ph.D. (Tech.) (Mumbai, 2002)

Assistant Professor of Chemical Engineering

Subjects Taught : Advanced Chemical Reaction Engineering, Material and Energy Balance Computations, Computer Simulation Laboratory, Separation Processes

Research Interests : Cavitation Reactors, Process Intensification, Wastewater treatment, Advanced Oxidation Processes, Sonocrystallization, Intensification of Enzyme synthesis and enzymatic reactions

Recognized Research guide for Ph.D.(Tech.) in Chemical Engineering, Ph.D.(Science) in Chemistry

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Masters- 20 Ph.D. - 2	Ph.D. - 08 Masters - 10	17	141	Completed - 03 Ongoing- 0	Completed - 01 Ongoing - 01



Prof. A. M. Lali

B. Chem., M. Chem., Ph.D. (Tech.) (Chemical Engineering)

Professor of (Chemical Engineering)

Coordinator, Bioprocess Technology,

Head DBT-ICT-Centre for Energy Biosciences

Subjects Taught : Downstream Processing in Biotechnology, Advance in Adsorptive & Chromatographic Separations, Bioprocess Simulation Modeling & Bioreactor Design, Instrumentation & Process Control, Adsorptive Separation Statistical Methods.

Research Interests : Bioenergy, Biofuels and biomass to other chemicals, Purification of proteins, nucleic acids & other Biomolecules, natural & synthetic APIs, high value organic/inorganic chemicals, Continuous chromatography, Modeling & Adsorptive Separations, Biocatalysis and Bio transformations, Bioreactor design, Mixing & Dynamics of solid liquid fluidized bed, Dynamics of gas-solid circulating fluidized bed, Process Integration and Intensification, Process development, characterization and scale-up

Recognized Research guide for Ph.D. (Tech.) in Chemical Engineering, Bioprocess Technology, Ph.D. (Sci.) in Chemistry, Biotechnology.

Research Students		Patents	Research Publications	Sponsored Projects	
Guided	Ongoing	National and International	International	Government	Private
Ph.D.- 35 Masters- 72	Ph.D.- 22 Masters- 03	46 (So far)	International-45 Book Chapter-2	Completed - 13 Ongoing- 08	Completed - 16 Ongoing- 04

**Mrs. K. V. Marathe**

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Associate Professor of Metallurgical Engineering, Member BOM.

Subjects Taught : Material Technology, Advanced Materials, Industrial Eng.Chem.

Research Interests : Membrane Separation, Waste Water Treatment, Corrosion, Development of Metal Matrix Composites.

Recognized Research guide for Ph.D. (Tech.) in Chemical Engineering, Green Technology

Research Students		Research Publications	Sponsored Projects	
Guided	Ongoing	International	Government	Private
Ph.D.- 01 Masters- 25	Ph.D.- 02 Masters- 04	21	Completed - 02 Ongoing- 01	Completed - 02

**Dr. C. S. Mathpati**

B. Chem. Eng.(Mumbai, 2004), M. Chem. Eng. (Mumbai, 2006), Ph.D. (Tech.) (Mumbai, 2010)
Assistant Professor of Chemical Engineering

Subjects Taught : Multiphase Reactors, Process Simulation Laboratory, Bioreactor Design and Control, Advanced Flow Visualization Techniques.

Research Interests : Computational Fluid Dynamics, Multiphase Flow, Reactor Design, Interface Heat and Mass Transfer

Recognized Research guide for Ph.D. (Tech) in Chemical Engineering

Research Students		Research Publications	Sponsored Projects
Guided	Ongoing	International	Government
Masters - 06	Masters - 04 Ph.D. - 07	12	02

**Dr. Parag R. Nemade**

B. Chem. Eng (U.D.C.T., Mumbai, 2001), M.S. (Univ. of Colorado, Boulder, 2007), Ph. D. (Univ. of Colorado, Boulder, 2008)

UGC Assistant Profession in Engineering Science

Subjects Taught : Advanced Separation Processes, Chemical Engineering Laboratory, Chemical Engineering operations.

Research Interests : Membrane Separations, Catalysis Advanced Materials, Biosensors, Sustainability Engineering

Recognized Research guide for Ph.D. (Tech) in Chemical Engineering

Research Students	Research Publications	Sponsored Projects	
Ongoing	International	Government	Private
Ph.D.- 3 + 1 coguide Masters - 06	03	01	01



Prof. A. B. Pandit

B.Tech. (IIT BHU. 1980), Ph.D. (Tech.) (UDCT. Mumbai, 1984).

UGC Scientist 'C' (Professor Grade)

Dean - Research, Consultancy & Resource Mobilisation

Dean - Students Affairs & Human Resource Development

Subjects Taught : Chemical Project Economics, Project Economics, Environmental Engineering and Technology.

Research Interests : Cavitation, Sonochemistry, Design of multiphase reactors (Mechanically Agitated contactors, Bubble columns). Wastewater treatment, Biotechnology (Cell disruption, Enzyme synthesis and applications).

Visbreaking, Nanomaterial synthesis and its application. Green Engineering and Technology, Surface Engineering and Technology

Recognized Research guide for Ph.D. (Tech.) in Chemical Engineering, Ph.D. (Tech) in Bioprocess

Research Students		Publications						Projects	
Completed	Ongoing	Research		Patents		Book		Government	Private
Masters-62 Ph.D-34	Masters-4 Ph.D-17	National	International	Indian	International	Book	Chapters		
		28	270	6	4	4	12	4	1



Prof. Anand V. Patwardhan

B.Chem.Eng.(Mumbai, 1983), M.Chem.Eng. (Mumbai, 1985), Ph.D. (Tech.) (Mumbai, 1988)

Professor of Chemical Engineering

Subjects Taught : Transport Phenomena, Green Technology, Computer Aided Process Design, Chemical Engineering Operations, Instrumentation and Process Control, Advance Membrane Separations.

Research Interests : Green Technology (utilisation of non-edible oils, CO₂, and H₂S; synthesis, characterisation, and applications of ionic liquids to chemical process development); Steam Reforming of Petroleum Feedstock and Biofuels; Membrane Synthesis and Membrane Separation; Non-Conventional Ways of Hydrogen Production and Related Catalyst Development; Solvent Extraction Equipment; Flue Gas Conditioning)

Recognized Research guide for Ph.D. (Tech.) in Chemical Engineering, Bioprocess Technology, Green Technology, Ph.D. (Science) in Chemistry

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Ph.D.- 08 Masters- 39	Ph.D.- 08 Masters- 03	01	45	Completed - 05 Ongoing- 01	Ongoing- Nil

**Dr. Ashwin W. Patwardhan**

B.Chem.Eng. (Mumbai, 1993), M. S. (M.I.T., USA 1995), Ph.D. (Tech.) (Mumbai, 1998)

Associate Professor of Chemical Engineering

Subjects Taught : Material and Energy Balance Computations, Process Modelling and Simulation, Thermodynamics of Phase Equilibria, Momentum & Mass Transfer

Research Interests : Transport Phenomena, Reaction Engineering, Computational Fluid Dynamics, Membrane Separations

Research Students		Research Publications	Sponsored Projects	
Guided	Ongoing	International	Government	Private
Ph.D.- 11 Masters- 40	Ph.D.- 06 Masters- 04	73	Completed - 09 Ongoing- 04	Completed - 01

**Dr. V. K. Rathod**

B. Tech. (Nagpur, 1999), M. Tech. (Nagpur, 2001), Ph.D. (Tech.) (Mumbai, 2006)

Associate Professor of Chemical Engineering

Subjects Taught : Heat Transfer, Advance heat transfer, separation processes, Fluid flow and Heat transfer, Multiphase Reactor, Material & Energy Balance calculation, pharmaceutical Engineering, Chemical Engineering Laboratory

Research Interests : Separation process, Extraction of Natural ingredients, Enzyme catalyzed reactions, Waste Treatment, Nuclear reprocessing, Separation of biomolecules, Enzyme Preparation and separation

Recognized Research guide for Ph.D. (Tech.) in Chemical Engineering, Bioprocess Technology, Green Technology, Ph.D. (Science) in Chemistry

Research Students		Research Publications	Sponsored Projects	
Guided	Ongoing	International	Government	Private
Ph.D.- 03 Masters- 42	Ph.D.- 12 Masters- 12	41	Completed - 06 Ongoing- 03	Completed - 02 Ongoing- 01

**Prof. B. N. Thorat**

B.Chem.Eng. (Mumbai, 1987), M.Chem.Eng. (1989), D.H.S.T. (BITS, 1991), Ph.D. (Tech.) (Mumbai, 2001)

Professor of Chemical Engineering

Subjects Taught : Advanced Transport Phenomena, Chemical Reaction Engineering, Instrumentation and Process Control, Unit Operations etc.

Research Interests : Drying Technology and Particle Handling, Process Development, Multiphase Reactors, Industrial Crystallization and Filtration,

Food Processing etc.

Recognized Research guide for Ph.D. (Tech.) in Chemical Engineering, Bioprocess Technology, Ph.D. (Science) in Chemistry

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Ph.D.- 12 Masters- 32	Ph.D.- 08 Masters- 03	03	60	Completed - 01 Ongoing- 02	Completed - 04 Ongoing- 01



Dr. P. D. Vaidya

Alexander Von Humboldt Fellow (Germany, 2006-2007), B.E. (Chem. Eng.) (Mumbai, 1998), M.Chem.Eng. (Mumbai, 2000), Ph.D. (Tech.) (Mumbai, 2005) V. V. Mariwala Assistant Professor of Chemical Engineering

Subjects Taught : Fuels engineering, Design and Analysis of Experiments, Instrumentation and Process Control, Chemical Engineering Operations, Advanced Mass Transfer Operations, Industrial Catalysts, Chemical Reaction Engineering, Environmental Engineering & Pollution Control, Transport Phenomena, Separation Processes, Chemical Engineering Laboratory

Research Interests : CO₂ Capture and Utilization, Production of Alternate Fuels, Renewable Hydrogen Production, Wastewater Treatment

Recognized Research guide for Ph.D. (Tech.) in Chemical Engineering, Green Technology, Ph.D. (Science) in Chemistry

Research Students		Research Publications	Sponsored Projects	
Guided	Ongoing	International	Government	Private
Ph.D. - 3 Masters- 17	Ph.D. - 19 Masters - 11	33	Ongoing- 03	Ongoing- 03



Dr. S.M. Sontakke

B. Tech. (Petrochemical, Dr. B.A.T.U, 2007), Ph. D. (Chem. Engg., IISc, Bangalore, 2012)
DST INSPIRE Faculty

Subjects Taught : Chemical Engineering Laboratory, Environmental Eng. And Process Safety

Research Interests : catalysis, water treatment, fuel cell, Polymeric Scaffolds and Tissue engineering, Solar Cell

Recognized Research guide for Ph.D. (Tech) in Chemical Engineering

Research Students	Research Publications	Sponsored Projects	
Ongoing		Industry	Govt.
Masters - 03 Ph.D. - 03* (*:2 joint)	04 (Published) 02 (Under Preparation)	Completed - 01 Ongoing - 01	Ongoing - 01

**Dr. Neetu Jha**

B.Sc.(Physics Honours) (Kolkata, 2002), M.Sc.(Physics) (Banaras Hindu University, 2004), Ph.D. (IIT Madras, 2009)

DST - Inspire Faculty

Research interests : Carbon nanomaterials (Carbon nanotubes and graphene) and their energy related applications

Subject Taught : Advanced Materials, NanoScience & Technology

Recognized Research guide for Ph.D. (Sci.) in Physics

Research Students	Research Publications	Ongoing Projects
Ongoing	International	
Masters - 03	13	4

**Dr. Ratnesh Jain**

B. Pharm (Bhopal, 2002), M. Pharm. (Mumbai, 2005), Ph. D. (Tech.) (Mumbai, 2009)

UGC Assistant Professor in Engineering Sciences and Ramalingaswami Fellow (DBT, GoI)

Subjects Taught : Research Methodology, Biomaterials, Pharmaceutical Analysis, Biological Science and Biochemical Engineering

Research Interests : Biomaterials, Engineering of polymeric and metal nanoparticles for biomedical applications like cancer, infectious diseases and vaccines. Polymeric Scaffolds and Tissue engineering, Molecular Imaging for preclinical applications, Biomedical devices

Recognized Research guide for Ph.D. (Tech.) in Pharmaceutics

Research Students	Research Publications	Sponsored Projects
Ongoing	International	Government
Ph.D. - 2 Masters - 05	18	04

**Dr. Yatin R. Gokarn**

B. Chem. Eng.(Mumbai, 1992), MS, Chem. Eng. (1995, University of New Hampshire), MS, Biochemistry (1998, University of New Hampshire), PhD, Biochemistry (2003, University of New Hampshire)

Narotam Sekhsaria Distinguished Professor of Chemical Engineering

Subjects Taught : Biochemical engineering

Research Interests : protein formulation science and process development, thermostable formulations, mechanisms of protein aggregation, thermodynamics of protein stability & interactions, and protein-co-solute interactions.

Recognized Research guide for Ph.D. (Tech) in Chemical Engineering

Patents	Research Publications
National and International	International
07	16



Dr. Sujit S. Jogwar

B. Chem. Eng. (Mumbai, 2006), Ph.D. (Chemical engineering) (University of Minnesota, 2011)

DST INSPIRE Faculty

Subjects Taught : Instrumentation and Process Control, Chemical Engineering Laboratory

Research Interests : Advanced Process Control, Process Optimization, Energy Integration, Batch Scheduling, Supply Chain Optimization, Process Safety Analysis

Recognized Research guide for Ph.D. (Tech.) in Chemical Engineering

Research Publications			Sponsored Projects
International Journal	International Peer Reviewed Conference Proceedings	Book Chapter	Government - 2
8	11	1	



Dr. Dipak V. Pinjari

B. Tech. (U.I.C.T., Mumbai 2004), M. Tech. (U.I.C.T., Mumbai, 2007), Ph.D. (Tech) (I.C.T., Mumbai, 2012).

DST Inspire Faculty Fellow (Assistant Professor Grade)

Subjects Taught : Chemical engineering laboratory, Introduction to Polymer Engineering, Introduction to Nanotechnology.

Research Interests : Sustainable development Cavitation Engineering and

Recognized Research guide for Ph.D. (Tech.) in Chemical Engineering

Research Students		Publications				Projects			
Completed	Ongoing	Research		Patents		Book		Government	Private
Masters-0	Masters-4	National	International	Indian	International	Book	Chapters		
Ph.D-0	Ph.D-4	3	24	2	0	0	2	1	1

6.3. DEPARTMENT OF DYESTUFF TECHNOLOGY

Head: Professor N. Sekar



Prof. N. Sekar

B.Sc. (Madras, 1979), B.Sc. (Tech.) (Mumbai, 1982),
Ph.D. (Tech.) (Mumbai, 1987). CCol. FSDC
Professor in Tinctorial Chemistry,
Head, Dyestuff Technology Department
Co-ordinator, UGC-CAS

Subjects Taught : Ph. D. / M. Tech. (Course Work): Fluorescent Colorants in Bio-imaging, Chemistry and Technology of Agrochemicals, Chemistry and Technology of High Performance Pigments Chemistry and Technology of Functional Dyes, Proton Transfer Reaction

B. Tech.: Mechanisms of Organic Reactions, Chemistry of Substrates, Color Chemistry : an Introduction, Chemistry of Heterocyclic Compounds, Chemistry and Technology of Direct, Acid, and Sulphur Dyes, Analytical Instruments in Colorant Industry.

Research Interest : Computational colour chemistry (DFT and TD-DFT Based computations), Synthesis of multistep Heterocyclic and Fused Heterocyclic compounds, Process development of intermediates, Fluorescent compounds for Bio-sensors, Immunochemical Techniques, Theranostics, Bio-conjugation with proteins, antigen and antibody, Security applications, Molecular Imprinting, Synthesis of Perfumery and Flavor compounds, Green Chemistry, Nano-Materials, Laser Dyes, NIR absorbing, Fluorescing and reflecting colorants, Tinctorially strong disperse dyes, Extended Styryl dyes, Metal complex dyes for photovoltaic's.

Recognized Research guide for Ph.D. (Tech.) in Dyestuff Technology, Green Technology, Ph. D. (Science) in Chemistry, Ph.D in Textile Chemistry

Research Students		Patents	Research Publications		Sponsored Projects	
Guided	Ongoing	National (filed)	National	International	Government	Private
Ph.D.- 06 Masters-17	PDF - 01 Ph.D.- 26 Masters- 06	05	16	52	Completed - 04 Ongoing- 05	Completed - 02



Prof. Prakash M. Bhate

B.Sc. (Mumbai, 1974), B.Sc. (Tech.) (Mumbai, 1977), Ph.D. (U.S.A., 1984)
Professor in Dyestuff Technology
Dean, Student Affairs & Human Resource Development

Subjects taught : Mechanism of Organic Reactions, Technology of Intermediates and Colorants, Chemistry and Technology of Naphthalene Intermediates, Chemistry and Technology of Anthraquinone Intermediates, Technology of Organic Processes, Design of Experiments

Research Interests : Fibre Reactive Dyes, Vat Dyes, Carbohydrate Chemistry and Natural Product Synthesis.

Recognized Research guide for Ph.D. (Tech.) in Dyestuff Technology, Ph. D. (Science) in Chemistry

Research Students	Research Publications	Sponsored Projects
Ongoing	International	Government
Ph.D. - 07 Masters - 02	04	Ongoing - 03



Dr. Ganapati Subray Shankarling

B.Sc. (Karnataka, 1991), B.Sc.(Tech) (Mumbai, 1994),
M.Sc. (Mumbai, 1997), Ph.D. (Tech) (Mumbai, 2000)

Associate Professor of Dyestuff Technology
Co-ordinator, Perfumes and Flavours Technology

Subject Taught : Chemistry and Technology of Benzene Intermediates I and II, Chemistry and Technology of Basic , Reactive and Vat dyes, Chemistry and Technology of Speciality Intermediates and Fine Chemicals, Chemistry of Functional Colorants, Chemistry of Agrochemicals, Chemistry of Perfumes and Flavours, Introduction to Green Chemistry

Research interests : Functional colorants for Dye Sensitized Solar Cell (DSSC), Non-Linear Optics (NLO), Thermochromic, Photochromic, Laser, Security application, Colorants for biological and medicinal fields, Process Chemistry, Flavour and Perfumery Chemistry, Green Chemistry and Technology mainly development of environmentally benign organic synthesis. High Performance Pigments, Macromolecules.

Recognized Research guide for Ph.D. (Tech.) in Dyestuff Technology, Green Technology, Ph. D.

Research Students		Patents	Research Publications		Sponsored Projects	
Guided	Ongoing	National and International	National	International	Government	Private
Ph.D.- 06 Masters-09	Ph.D.- 18 Masters- 10	15	02	19	Ongoing- 02	Completed - 03 Ongoing- 02

6.4. DEPARTMENT OF FIBRES AND TEXTILE PROCESSING TECHNOLOGY

Head: Professor R. V. Adivarekar



Prof. R. V. Adivarekar

B.Sc., B.Sc. (Tech.), M. Sc. (Tech.), Ph. D. (Tech.)

Professor of Fibre Chemistry & Head

Department of Fibres and Textile Processing Technology

Phone: 022 33611111/2222, Direct : 022-33612801

Email id: rv.adivarekar@ictmumbai.edu.in

Subjects Taught : Technology of Printing, Technology of Textile Colouration, Advanced Textile Technology, Energy and Water Conversion in Textile Industry, Testing of Textiles, Dyes and Auxiliaries, Continuous Processing of Textiles, Pretreatment of Textiles

Research Interests : Natural Dyes and Mordants, Fibre Modification, Dyeing of Textiles, Printing of Textiles, Mass Production and Extraction of Microbial Colourants, Manufacturing of Enzymes for Textile Processing, Medical Textiles, Colour Fastness of Textile Materials, Detergency of Textiles, Ionic Liquids for Regenerated Fibres etc.

Recognized Research guide for Ph.D. (Tech.) in Fibres and Textile Processing Technology, Ph.D. (Sci.) in Textile Chemistry, Biotechnology

Research Students		Patents	Research Publications		Sponsored Projects	
Guided	Ongoing	National	National	International	Government	Private
Ph.D.- 05 Masters-20	Ph.D.- 12 Masters- 08	02 (filed)	46	34	Completed - 01 Ongoing- 03	Completed - 02 Ongoing- 04

Professional Activities

- Life Member of Textile Association (India)
- Editor of Journal of the Textile Association
- Indian Correspondent to International Dyer
- Visiting Faculty for Sophia Polytechnic
- Member of Selection Committee, College of Home Science, NirmalaNiketan, Mumbai
- Member of Technical/Research Advisory Committee of WRA
- Member of Board of Studies and Faculties of The Maharaja Sayajirao University of Baroda in Textile Chemistry
- Member of General Advisory Committee for Research and Liason of BTRA for the period 2011-2014
- Member of Core Group to function as a Sub-committee of the Council for COE in Sportech at WRA



Prof. M. D. Teli

B. Sc (Hons.), B.Sc. (Tech.), Ph. D. (Tech.), FTA (Hons.), F.M.A. Sci.
 Professor of Textile Chemistry, Member of Board of Management, ICT, Former
 Ex-Dean, SA & HRD, ICT & Former Head
 Department of Fibres and Textile Processing Technology
 Phone: 022 33611111/2222, Direct : 022-33612811
 Email id: md.teli@ictmumbai.edu.in

Subjects Taught : Modification of Fibrous Polymers, Emerging Trends Textile Processing Technology, Advanced Textile Chemistry, Advanced Textile Technology, Technology of Fibres I and II.

Research Interests : Chemical Processing of all Natural and Synthetic Fibres, Natural and Synthetic Thickness, Polymer Blendfibres, Electro Kinetic Properties of Textile Fibres, Natural Dyes, Speciality Finishing Effects, Application of Nanotechnology and Biotechnology in Textiles, Technical Textiles. etc.

Recognized Research guide for Ph.D. (Tech.) in Fibres and Textile Processing Technology, Ph.D. (Sci.) in Chemistry, Textile Chemistry

Research Students		Patents	Research Publications		Book	Sponsored Projects	
Guided	Ongoing	National	National	International	Edited	Government	Private
Ph.D.- 20 Masters-83	Ph.D.- 09 Masters- 08	01	131	111	25	Completed - 05	Completed - 06 Ongoing- 02

Professional Activities

- ◆ Hyderabad, CIRCOT and Faculty for IIT, Delhi, SASMIRA and Nirmala Niketan Mumbai.
- ◆ Member, Bureau of Indian standards.
- ◆ Chairman, Research Monitoring Committee of Mission REACH Programme of TIFAC -DST for Technical Textiles at DKTE Textile Institute, Ichalkaranji
- ◆ Member, Research Advisory Committee of ATIRA at Ahmedabad
- ◆ Chairman, Jury of Selection of Best Company in Export Performance of Textile Machinery and Parts (ITAMMA)
- ◆ Served as Chairman, Research Monitoring Committee of Mission REACH Programme of Kumarguru College, Coimbatore
- ◆ Member, Board of Studies in Textile and Clothing, SNTD University
- ◆ Served as Member, Academic Council, University of Mumbai
- ◆ Member, Academic Council, S.V.T. College, SNTD University
- ◆ Chairman, Editorial Board, Journal of the Textile Association, India
- ◆ Referee for Egyptian Journal of Chemistry, Cairo University, Egypt
- ◆ Referee of Journal of Carbohydrate Polymers, UK
- ◆ Patron Member of Textile Association (India)
- ◆ Patron Member of Association of Chemical Technologists, India
- ◆ Life Member of Colour Group of India
- ◆ Member of Editorial Board, Rossera
- ◆ Member of Editorial Board, Colourage
- ◆ Refree for Ph.D Thesis at IIT, MS University and Vishweshwarya University, Belgaum, Calcutta University, etc.

Special Awards/Honours

- ◆ Academic Excellence Award by Textile Association in World Textile Conference, given at Hands of Textile Secretary for Meritorious Contribution to the Field of Textile Education, Research and Industry.
 - ◆ Shiksha Ratan Award by IFSI-Delhi
 - ◆ CSIR-CNRS(France) International Research Fellowship
 - ◆ Awarded GDR Fellowship for the Research in Germany
 - ◆ Conferred Honorary Fellowship of Textile Association (India)
 - ◆ Conferred Fellowship of Maharashtra Academy of Sciences
 - ◆ Conferred Service Memento of Textile Association (India) for distinguished service to Textile Industry
 - ◆ Member, Board of Management of ICT, Deened University
 - ◆ Member of Board of Directors, Siyaram Silk Mills
 - ◆ Served as Member of Board of Directors of Supertex - Sarex Pvt. Ltd.
 - ◆ Received more than about Dozen Awards and Honours for being Top Rank Holder in B.Sc. (Tech.) and M.Sc. (Tech.) Examinations of University of Mumbai
 - ◆ One time UGC-BSR award Grant Receiver
-



Prof. S. R. Shukla

B. Sc (Hons.), B.Sc. (Tech.), Ph. D. (Tech.)
 Professor of Technology of Dyeing & Printing and Registrar, ICT
 Department of Fibres and Textile Processing Technology
 Phone: 022 33611111/2222, Direct: 022-33612815
 Email id: sr.shukla@ictmumbai.edu.in

Subjects Taught : Environmental Problems of Textile Processing, Dyeing of Natural fibres, Dyeing of Manmade Fibres, Green Chemistry in Textile Processing, Techniques & Theory of Textile Colouration, Emerging Textile Processing Technologies, Environmental Aspects of Textile processing.

Research Interest : Use of UV radiations, plasma and ultrasonics in textile areas, Enzyme Technology in textile processing, Effluent treatment, Colour removal, Heavy metal removal and recovery, Depolymerization and recycling, Nanotechnology for Textile processes, Functional finishes, Processing of Eri Silk Fabric, Plasma induced multifunctional finishing of cotton

Recognized Research guide for Ph.D. (Tech.) in Fibres and Textile Processing Technology, Green Technology, Ph.D. (Sci.) in Chemistry, Textile Chemistry

Research Students		Patents	Research Publications		Sponsored Projects	
Guided	Ongoing	National	National	International	Government	Private
Ph.D.- 21 Masters-57	Ph.D.- 13 Masters- 08	03	94	124	Completed - 06 Ongoing- 01	Completed - 03 Ongoing- 01

Professional Activities

- Member, Editorial Board, Indian Journal of Fibres & Textile Research
- Life Member of Indian Fibre Society
- Member, Polymer Society, India
- Life Member of Textile Association (India)
- Life Member of Colour Group of India
- Life Member of Marathi Vigyan Parishad
- Patron Member, Association of Chemical Technologists, India

Special Awards/Honours

- Fellow of Maharashtra Academy of Sciences
- Shiksha Ratan Award 2011
- One time UGC-BSR award



Dr. Usha Sayed

B.Sc., B.Sc. (Tech.), M. Sc. (Tech.), Ph. D. (Tech)
 Associate Professor in Fibre Chemistry
 Department of Fibres and Textile Processing Technology
 Phone: 022 33611111/2222, Direct: 022-33612851
 Email id: u.sayed@ictmumbai.edu.in

Subjects Taught : Technology of Textile Pretreatment, Chemistry of Textile Auxiliaries, Technology of Speciality Chemicals, Introduction to Technical Textile, Technology of Dyeing and Printing, Chemistry and application of speciality chemicals, Jentile Machineries.

Research Interests : Photo Fading Studies, Enzymatic Studies of Textiles, Leather Processing, Recycling of Papers, Laundering, Recycling of Carpet, Recycling of Garments, Surface Modification of Fibres, Natural Finishes, Dyeing with Natural Dyes, Studies of Bio-Polymers for Textile, Studies in Processing of Wool & Silk, Synthesis of Cationic Fixing Agent and Specialty Chemicals and Dyes, Antimicrobial Finishing.

Recognized Research guide for Ph.D. (Tech.) in Fibres and Textile Processing Technology, Ph.D. (Sci.) in Textile Chemistry

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Masters- 18 Ph.D - 01	Ph.D.- 01 Masters- 03	26	06	Completed - 03	Completed - 01

Professional Activities

- Member of Board of Studies of The Maharaja Sayajirao University of Baroda in Textile Department
- Examiner at Nirmala Niketan, Mumbai



Dr. R. D. Kale

B.Sc., B.Sc. (Tech.), M. Tech., Ph. D. (Tech)
Assistant Professor in Textile Chemistry
Department of Fibres and Textile Processing Technology
Phone: 022 33611111/2222, Direct: 022-33612813
Email id: rd.kale@ictmumbai.edu.in

Subjects Taught : Dyeing of Natural and Synthetic Fibres, Analysis of Chemicals used in Textile Wet Processing, Technology of Textile Polymers, Testing of Textiles, Technology of Non Wovens, High-tech and Industrial Fibres

Research Interests : Effluent Treatment using Nano Particles, Application of Nano Emulsions in Textiles, Synthesis and Application of Nano Particles, Use of Polyelectrolyte Multilayers for Imparting Novel Properties to Textile Polymers, Functional Finishes for Natural and Synthetic Fibres, Use of Alternate Sources of Energy in Textile Processing, Processing of Polyester Fibres at Room Temperature, Modification of Synthetic Fibres by Melt Spinning.

Recognized Research guide for Ph.D. (Tech.) in Fibres and Textile Processing Technology, Ph.D (Science) in Textile Chemistry

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Masters- 05	Ph.D - 03 Masters- 06	04	07	Completed - 01	Completed - 01



Dr. Sujata Pariti

B.Sc., B.Sc. (Tech.), M. Sc. (Tech.), Ph. D. (Tech)
 Adjunct Professor
 Department of Fibres and Textile Processing Technology
 Phone: 022 33611111/2222, Direct : 022-33612812
 Email id: ss.pariti@ictmumbai.edu.in

Subjects Taught : Technology of Textile Coloration and Technology of Wet Processing Machinery, Technology of Finishing I and II, Chemistry of Man-made Fibres, Textile Process House Management, Dye House Lab, Finishing and Evaluation of Textiles, Energy and water Conservation in Processing

Industries, Textile Finishing Lab

Research Interests : Sustainable Textile Processing, Green Technology using Enzymes, Antimicrobial Textiles, Technical Textiles, Processing, Effluent Treatment, Dyeing and Printing with Natural Dyes.

Research Students	Research Publications	
Ongoing	National	International
Masters- 03	50	01

Professional Activities

- Member, Society of Dyers and Colourists (SDC), London, for Mumbai Region since 2001

5) Names of the Visiting Faculties

Visitng Faculty	Designation	Company	Class
Mr. P.R. Limaye	Dean Administration	Vidyalankar Institute of Technology	S Y B Tech
Mrs.Lipika S. Nair	Textile Consultant		M Tech
Ms.Bhavya Pande	Lecturer	VJTI	Final Y B Tech
Dr. G.V.G. Rao	President	Atul Ltd., Colors Division	M. tech
Ms.Vibhuti Barve	Lecturer	SNDT Women University	T Y B Tech
Dr. Javed N. Sheikh	Lecturer	VJTI	Final Y B Tech
Mrs. Arundhati Sane	Lecturer	VJTI	M.Sc.
Dr. Madhura Nerurkar	--	--	M.Tech

6.5. DEPARTMENT OF FOODS ENGINEERING AND TECHNOLOGY

Head: Professor Rekha S. Singhal



Prof. Rekha S. Singhal

B.Sc. (Hons.) (Mumbai, 1981), B.Sc. (Tech.) (Mumbai, 1981), M.Sc. (Tech.) (Mumbai, 1986), Ph.D. (Tech.) (Mumbai, 1990) Fellow of Maharashtra Academy of Sciences (2007), Fellow of Association of Food Scientists and Technologists (India), (2009), Fellow of the Biotech Research Society of India (2011)

Professor of Food Technology

Subjects Taught : Food Additives and Ingredients, Nutraceuticals and Functional Foods, Technology of Dairy Products, Principles of Food Analysis, Current Topics in Food Science and Technology, Modern Techniques in Food Analysis, Food Safety and Toxicology, Biotechnology of Fermented Foods

Research Interests : Carbohydrate Chemistry and Technology, Food Product Development, Nutraceuticals, Chemistry and Technology of Traditional Foods, Biopolymers, Fermentative production and downstream processing of biomolecules

Recognized Research guide for Ph.D. (Tech.) in Food Engineering and Technology, Food Biotechnology, Bioprocess Technology, Ph.D. (Sci.) in Food Science, Biotechnology

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Ph.D.- 19 Masters- 73	Ph.D.- 22 Masters- 11	26	279	Completed - 03 Ongoing- 01	Completed - 08 ongoing - 03



Prof. S. S. Lele

B.Chem.Eng. (Mumbai, 1977), M.Chem.Eng. (Mumbai, 1981), Ph.D. (Tech.) (Mumbai, 1990)

Fellow of the Maharashtra Academy of Sciences (2006), Fellow of the Biotech society (India, 2010)

Professor of Biochemical Engineering and Controller of Examinations

Subjects Taught : Food Engineering, Fermentation Technology, Advances in Food Engineering, Fundamentals of Food Science and Technology, Food Process Engineering, Current Topics in Food Science and Industry, Waste Utilization in Food Industry, Basics of Fermentation and Genetic Engineering

Research Interests : Food Product / Process development; Microalgal Metabolites; Enzyme Production from Indigenous Strains; Biological Effluent Treatments; Fruit and vegetable based dehydrated and nutritious product development.

Recognized Research guide for Ph.D. (Tech.) in Food Engineering and Technology, Food Biotechnology, Bioprocess Technology, Ph.D. (Sci.) in Food Science, Biotechnology

Research Students		Patents	Research Publications		Sponsored Projects
Guided	Ongoing	National	National	International	Government
Ph.D.- 21 Masters-55	Ph.D.- 13 Masters- 09	04	09	83	Completed - 08 Ongoing- 03



Dr. Laxmi Ananthanarayan

B.Sc. (Mumbai, 1978), B.Sc. (Tech.) (Mumbai, 1981), M.Sc. (Tech.) (Mumbai, 1983), Ph.D. (Tech) Mumbai, 2010)

Associate Professor of Applied Biochemistry and Coordinator, Food Biotechnology Course

Subjects taught : Chemistry of Food Constituents; Nutrition; Technology of Plantation Products; Food Packaging; Current Topics in Food Science and Technology; Biochemistry Lab I and II; Microbiology Lab II; Food Biotech Lab; Advances in Nutrition; Enzymes in the Food Industry.

Research interests : Traditional Foods, Fermented Foods; Fruit and Vegetable Processing; Millet Based Products; CAP / MAP Technology; Extrusion Technology; Protein Purification; Enzymology; Nutraceuticals; Natural Pigments; Microbial Metabolites, Protein Hydrolyrates, Biochemistry of fruit ripening.

Recognized Research guide for Ph.D. (Tech.) in Food Engineering and Technology, Food Biotechnology, Bioprocess Technology, Ph.D. (Sci) in Food Science, Biochemistry, Biotechnology

Research Students		Books	Research Publications		Sponsored Projects	
Guided	Ongoing	Chapter	National	International	Government	Private
Masters- 52	Ph.D.- 14 Masters- 11	01	01	22	Ongoing- 01	Completed - 01



Dr. U. S. Annapure

B.Tech. (Marathwada, 1993), M.Sc. (Tech.) (Mumbai, 1996), Ph.D. (Tech) (Mumbai, 2000,) BOYSCAST Fellow (DST-GOI, 2010)

Associate Professor of Food Chemistry
Head Warden

Subjects Taught : Food Chemistry, Principles of Food Preservation, Current Topics in Food Science and Technology, Food Microbiology Lab, Food Processing Lab, Carbohydrate Chemistry and Technology

Research Interests : Extrusion Processing - Process and Product Development, Frying - Chemistry and Technology, Nutraceuticals - Chemistry, Technology and Product Development, Carbohydrates - Chemistry and Technology of Minor Grains, Tubers and Gums, Traditional Foods, Product and Technology Development, Enzyme Applications in Food Processing, Downstream Processing of Enzymes, Antioxidants and Biomolecules, Plasma Processing.

Recognized Research guide for Ph.D. (Tech.) in Food Engineering and Technology, Food Biotechnology, Bioprocess Technology, Ph.D. (Sci.) in Food Science, Biotechnology

Research Students		Book Chapter	Publications		Sponsored Projects	
Guided	Ongoing		National	International	Government	Private
Ph.D.- 03 Masters- 38	Ph.D.- 17 Masters- 11	01	07	41	Completed - 02 Ongoing- 02	Completed - 02 Ongoing- 02



Dr. S. S. Arya

B.Tech. (Marathwada, 2002), M.Tech. (Mumbai, 2004), Ph.D. (Tech) (Mumbai, 2008)

Assistant Professor of Food Technology

Subjects Taught : Food Microbiology, Chemistry of Food Constituents, Technology of Cereals, Legume and Pulses, Current Topics in Food Science and Technology, Basics of Food Science and Technology, Technical Analysis I and II(P) , Food Microbiology (P), Food Chemistry (P), Food Analysis (P), Food Processing I (P)

Research Interests : Indian Traditional Foods, Chemistry and Preservation of Foods, Product Development and Processing, Staling Studies in Cereal and Cereal products, Starch Chemistry and Technology, Preservation of Foods, application of newer technologies in preservation of traditional foods, Food Biotechnology, production and Downstream Processing of Biomolecules, Fermented Foods, Diabetic Foods, Functional Foods, Nutraceuticals, Fruit and Vegetable Preservation and Processing, Indian Flat Breads.

Recognized Research guide for Ph.D. (Tech.) in Food Engineering and Technology, Food Biotechnology, Bioprocess Technology, Ph.D. (Sci.) in Food Science

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Masters- 11	Ph.D.- 04 Masters- 06	03	18	Completed - 02 Ongoing - 01	Completed-01 Ongoing - 01

6.6 DEPARTMENT OF OILS, OLEOCHEMICALS & SURFACTANTS TECHNOLOGY

I/c, Head: Professor P. R. Vavia



Prof. P. R. Vavia

B.Pharm. (Mumbai, 1985), M.Pharm. (Mumbai, 1987), Ph.D. (Tech.) (Mumbai, 1991)

Professor of Pharmaceutics & Dean- (AP) Academic Programmes

Subjects Taught : Pharmaceutics, Advanced Pharmaceutics, Biopharmaceutics and Pharmacokinetics, Drug Delivery Systems.

Research Interests : Cyclodextrins based drug delivery systems, Nanosponge based drug delivery system, Bioencapsulation, Multiparticulate drug delivery system, Transdermal drug delivery systems, Protein and peptide drug delivery system, Lipid based colloidal formulations, Polymer synthesis for drug delivery, Modified release films, Melt Extrusion Technology, Oral liquid dosage forms, Techniques in solubilization, Soft Gelatin Capsule, bioconjugates for active targeting.

Recognized Research guide for Ph.D. (Tech) in Pharmaceutics, Pharmaceutical Technology, Bioprocess Technology

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Ph.D.- 34 Masters- 42	Ph.D.- 14 Masters- 06	21	99	Completed - 05 Ongoing - Nil	Completed - 23 Ongoing- 05



Dr. A. P. Pratap

B.Sc. (Tech) (Mumbai, 1999), M.Sc. (Tech) (Mumbai, 2001), Ph.D. (Tech.) (Mumbai, 2006)

Assistant Professor of Oils, Fats and Waxes Technology

Subjects Taught : Technology of Oil and Fat Production, Processing of Oil Bearing Materials, Processing of Oils, Fats and Waxes, Fat Based Products, Cosmetics and Perfumery, Processing of Oleochemicals and Cosmetics, Processing of Soaps, Detergents, Oleochemicals and glycerine, Triboapplication Laboratory, Waxes, Lubricants and Greases, Technology of

Fat Based Products, Analysis of Oils, Fats and Waxes

Research Interests : Tribo applications of oils and fats, structural modifications of oils, fats and fatty acids, Petroleum products, lubricants, Additives and specialty products, microbial Bio surfactants etc.

Recognized Research guide for Ph.D. (Tech.) in Oils, Oleochemicals and Surfactants Technology, Green Technology, Ph. D. (Sci.) in Chemistry

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Masters- 10	Ph.D.- 11 Masters- 11	11	19	Completed - 04 Ongoing- 02	Completed - 02 Ongoing- 02



Dr. J. T. Waghmare

B.Sc. (Tech) (Mumbai, 1998), M.Sc.(Tech) (Mumbai, 2002), Ph. D. (Mumbai, 2010)

Assistant Professor of Oils, Fats, and Waxes Technology

Subjects Taught : Analysis of, oleochemicals and surfactants, Analysis of oils, fats & waxes, Technology of edible fat production.

Research interests : Nutraceuticals, oxidation studies, structural lipids, designer lipids. application of surfactant, Cosmetics, perfume, flavor and fragrances, enzymology.

Recognized Research guide for Ph.D. (Tech.) in Oils, Oleochemicals and Surfactants Technology

Research Students		Research Publications		Sponsored Projects
Guided	Ongoing	National	International	Government
Masters- 01	Masters- 04	02	06	Completed - 02

6.7 DEPARTMENT OF PHARMACEUTICAL SCIENCES & TECHNOLOGY

Head: Professor P. V. Devarajan



Prof. P. V. Devarajan

B.Pharm. (Mumbai, 1980), M.Pharm. (Mumbai, 1983), Ph.D. (Tech) (Mumbai, 1989)
Professor in Pharmacy

Subjects Taught : Pharmaceutics, Technology of Solid Dosage Forms, Technology of Sterile Dosage Forms, Drug Delivery Systems, Targetted Drug Delivery Systems(DDS).

Research interests : Nanomedicine for targeted delivery in infectious diseases (TB, malaria, brucellosis etc.), and cancer, Engineering nanoparticle shape, Scale-up methods for nanoparticles, nanocarrier based drug delivery systems for peptides, proteins and biotech molecules, Screening for new targeting ligands, Surfactant based innovative self assembled structures as DDS, Bioadhesive nasal and sublingual DDS, Controlled released DDS(NDA and ANDA), Bioenhanced DDS

Recognized Research guide for Ph.D. (Tech) in Pharmaceutics, Pharmaceutical Technology, Bioprocess Technology

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Ph.D.- 30 Masters- 59	Ph.D.- 20 Masters- 05	04	48	Completed - 08 Ongoing- 02	Completed - 18 Ongoing- 05



Prof. K. G. Akamanchi

B.Sc. (Mumbai, 1973), B.Sc. (Tech.) (Mumbai, 1976), Ph.D. (Tech.) (Mumbai, 1985)

Professor in Pharmaceutical Technology

Subjects Taught : Pharmaceutical Chemistry, Pharmaceutical Technology, Chemistry of Natural Products.

Research Interests : Catalysis, Design and development of new reaction systems and reagents, hypervalent iodine(v) reagents and new transformations, process chemistry and technology for Drugs and Intermediates, Biotechnology with emphasis on membrane transport proteins isolation and characterization, antitubercular agents, Design and synthesis of dendritic surfactants for nanomedicine.

Recognized Research guide for Ph.D. (Tech) in Pharmaceutical Technology, Pharmaceutical Chemistry, Bioprocess Technology, Ph.D (Sci) in Chemistry

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Ph.D.- 46 Masters- 79	Ph.D.- 12 Masters- 04	05	77	Completed - 13	Completed - 34 Ongoing- 03

**Prof. P. D. Amin**

B.Pharm. (Mumbai, 1982), M.Pharm. (Mumbai, 1984), Ph.D. (Tech.) (Mumbai, 1988)

Professor in Pharmacy

Subjects Taught : Pharmaceutics, Pharmaceutical Technology, Dispensing Pharmacy, Hospital Pharmacy.

Research Interests : Exploration of Hot Melt Extrusion Technology in Innovative Drug Delivery system, Development and evaluation of Fixed Dose Combinations, Improvisation Techniques for Manufacture and Evaluation of Solid Dosage Forms, Release modification designs for drug delivery system Design and Fabrication of Pharma machinery (R&D Models), Development of Added Functionality Excipients, ophthalmic drug delivery systems, modification in excipients, exploring the use of excipients

Recognized Research guide for Ph.D.(Tech) in Pharmaceutics, Pharmaceutical Technology, Bioprocess Technology

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Ph.D.- 14 Masters- 45	Ph.D.- 11 Masters- 02	27	41	Completed - 06 Ongoing- 06	Completed - 11 Ongoing- 04

**Dr. G. U. Chaturbhuj**

B. Pharm. (Shivaji, 1998), M. Pharm. (Mumbai, 2000), Ph.D Tech in Pharmaceutical Chemistry (Mumbai, 2012)

Assistant Professor of Pharmacy

Subjects Taught : Pharmaceutical Analysis

Research Interests : Synthesis of substituted Biphenyls, synthesis of drugs and drug intermediates by alternative, ecofriendly, industrially feasible routes, development of routes for synthesis of drug metabolites and analytical methods, Polymer synthesis and pharmaceutical applications thereof

Recognized Research guide for Ph.D. (Tech) in Pharmaceutical Chemistry

Research Students		Research Publications
Guided	Ongoing	International
Masters - 01	Ph.D. - 03 Masters - 04	01

**Prof. M. S. Degani**

B.Pharm.(Mumbai,1982), M.Pharm.(Mumbai,1985), Ph.D.(Tech.) (SNDT, 2001)

Sir Dorabjee Tata Professor in Pharmaceutical Chemistry

Subjects Taught : Pharmaceutical chemistry, Medicinal Chemistry, Organic Chemistry and Spectroscopy

Research Interests : Drug discovery chemistry including computer assisted design (structure and ligand based) followed by synthesis of focused

compound libraries and their in vitro evaluation including cell based and enzyme based approaches. Process chemistry research including Green chemistry aspects using ionic liquids; development of innovative processes for drug intermediates and fine chemicals and biosynthetic routes, alzheimer's disease and fluorine chemistry, drug metabolism

Recognized Research guide for Ph.D.(Tech) in Pharmaceutical Technology, Pharmaceutical Chemistry, Bioprocess Technology, Ph.D (Sci) in Chemistry, Biotechnology

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Ph.D.- 11 Masters- 38	Ph.D.- 14 Masters- 03	06	42	Completed - 09 Ongoing- 02	Completed - 06



Prof. A. R. Juvekar

B.Pharm. (Shivaji, 1979), M.Pharm. (Mumbai, 1984), Ph.D. (Tech.) (Mumbai, 1995)

Professor in Pharmacology and Physiology

Subjects Taught : Anatomy and Physiology, Pharmacology, Clinical Pharmacy, Anatomy and Pathophysiology, Biochemistry, Topics in Pharmacology, Models for Drug Delivery system, Pharmacology Toxicology and Therapeutics.

Research Interests : Pre-clinical Pharmacodynamic activity evaluation in diseases related to Inflammation, pain, ulcer Immunomodulation, Hepatoprotective, Central Nervous System, Cardio Vascular System diseases. Toxicology studies - Acute, Sub-acute, Chronic

Recognized Research guide for Ph.D. (Tech) in Pharmacology, Bioprocess Technology, Ph.D (Sci) in Biotechnology

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Ph.D.- 12 Masters- 50	Ph.D.- 12 Masters- 02	47	33	Completed - 06 Ongoing- 01	Completed - 28



Prof. K. S. Laddha

B.Pharm. (Mumbai, 1982), M.Pharm. (Mumbai, 1985), Ph.D. (Tech.) (Mumbai, 1994)

Professor of Pharmacy
Dean (ICD)

Subjects Taught : Pharmacognosy, Phytochemistry and medicinal Natural Product

Research Interests : Extraction, isolation and characterization of phytoconstituents, Development of large scale extraction technologies, Standardization of herbal drugs and formulations, Development of herbal drug formulations, Chemical Modification of phytoconstituents.

Recognized Research guide for Ph.D. (Tech) in Pharmacognosy, Pharmaceutical Technology, Bioprocess Technology, Ph.D (Sci) Chemistry

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Ph.D.- 25 Masters- 62	Ph.D.- 12 Masters- 06	55	12	Completed - 05 Ongoing- 02	Completed - 10 Ongoing- 02



Prof. V. B. Patravale

B.Pharm. (Mumbai, 1985), M.Pharm. (Mumbai, 1987), Ph.D. (Tech.) (Mumbai, 1992)

Professor of Pharmaceutics

Subjects Taught : Pharmaceutics, Cosmetics, Validation and regulatory Requirements, Advanced Pharmaceutics, Drug Delivery systems, Targeted Drug delivery.

Research Interests : Lipid and polymer based nano-therapeutics, Nanosuspensions, Targeted drug delivery systems, Novel carriers and techniques for solubilization, Green technologies for nanoparticle generation, Exploitation of indigenous excipients for novel applications, Fabrication of equipments for micro/nanocapsules for scale-up, Medical devices, cosmeceuticals, 3D constructs, diagnostics and vaccines.

Recognized Research guide for Ph.D. (Tech) in Pharmaceutics, Pharmaceutical Technology, Bioprocess Technology, Ph.D (Sci) in Biotechnology

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Ph.D.- 13 Masters- 51	Ph.D.- 21 Masters- 05	13	79	Completed - 14 Ongoing- 04	Completed - 11 Ongoing- 03



Dr. S. S. Sathaye

B.Pharm. (Mumbai, 1983), M.Pharm. (Mumbai, 1986), Ph.D. (Tech.) (Mumbai, 2006)

Associate Professor of Pharmacy

Subjects Taught : Anatomy, Physiology, Pathophysiology, Pharmacology, Microbiology,

Research Interests : Toxicity evaluation as per regulatory guidelines. Developing phytoactives and enzymes as dietary health supplements, immunomodulators, hepatoprotectives, aphrodisiac, appetite stimulant, anti-diabetic, anti-convulsants (In- Vitro and In-Vivo evaluation). Biotechnological applications in isolating biomolecule. Evaluation of Drug Delivery Systems and synthetic drugs using In-Vitro and In -Vivo models (Efficacy and Toxicity).

Recognized Research guide for Ph.D. (Tech) in Pharmacology, Bioprocess Technology

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Masters- 40 Ph.D.- 04	Ph.D.- 13 Masters- 03	09	30	Ongoing- 03 Completed - 03	Completed - 14 Ongoing - 00

**Dr. V. N. Telvekar**

B.Sc. (Mumbai, 1992), B.Sc. (Tech) (Mumbai, 1995), M.Sc. (Tech) (Mumbai, 1997), Ph.D. (Tech) (Mumbai, 2003)

Assistant Professor of Pharmaceutical Chemistry

Subjects Taught : Medicinal Chemistry, Pharmaceutical Chemistry, Pharmaceutical Engineering, Process Technology of Drugs and Intermediates

Research Interests : Invention of new reactions and reaction, Design and synthesis of novel bioactive molecules using Computer aided drug design, total synthesis of bioactive natural products, process development.

Recognized Research guide for Ph.D. (Tech) in Pharmaceutical Technology, Pharmaceutical Chemistry, Bioprocess Technology, Ph.D (Sci) in Chemistry

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	International		Government	Private
Ph.D.- 05 Masters- 29	Ph.D.- 18 Masters- 03	50		Completed - 04 Ongoing- 02	Completed - 03

**Prof. P. R. Vavia**

B.Pharm. (Mumbai, 1985), M.Pharm. (Mumbai, 1987), Ph.D. (Tech.) (Mumbai, 1991)

Professor of Pharmaceutics & Dean- (AP) Academic Programmes

Subjects Taught : Pharmaceutics, Advanced Pharmaceutics, Biopharmaceutics and Pharmacokinetics, Drug Delivery Systems.

Research Interests : Cyclodextrins based drug delivery systems, Nanosponge based drug delivery system, Bioencapsulation, Multiparticulate drug delivery system, Transdermal drug delivery systems, Protein and peptide drug delivery system, Lipid based colloidal formulations, Polymer synthesis for drug delivery, Modified release films, Melt Extrusion Technology, Oral liquid dosage forms, Techniques in solubilization, Soft Gelatin Capsule, bioconjugates for active targeting.

Recognized Research guide for Ph.D. (Tech) in Pharmaceutics, Pharmaceutical Technology, Bioprocess Technology

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Ph.D.- 34 Masters- 42	Ph.D.- 14 Masters- 06	21	99	Completed - 05 Ongoing - Nil	Completed - 23 Ongoing- 05

**Dr. Prajakta Dandekar Jain**

B.Pharm. (2003), M.Tech BPT (2006), Ph.D. (Tech) 2010

Dr. John Kapoor Assistant Professor in Pharmaceutical Technology and Ramanujan Fellow

Subjects Taught : Pharmaceutical Analysis, Pharmaceutical Biotechnology

Research Interests : Pharmaceutical Biotechnology, nanomedicine, 2D and 3D cell culture, pulmonary infections and diseases.

Recognized Research Guide for Ph.D (Tech) in Bioprocess Technology

Research Students	Research Publications		Sponsored Projects
Ongoing	National	International	Government
Masters - 04 Ph.D. - 01	01	15	Ongoing - 04 Completed - 01

6.8. DEPARTMENT OF POLYMER and SURFACE ENGINEERING

Head: Professor P. A. Mahanwar



Prof. P. A. Mahanwar

B.Sc. (Hons.) (Shivaji, 1987), B.Sc. (Tech.) (Mumbai, 1991), M.Sc. (Tech.) (Mumbai, 1994), Ph.D. (Tech.) (Mumbai, 1998)

Professor of Polymer Technology

Subjects Taught : High Polymer Chemistry, Processing of Plastics, Technology of Pigments, Polymer Additives, Powder Coatings, Polymer Composites, Advance Polymer Science.

Research Interests : Green Chemistry, Nanomaterial synthesis, Polymer Nanocomposites, Green Coatings.

Recognized Research guide for Ph.D.(Tech) in Polymer Engg. and Technology, Surface Coating Tech., Plastic Engg. Ph.D.(Sci) in Chemistry, Biotechnology

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Ph.D.(Tech)-10 M.Tech - 62	Ph.D.(Tech)-07 Ph.D.(Sci)-03 M.Tech - 08	19	58	Completed - 09 Ongoing- 03	Completed - 04 Ongoing- 02



Prof. R. N. Jagtap

B.Sc. (1989) B.Sc. (Tech.) (Mumbai, 1992), M.Sc. (Tech.) (Mumbai, 1996), Ph.D. (Tech.) (Mumbai, 1998)

Professor of Paint Technology

Subject Taught : Advanced paint Technology I, Advanced paint Technology II, Advanced Surface Coating Technology II, High Performance Coating, Marine paints, Radiation Curing Coating, Technology of Printing Ink, Environmental Friendly Coatings, Corrosion prevention and corrosion proration.

Research Interests : Living Radical Polymerization for Tailor-made Polymers and their additives, Biosource raw materials for polymers and coatings, Nanomaterial and Nanocomposite, Recycling of e-waste, Antimicrobial Paints, Heat reflective coatings, Corrosion prevention, Ecofriendly coating.

Recognized Research guide for Ph.D. (Tech.) in Polymer Engg. and Technology, Surface Coating Tech., Green Technology, Ph.D.(Sci) in Chemistry

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Ph.D.- 06 Masters- 25	Ph.D.- 07 Masters- 08	24	49	Completed - 02 Ongoing- 02	Completed - 05 Ongoing- 03



Dr. S. T. Mhaske

B.Sc. (Tech.) (Mumbai, 1999), M.Sc. (Tech) (Mumbai, 2001), Ph.D. (Tech). (Mumbai, 2006)

Assistant Professor of Technology of Plastics & PV.

Subjects Taught : Evaluation and characterization of polymers, Compounding and Polymer Processing - I, Paint Processing, Polymer Chemistry, Polymer & Processing Technology - III, Analysis & Pigment Synthesis, Synthesis & Characterization of raw materials.

Research Interests : Novel approached synthesis of Nano particles, Polymer melt Rheology, Cellulose based Polymer Nanocomposites, Bio Nanocomposites, Photosynthesis of nano particles, Development of Thermoplastics vulcanizates and elastomer, Reprocessing and recovery of polymers, Synthesis of pigments using core shell and Sol gel techniques, synthesis of resins from renewable resources, Synthesis and Characterization of Resins, Water Borne Coatings, Insulating Varnishes, conductive coatings, anticorrosive coatings, Polymer Processing and Coloration and Colour Matching.

Recognized Research guide for Ph.D. (Tech.) in Polymer Engg. and Technology, Surface Coating Tech., Green Technology, Ph.D.(Sci) in Chemistry

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Ph.D.- 01 Masters- 14	Ph.D.- 06 Masters- 11	29	34	Ongoing- 02	Completed - 10 Ongoing- 04



Shri A. R. Rao

B.Tech. (Amaravati, 1998), M.Tech. (Mumbai, 2007)

Assistant Professor of Polymer Technology

Subject Taught : Compounding and polymer processing, Technology of Thermoplastics Identification and Analysis of Polymer, Polymer Processing-II, Chemistry and Technology of Plastics, Synthesis and Characterization of Polymers

Research Interests : Polymer Blends and Alloys, Polymer Nanocomposites, Controlled radical Polymerization, Recycling of Polymers Biodegradable Polymers

Research Publications		Sponsored Projects
National	International	Government
02	01	Ongoing- 01 Completed - 01



Dr. A. S. Sabnis

B.Sc. (Mumbai, 1996), B.Sc. (Tech.) (Mumbai, 1999), M.Sc. (Tech) (Mumbai, 2001), Ph.D. (Tech). (Mumbai, 2006)

Assistant Professor of Technology of Polymers and Paint

Subjects Taught : Technology of Thermoset Resins, Basics of paint formulation, Paint Rheology, Instrumental Techniques for Paint Evaluation, Paint Film Defects & Remedies, Electrical insulation and intumescent Coatings, industrial coatings etc.

Research Interests : Waterbased coatings, electrical insulation, waste recycling in Polymer industry, Polyurea coatings technology, green route for polymer synthesis.

Recognized Research guide for Ph.D. (Tech.) in Polymer Engg. and Technology, Surface Coating Tech.

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Masters- 03	Ph.D.- 01 Masters- 14	05	09	Ongoing- 01	Completed - 02 Ongoing- 01



Dr. V. V. Shertukde

B.Sc. (1987), B.Sc. (Tech.) (Mumbai, 1990), M.Sc. (Tech.), (Mumbai, 1993)
Ph.D. (Tech.) (Mumbai, 1997)

Associate Professor

Subjects Taught : Polymer Blends & Alloys, Polymer composites, Radiation curable coatings, Adhesion & Adhesives, Polyelectrolytes, High polymer chemistry, Polymer Science & Technology Technology of Elastomers, Advances in polymer science & Technology, Technology of Thermoset Resins, Polymer additives, Polymer Processing.

Research Interests : Polymer Composites/ Nanocomposites, Polymer Blends & Alloys, Recycling of plastics, Corrosion protection, Thermally stable polymers, Adhesives, Paper coatings etc.

Recognized Research guide for Ph.D. (Tech.) in Polymer Engg. and Technology, Surface Coating Tech., Ph.D. (Sci.) in Chemistry.

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Ph.D.- 03 Masters- 18	Ph.D.- 04 Masters- 02	22	08	Completed - 01	Completed - 02

6.9 DEPARTMENT OF CHEMISTRY

Head : Professor B. M. Bhanage



Prof. B. M. Bhanage

B.Sc. (Pune, 1986), M.Sc. (Pune, 1988), Ph.D. (NCL, Pune, 1996)

Professor of Industrial and Engineering Chemistry

Head, Department of Chemistry

Subjects Taught : Organic Chemistry, Inorganic Chemistry, Materials Chemistry, Catalysis

Research Interests : Development of new method for organic synthesis such as sonochemistry, use of ionic liquids, Mechanistic studies; Catalysis - Homogeneous catalysis, Heterogeneous catalysis using modified silica, alumina, zeolites, metal oxides, etc.; Green Chemistry approaches to synthesis. Gas-liquid reactions like hydroformylation, hydrogenation, carbonylations, carbon dioxide fixation into valuable chemicals, asymmetric synthesis using catalysis.

Research Students		Patents	Research Publications	Sponsored Projects	
Guided	Ongoing		International	Government	Private
Ph.D.- 14	Ph.D.- 22	24	212	Completed - 06 Ongoing- 05	Completed - 03 Ongoing - 02

58



Prof. S. D. Samant

M.Sc. (Mumbai, 1976), Ph.D. (Mumbai, 1980)

Professor of Organic Chemistry

Subjects Taught : Organic Chemistry, Stereochemistry, Organic Reaction Mechanism, Heterocyclic Chemistry.

Research Interests : Mechanistic organic chemistry, Synthesis of Biologically interesting compounds, New methods of Organic Synthesis, Chemistry of surfactants, Sonochemistry, Catalysis.

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Ph.D.- 48 M.Sc.(By Research) - 03 M.Sc.(By Papers) - 06	Ph.D.- 09	51	81	Completed - 12	Completed - 02



Prof. R.V. Jayaram

M.Sc. (University of Madras), Ph.D. (IIT, Madras)

Professor of Physical Chemistry

Subjects Taught : Physical chemistry, Organic chemistry, Analytical chemistry, Catalysis and Green chemistry

Research Interests : Heterogeneous catalysis in organic synthesis, Green chemistry, synthesis and application of structurally ordered materials, amorphous alloys, functional polymers, adsorption techniques for removal of water pollutants, surface and interfacial phenomena

Research Students		Research Publications		Sponsored Projects
Guided	Ongoing	National	International	Government
Ph.D.- 15 Masters-M Sc 08 M Tech 05	Ph.D.- 11 M Tech 06	04	78	Completed - 05 Ongoing - 0



Dr. J. M. Nagarkar

B.Sc. (1975), M.Sc. (1977), Ph.D. (Nagpur, 1984)
Associate Professor of Chemistry

Subjects Taught : General Chemistry, Physical Chemistry, Analytical Chemistry, Inorganic Chemistry.

Research Interests : Heterogeneous and homogeneous Catalysis, Photocatalysis, Emulsification of oils, Electrochemical extraction organometallic Chemistry, Nanomaterials

Research Students		Research Publications		Sponsored Projects	
Guided	Ongoing	National	International	Government	Private
Masters - 09	Ph.D.- 10 Completed - 02	03	28	Completed - 02	Completed - 06



Dr. A. R. Kapdi (MRSC, AvH Fellow)

B.Sc. (Mumbai, 2000), M.Sc. (Mumbai, 2002), M.Res. (University of York, 2005), Ph.D. (University of York, 2008)

UGC FRP Assistant Professor

Subjects Taught : Organic Chemistry, Organometallic Chemistry, Analytical Chemistry

Research Interests : Catalysis- Homogeneous catalysis using palladium and nickel based complexes, Heterogenization of the complexes on solid supports and application of both the methodologies in cross-coupling and C-H bond Functionalization of heterocycles; Green Chemistry approaches to synthesis; Microwave assisted organic reactions in aqueous media, Metal mediated modification of nucleosides.

Research Students	Research Publications	Sponsored Projects	
Ongoing	International	Government	Private
Ph.D. - 07	35	Ongoing- 01	02

**Dr. Vijay Kumar A.**

B.Sc. (Andhra University) 2003, M.Sc. (Pondicherry University) 2005,
Ph.D. (CSIR - IICT, Hyderabad) 2011
DST-INSPIRE Faculty

Subjects Taught : Organic Laboratory Techniques for Undergraduates,
Organic Chemistry for Masters

Research Interests : Ullmann Coupling reactions, Aerobic oxidation,
Sustainable/Green Reagents for Organic Synthesis, Supramolecules,
Polyoxometalates mediated Catalysis, Cyclodextrins-drug delivery
agents/mass transfer reagents, Carbon/Carbon supported catalysts for Organic Transformations

Research Students	Research Publications	Sponsored Projects
Ongoing	International	Government
Ph.D. - 03	24	Ongoing- 01

**Dr. D. Das**

B.Sc. (University of Burdwan, West Bengal, 2004), M.Sc. (University of
Burdwan, West Bengal, 2006), Ph.D. (IIT Bombay, 2011)

DST-INSPIRE Faculty

Subjects Taught: Inorganic Chemistry, Chemistry of Transition Metals

Research Interests: Bioinorganic chemistry, Bio-inspired metal-oxygen
chemistry, Synthesis of various bio-mimetic Fe, Co, Ni and Cu complexes,
Transition metal mediated catalytic oxygen reduction reaction, Homogeneous
and Heterogeneous catalysis, Preparation and Characterization of Organometallic complexes,
Cooperation of metals with electroactive ligands of biochemical relevance, Electron transfer and
catalysis by transition metal complexes, Mixed-valent Compounds, Ruthenium complexes: inorganic
photo physics and bio-sensing

Research Students	Research Publications		Sponsored Projects
Ongoing	National	International	Government
Ph.D. - 02	0	11	Ongoing- 01

**Dr. S. S. Tiwari**

B.Sc. (Mumbai, 2002), M.Sc. (Mumbai, 2004), Ph.D. (National Chemical
Laboratory - Pune, 2009)

DST INSPIRE Faculty

Subjects Taught : Physical Chemistry, Analytical Chemistry, Surface and
Interfacial Chemistry

Research Interests : Kinetic and mechanistic investigation of organic
reactions, solvent effects in organic reactions, interfacial reactions, "on water"
chemistry, reactions in confined media, kinetics and mechanism of protein aggregation, physical and

chemical properties of ionic liquids, space- and time-resolved spectroscopic techniques, asymmetric amplification, transport phenomena in reactions

Research Students	Research Publications	Sponsored Projects
Ongoing	International	Government
Ph.D. - 02	06	Ongoing- 01



Dr. K. A. Joshi

M.Sc. (University of Pune 2000), Ph.D. (University of Pune, 2008)

DST RAMANUJAN Faculty

Subjects Taught: Computational Chemistry, Physical Chemistry

Research Interests: Density Functional calculations for small size molecules, Understanding organic reaction mechanisms using static QM calculations as well as QM/MM molecular dynamics. QM/MM approach to understand solvent effect in organic and enzymatic reactions, Molecular

Docking studies for protein-ligand interactions. Bone health using periodic DFT

Research Students	Research Publications	Sponsored Projects
Ongoing	International	Government
Ph.D. - 01	14	02



Miss. Manjiri Mulye

B.Sc.in Chemistry (Mumbai, 2008), M.Sc. in Physical Chemistry (Mumbai, 2010)

Tutor

Names of the Visiting Faculties -

- | | |
|------------------------------|-------------------------------------|
| (1) Dr. P. A. Sathe | (8) Elizabeth B. Joseph |
| (2) Dr. S. S. Mangaonkar | (9) Nadar Mahalaxmi Balasubramanian |
| (3) Dr. Hemant Khanolkar | (10) Dr. Tanuja Parulekar |
| (4) Dr. Indraneel Chatterjee | (11) Mrs. Gomati Shridhar |
| (5) Dr. Bipin Mehta | (12) Dr. Mrs. Veena Khilnani |
| (6) Dr. Lakshmy Ravishankar | (13) Dr. Chitra Kamat |
| (7) Dr. P. P. Tekale | (14) Prof. V. V. Mahajani |

6.10 DEPARTMENT OF GENERAL ENGINEERING

Head: Dr. D. D. Sarode



Dr. D. D. Sarode

B.E. (Civil) (Mumbai, 1986), M.E. (Structural) (Mumbai, 1990), Ph. D. (I.I.T. Bombay, 2010), P. G. D. (Const. Management) (Mumbai, 1988), D.C.S.T. (Mumbai, 1999)

Associate Professor of Civil Engineering

Subjects Taught : Engineering Mechanics & Strength of Materials, Structural Mechanics and Process Equipment Design I

Research Interests : Construction Chemicals, Formwork for R.C.C, Advance Concrete Technology, Anticorrosive coatings and inhibitors, Glass and Carbon fiber composites and Geotechnical Engineering, Risk Management

Recognized Research guide for Ph.D. (Tech.) in Civil Engineering

Research Students		Research Publications		Sponsored Project
Guided	Ongoing	National	International	Completed
Masters- 06	Ph.D.- 03 Masters- 02	12	06	01



Dr. S. P. Deshmukh

D.M.E. (Ratnagiri, 1983), B.E. (Prod.) (Mumbai, 1986), M.E. (Prod.) (Mumbai, 1992), Ph.D. (Mumbai 2009)

Associate Professor-cum -Workshop Superintendent

Subjects Taught : Equipment Design & Drawing I, Engineering Graphics, Mechanical Engineering.

Research Interests : Polymeric Composites, Engineering Materials, Plastic Processing, Design of Molds, Analysis of Plastic component using CAD, CAE tools. Solar Hybrid Energy, Refrigeration Air Conditioning, Heat Transfer through microchannel.

Recognized Research guide for Ph.D. (Tech.) in Mechanical Engineering, Plastic Engineering, Electrical Engineering, Electronic Engineering

Research Students		Research Publications		Sponsored Projects
Guided	Ongoing	National	International	
Masters- 12	Ph.D.- 08 Masters- 02	07	13	01



Dr. A. C. Rao

B.E. (Mech.) (Mumbai, 1975), M.E. (Mech. with Plastic Eng.) (Mumbai, 1977), Ph. D. Tech (Mumbai 2012).

Associate Professor of Mechanical Engineering

Subject Taught : Testing of Plastics, Plastic Product design, Processing of Plastics, Design and Fabrication of Molds and Dies, Principles of Plastic Machinery Design.

Research Interest : Design and Fabrication of plastic molds and Dies, Processing of Plastics, Plastic Machinery Design, Analysis of plastic articles and molds/dies using CAD/CAM/CAE.

Recognized Research guide for M.E. (Plastics) Ph.D. (Tech.) in Plastic Engineering, Mechanical Engineering

Research Students		Research Publications
Guided	Ongoing	International
Ph.D.- 03 Masters- 27	Masters- 01	06



Shri. M. A. K. Kerawalla

B.E. (Elect.) (Mumbai, 1981), M.E. (Elect.) (Mumbai, 1984)

Associate Professor of Electrical Engineering

Subject taught : Electrical Engineering and Electronics

Research Interest : Power Electronics and Controls



Dr. V. R. Gaval

B.E. (Production) (Mumbai, 1987), M.E. (Plastic) (Mumbai, 1989), Ph.D.Tech. (Mumbai, 2012)

Assistant Professor (Senior Scale) of General Engineering

Recognized guide for Ph.D. in Plastic Engg.

Subjects taught : Energy Engineering, Equipment Design and Drawing, Engg. Graphics, Structural Mechanics, Processing of Plastics, Plastics Product Design and Testing, Advanced Strength of Materials

Research Interests : Polymeric composites, Nanocomposites, Injection mold Design.

Recognized Research guide for Ph.D. (Tech.) in Plastic Engineering

Research Students		Research Publications	
Guided	Ongoing	National	International
Masters - 18	Masters- 02	-	06

**Mrs. P. Goswami**

B.E. (Elect.) (Jodhpur, 1990), M.E. (Instrumentation & Control, Panjab, 2008)
Assistant Professor (Senior Scale) of General Engineering

Subjects Taught : Electrical Engineering and Electronics

Research Interests : MATLAB simulations, Power systems and energy conservation.

**Dr. R. S. N. Sahai**

B.E. (Mech.) (1989), M.E. (Plastic Eng.) (Mumbai, 2004), Ph.D.Tech. (Mumbai, 2013)

Assistant Professor (Senior Scale) of Mechanical Engineering

Subjects taught : Engg Graphics, Processing of Plastics, Energy Engineering Principles of Plastic Machinery Design

Research Interests : Polymeric composites, Nanocomposites, Injection mold Design

Recognized Research guide for Ph.D. (Tech.) in Plastic Engineering

Research Students		Research Publications	
Guided	Ongoing	National	International
Masters - 06	Masters- 03	-	02

**Prof. M. R. Sawant**

M.Sc. Ph. D., D.H. E.

Emeritus Fellow (All India Council of Technical Education)

Research Interest : Homogeneous and heterogeneous catalysis using metal oxides, Pesticide formulations, nano emulsion, Surfactant science.

Research Students		Research Publications	
Guided	Ongoing	National	International
Ph.D.-04 Masters - 11	Masters- 01	05	35

6.11 DEPARTMENT OF MATHEMATICS

Head: Dr. A. K. SAHU



Dr. A.K. Sahu

B.Sc. (Utkal, 1976), M.Sc. (Utkal, 1979), Ph.D. (IIT, Mumbai, 1992)
Associate Professor of Engineering Mathematics

Subject Taught : Fluid Mechanics I, II, Heat & Mass Transfer, CFD, Mathematical Modeling and designing, Mathematical Biology.

Research interests : My basic interest is in Mathematical Modeling, Momentum and Heat transfer in Laminar and Turbulent Flows. In general analytical solutions are not possible for the governing equations for complex flow geometry. Therefore the equations are solved numerically. For this

Purpose, finite difference, control volume method and finite element methods are used.

Recognized Research guide for Ph.D. (Sci.) in Mathematics

Research Students		Research Publications		Sponsored Projects
Guided	Ongoing	National	International	Government
Masters- 01	Ph.D.- 01	07	08	None
Ph.D. 01				



Dr. Ajit Kumar

B.Sc. (Patna, 1995), M.Sc. (Mumbai, 1997), Ph.D. (Mumbai, 2002)
Assistant Professor of Mathematics

Subjects Taught : UG - Applied Mathematics IV, PG - Advance Calculus, Computer Applications - I Software Lab - I, Optimization Techniques, Software Lab - II

Research Interests : Optimization Techniques, Statistical Analysis, Differential Geometry, Mathematical Pedagogy

Recognized Research guide for Ph.D. (Sci.) in Mathematics

Research Students	Book Published	Book Chapters	Research Publications		Sponsored Projects
Ongoing			National	International	Government
Ph.D.- 02	02	06	01	08	None



Dr. Smrutiranjana Mohapatra

BSc. (Sambalpur, 1999), M.Sc. (Sambalpur, 2004), Ph.D. (IIT Guwahati, 2009),
Assistant Professor of Mathematics

Subjects taught : Applied Mathematics I, Applied Mathematics II, Numerical Methods, Computer Application - I

Research Interests : Water wave scattering by spherical or cylindrical structures and bottom topography, Hydrodynamic Loading, Ice-cover problems, Scattering by Very Large Floating Structure (VLFS).

Recognized Research guide for Ph.D. (Sci.) in Mathematics

Research Publications		Sponsored Projects
National	International	Government
01	10	01



Dr. Sunil Kumar Gauttam

M.Sc. (IIT Bombay 2004), Ph.D. (IIT Bombay 2012)

Assistant Professor of Mathematics

Subjects Taught : Applied Mathematics-III (B.Chem), Mathematics-I (B.Pharma), Applied Linear Algebra (M.Sc.), Mathematical Finance (M.Sc.), Applied Mathematics II, Engineering Application of Computers

Research Interest : Stochastic Control, Mathematical Finance

Project Student : M.Sc., Completed -01, Ongoing-01



Mr. Anwar Ahmad Ansari

M.Sc. (Applied Statistics & Informatics)

I.I.T. Bombay, Powai, Mumbai

Tutor

Tutor for Course : Applied Mathematics - II (B.Tech and B.Chem) Computer Application to Engineering (B.Tech)

6.12 DEPARTMENT OF PHYSICS

Head: Dr. V.D. Deshpande



Dr. V. D. Deshpande

M.Sc. (Delhi, 1978), M.Phil. (Delhi, 1980), Ph.D. (Delhi, 1986)

Associate Professor of Colour Physics

Subjects Taught : Applied Physics, Colour Physics.

Research Interests : Polymer nanocomposites, Polymer blends: Crystallization kinetics, Mechanical and optical properties, study of dielectric behaviour, Orientation behaviour, structure-property relationship; Colour Physics: Colour assessment of dyed textiles; Assessment of the effect of the background on the colour perception; Polymer embedded nano-drug delivery;

Renewable energy-solar-thermal application, Coatings for solar collector for various solar applications

Recognized Research guide for Ph.D. (Sci.) in Physics

Research Students		Patents	Research Publications		Sponsored Projects
Guided	Ongoing	National	National	International	Government
Ph.D. - 01 Masters- 05	Ph.D.- 09	01	05	11	Completed - 06 Ongoing- 03



Dr. R.R. Deshmukh

B.Sc. (Pune, 1991), M.Sc. (NMU Jalgaon, 1994), B.Ed. (Mumbai, 1995), Ph.D. (Mumbai, 2002)

Associate Professor of Physics

Subjects Taught : Heat, Optics, Lasers and Fibre optics, Thin films, Chromatographic Techniques

Research Interests : Plasma Technology, Polymer Physics, Functionalization of nano-particles. Molecular tailoring of surfaces using plasma for biomedical applications, textile physics, Electro-optical properties of Polymer Dispersed Liquid Crystals, Polymer nano composite materials.

Recognized Research guide for Ph.D. (Sci.) in Physics, Chemistry

Research Students		Patents	Research Publications		Book	Sponsored Projects	
Guided	Ongoing	International (U.S.Filed)	National	International	Chapter	Government	Private
M.Sc. 02	Ph.D.- 10	01	04	30	01	Completed - 06 Ongoing- 01	Ongoing- 01



Dr. Mohan Narayan

B.Sc. (Mumbai, 1988), M.Sc. (Mumbai, 1990), Ph.D. (Madras, 1999)

Associate Professor of Physics

Subjects Taught : Quantum Mechanics, Statistical Mechanics, UG Lab, Postgraduate Quantum Mechanics.

Research Interests : Theoretical High Energy Physics, Cavitation and Nucleation phenomena, Molecular dynamics.

Recognized guide for Ph.D. (Sci.) in Physics

Research Publications	
International	National
21	03



Shri. S. Kasthurirangan

B.Sc. (Mumbai, 2005), M.Sc. (Mumbai, 2007)

Assistant Professor of Physics

Subjects Taught : Applied Physics, Colour Physics, Classical Mechanics

Research Interests : Accelerator-based Atomic and Molecular Physics, Ion-Atom Collisions, Physics of Highly Charged Ions (HCI) and HCI plasmas

Research Publications	
International	National
12	01

6.13 PROFESSOR M.M. SHARMA LIBRARY

Head: Shri A. S. Lokhande



Shri A. S. Lokhande

B. Sc. (Mumbai, 2001), B. L. I. S. (Pune, 2002), M. L. I. S. (Pune, 2003),
Maharashtra SET, UGC-NET

Librarian

Research interest : Librarianship, Bibliometrics, Citation Analysis

6.14 DBT-ICT- CENTRE FOR ENERGY BIOSCIENCES

Coordinator: Professor A. M. Lali



Prof. A. M. Lali

B. Chem., M. Chem., Ph.D Tech. (Chemical Engineering),

Professor (Chemical Engineering)

Coordinator, Bioprocess Technology,

Head, DBT-ICT-Centre for Energy Biosciences

Subjects Taught : Downstream Processing in Biotechnology, Advances in Adsorptive & Chromatographic Separations, Bioprocess Simulation Modeling & Bioreactor Design, Instrumentation & Process Control, Adsorptive Separations Statistical Methods

Research Interests : Bioenergy, Biofuels and biomass to other chemicals, Purification of Proteins, nucleic acids & other biomolecules, natural & synthetic APIs high value organic/inorganic chemicals, Continuous chromatography, Modeling & Adsorptive separations, Biocatalysis & Bio transformations, Bioreactor design, Mixing & dynamics of solid liquid fluidized bed, Dynamics of gas-solid circulating fluidized bed, Process integration & intensification, Process development, characterization & scale up.

Recognized Research guide for Ph.D.(Tech.) in Chem. Engg., Bioprocess Technology, Ph.D.(Sci.) in Chemistry, Biotechnology

Research Students		Patents	Research Publications	Sponsored Projects	
Guided	Ongoing	National and International	International	Government	Private
Masters-72 Ph.D.- 35	Ph.D.- 22 M.Tech - 03	46 (So far)	International - 45 Book Chapter - 02	Completed -13 Ongoing- 08	Completed -16 Ongoing- 04

**Dr. Sandeep Kale**

B. Pharm., M. Tech. BPT, Ph.D. Tech (Chem. Eng.)
 Assistant Professor of Bioprocess Technology

Subjects Taught : Unit Operations in Bioprocessing, Bioanalytical Techniques, Advanced topic in adsorptive & chromatographic separations

Research Interests : Design and development of downstream processes for biopharmaceuticals, biologicals, natural products and synthetic API (extraction, biotransformation, adsorptive and selective chromatographic separations, filtration, crystallization, lyophilisation, and drying) Protein stabilization, Process characterization, Process integration and intensification, optimization and controls, QbD, Analytical method development and characterization, Validation, Enzyme technology and Biocatalysis, Fermentation, Scale-up.

Research Students		Patents	Research Publications	Sponsored Projects	
Co-Guided	Ongoing	(National and International)	International	Government	Private Industries
Ph.D.- 08 Masters-08	Ph.D.- 18 Masters-04	International-18 National-2	International-18 International-2	4	6

**Dr. Annamma Anil Odaneth**

B.Sc. Microbiology, M.Sc. Biotechnology,
 P.G. Diploma in Bioinformatics, Ph.D. Applied Chemistry
 Assistant Professor of Biochemistry

Subjects Taught : Biological Sciences; Protein and Enzyme; Engineering; Biocatalysis and Enzyme Technology

Research Interests : Extractive Biotransformation, Design & Engineering of enzymes, Selective Isolation & Capture of Natural Bioactive Molecules, Secondary Agriculture & its products, Process integration & intensification, Process development, characterization & scale up.

Recognized Research guide for Ph.D. (Sci.) in Biotechnology

Research Students		Patents	Research Publications	Sponsored Projects	
Co-Guided	Ongoing	National and International	International	Government	Private Industries
Ph.D.- 8 Masters-05	Ph.D.- 8 Masters-06	7	3	7	7



Dr. Reena Pandit

B.Sc. Zoology, M.Sc. Marine Biology,
Ph.D Marine Biotechnology
Research Scientist

Subjects Taught : Biochemistry, Green Biotechnology

Research Interests : Algal Biotechnology

Research Students		Patents	Research Publications	Sponsored Projects	
Co-Guided	Ongoing	National and International	International	Government	Private Industries
Ph.D.- 05	Guided - 01 Ongoing - 03	1	9	1	Nil



Dr. Gunjan Prakash

B.Sc. Medical, M.Sc. Plant Biosciences,
Ph.D Plant Biotechnology
Research Scientist

Subjects Taught : General Microbiology

Research Interests : Genetic manipulation of algal species for increasing the photosynthetic efficiency and development of robust algal strains by manipulation of stress responsive genes, Secondary metabolite production, Industrial Fermentation

Research Students		Patents	Research Publications	Sponsored Projects	
Guided	Ongoing	National and International	International	Government	Private Industries
01	02 Ph.D. - 04	1	International -11 National - 02	1	Nil



Dr. Pooja Joshi

B.Sc. Medical, M.Sc. Biosciences,
Ph.D Plant Biotechnology
Research Scientist

Subjects Taught : Patents and IPR

Research Interests : Plant Biotechnology, IP Protection & Policy

Research Students		Patents	Research Publications	Sponsored Projects	
Guided	Ongoing	National and International	International	Government	Private Industries
Nil	Nil	Nil	International -3 National - 01	Nil	Nil



Dr. Aruna Mahesh

B.Sc. Biochemistry, M.Sc. Biotechnology,
Ph.D Chemistry
Research Scientist

Research Interests : Molecular & synthetic biology applications towards optimizing microbial pathways & synthesis of value added chemicals
Bioseparations

Research Students		Patents	Research Publications	Sponsored Projects	
Guided	Ongoing			Government	Private Industries
Nil	02	National and International	04	01	Nil



Dr. Abhishek Mule

M.Sc. Microbiology, Ph.D Microbiology,
PDF Industrial Microbiology
Research Scientist

Subjects Taught : Microbiology, Fermentation Technology

Research Interests : Microbial fermentations, Xenobiotic Degradation, Enzyme production

Research Students		Patents	Research Publications	Sponsored Projects	
Guided	Ongoing			Government	Private Industries
Nil	Nil	National and International	03	02	Nil



Dr. Shamlan M. S. Reshamwala

B.Sc. Microbiology & Biochemistry, M.Sc.
Biochemistry, Ph.D Molecular Biology
Research Scientist

Subjects Taught : Bioinformatics and Statistical Methods, Recombinant DNA Technology, Patents and IPR, Design and Analysis of Experiments.

Research Interests : Over expression & secretion of recombinant proteins, Enzyme engineering for improved catalysis and robustness, Utilization of cheap feedstock's for biosynthesis of transportation fuels and fine chemicals

Research Students		Patents	Research Publications	Sponsored Projects	
Guided	Ongoing			Government	Private Industries
Nil	Nil	National and International	03	01	Nil

**Dr. Manju Bishan Sharma**

B.Sc. Medical, M.Sc. Microbiology,
Ph.D Microbiology
Research Associate

Research Interests : Microbial Diversity, Molecular Biology, Metagenomics, Carbohydrate Binding Molecules, Glycoside Hydrolases, Protein Engineering

Research Students		Patents	Research Publications	Sponsored Projects	
Guided	Ongoing	National and International	International	Government	Private Industries
Nil	Nil	Nil	International-05 Book Chapter-02	02	Nil

**Dr. Ashish Misra**

Ph.D. in Chemical & Biochemical Engineering
M.S. Chemical & Biochemical Engineering
B.E. Chem. Engineering

Research Interests : Metabolic Engineering, Fermentation Technology

Research Students		Patents	Research Publications	Sponsored Projects	
Guided	Ongoing	National and International	International	Government	Private Industries
Nil	Nil	Nil	07	Nil	Nil

**Dr. Rupali Walia**

B.Sc. Botany, M.Sc. Biotechnology,
Ph.D Biochemical Engineering and Biotechnology
Research Associate

Research Interests : Biosynthetic pathway engineering for second-generation biofuels and value added co-products.

Research Students		Patents	Research Publications	Sponsored Projects	
Guided	Ongoing	National and International	International	Government	Private Industries
Nil	Nil	Nil	03	Nil	Nil

**Mr. Sandip Kale**

M.Sc. (Organic Chemistry) &
 Post Graduate Diploma in Patent Law
 Research Associate (IPM & TC Unit)

Research Students		Patents	Research Publications	Sponsored Projects	
Guided	Ongoing	National and International	International	Government	Private Industries
Nil	Nil	Nil	Nil	Nil	Nil

**Dr. Pamela Jha**

B.Sc. (Microbiology)
 MSc. by research (Life Sciences)
 Ph.D (Biotechnology)

Subject Taught : Environmental sciences, Biochemistry, cell biology

Research Interests : Plant biotechnology, animal biotechnology, environmental biotechnology.

Research Students		Patents	Research Publications	Sponsored Projects	
Co-Guided	Ongoing	National and International	International	Government	Private Industries
Nil	Nil	Nil	Research papers-04 Book Chapter-02	Nil	Nil

6.15 ADJUNCT FACULTY

1.

**Dr. N. J. DeSouza**

B.Sc. (1953), M.Sc. (1956), Ph.D. (1962), AIIM (Geneva), OOE (Zurich)
 Adjunct Professor
 Department of Pharmaceutical Science and Technology
 Co-Coordinator, Entrepreneur Development Cell

2.

**Ms. Rita Doctor**

B.A. (Mumbai, 1962), M.A. (Mumbai, 1965)
 Adjunct Professor and Counsellor

3.



Dr. A. K. Kalkar

M.Sc. (Jabalpur, 1966), Ph.D. (Mumbai, 1972)

Adjunct Professor

Department of Physics

Research Interests : Polymer Physics, Polymer composite materials, Rheology of soft materials, PDLC

4.



Dr. S. V. Pansse

M.Sc. (Mumbai, 1969), Ph.D. (Mumbai, 1996)

Adjunct Professor

Department of Physics

Research Interests : Solar Thermal, CSP Technology

5.



Dr. A. L. Ravinmohan

B.Tech. (IIT, Mumbai, 1967), Ph.D. (California, USA, 1971)

Adjunct Professor

Department of Oils, Oleochemicals and Surfactants

6.16. HON. PROFESSORS



1. Prof. J.B. Joshi

(J.C. Bose National Fellow)
Department of Chemical Engineering
(Homi Bhabha Professor, HBNI,
Mumbai)

Research Interests : CFD,
Multiphase Reactors



2. Shri. S. B. Patel

M/s Shirish Patel
and Associates
Department of
Chemical Engineering



3. Dr. M. V. Karwe

Department of Food Engineering
and Technology



4. Shri. S. M. Mokashi

Former M.D., Xytel
India Pvt. Ltd
Department of
Chemical Engineering

5. Dr. Shriram Manohar

Department of Chemistry

6. Dr. N.V. Iyer

Department of Oils, Oleochemicals
and Surfactant



7. Dr. A. Sapre

Reliance Industries Ltd
Department of Chemical Engineering

6.17. ENDOWMENT POSITIONS : DISTINGUISHED VISITING FELLOWS, PROFESSORS AND LECTURERS (2013-2014)

GENERAL

- **Professor B.D. Tilak Distinguished Lectureship**
- **Professor B.D. Tilak Visiting Fellowships.**
- **Golden Jubilee Visiting Fellowships.**
- **Dr. Balwant S. Joshi Distinguished Visiting Professorship in Chemical Engineering Chemical Technology / Applied Chemistry "**
- **Shri. B. S. Rajpurohit Visiting Faculty and Oration Endowment**

Department of Chemical Engineering

- **Dr. G.P. Kane Visiting Professorship in Chemical Engineering.**
- **The Dow Professor M.M. Sharma Distinguished Visiting Professorship in Chemical Engineering.**
- **Shri V.V. Mariwala Visiting Professorship in Chemical Engineering**
- **Shri G.M. (alias Dada) Abhyankar Memorial Distinguished Fellowship in Chemical Engineering**
- **Professor R.A. Rajadhyaksha Memorial Lecture series.**
- **Shrimati Kusumben and Shri Mathradas Kothari Visiting Professorship in Chemical Engineering**
- **K. J. Somaiya Visiting Professor of Chemical Engineering Endowment**
- **Professor Arun S. Mujumdar Visiting Fellowship**

Department of Chemistry

- **Dai-Ichi Karkaria Ltd. Visiting Fellowship**
- **The Dharamsi Morarji Chemical Co. Visiting Fellowship in Chemistry**
- **The (Late) Shri. G.D.Gokhale Endowment Lectureship**
- **Spinco-Biotech - Ramanathan Lectureship**

Department of Dyestuff Technology

- **K.H. Kabbur Memorial Silver Jubilee Lectureship.**
- **Professor K. Venkatraman Lectureship.**
- **Pidilite Industries Ltd. Visiting fellow in Dyestuff Science & Technology.**

Department of Food Engineering and Technology

- **Professor A. Sreenivasan Felicitation Lectureship.**
- **Marico Industries Visiting Fellowship**
- **ICT - Lupin Visiting Fellowship for Bioprocess Technology**

Department of Oils, Oleochemicals and Surfactants Technology

- **Professor J.G. Kane Visiting Professorship in Chemical Technology**
- **Professor J.G. Kane Memorial Lectureship**

Department of Pharmaceutical Sciences and Technology

- **CIPLA Distinguished Visiting Fellowship in Pharmaceutical Sciences**
- **Themis Medicare - ICT Diamond Jubilee Distinguished Fellowship in Pharmaceutical Sciences**
- **Professor (Mrs.) Malati R. Baichwal Visiting Fellowship in Pharmaceutical Science and Technology**
- **AAIPS- Dr. R. S. Baichwal Pharmaceutical Seminar**
- **Dr. S.K. Pradhan Endowment**
- **Professor V.M. Kulkarni Endowment Fund in Pharmaceutical Science and Technology**

Department of Polymer Engineering and Technology & Department of Surface Coating Technology

- **Shri K. S. S. Raghavan - Chemical Weekly Visiting Professorship in Polymer Science and Technology**
- **Indian Plastics Institute (IPI)-ICT Diamond Jubilee Visiting Fellowship in Polymer Processing**
- **Chemimpex Rastogi-ICT Diamond Jubilee Visiting Fellowship in Surface Coatings.**
- **Synpol-ICT Diamond Jubilee Distinguished Visiting Fellow in Science & Technology of Pigment**
- **Tipco-ICT Diamond Jubilee Distinguished Visiting Fellow in Thermosets**
- **Jayvee Organics & Polymers(P)Ltd. Visiting Fellowship in Polymer Additives and Compounding**
- **Parmanand F. Parikh Endowment**

Department of Physics

- ◆ **Dr. Mooljibhai Shivabhai Patel Trust Visiting Fellowship in Polymer Physics**

Department of Fibres and Textile Processing Technology

- ◆ **Professor G.M. Nabar Endowment Lectureship.**
- ◆ **L.N. Chemicals ICT Diamond Jubilee Visiting Fellow**
- ◆ **Class of 1966 Visiting Fellowship.**

7. PROFILES OF DEPARTMENTS AND CENTRES OF EXCELLENCE

7.1 Department of Chemical Engineering [CHEM ENGG]

7.1.1 What is Chemical Engineering?

Chemical engineering is the branch of engineering that applies scientific and mathematical principles to design and develop processes by which available chemicals can be converted into a variety of useful products. Chemical Engineering is applicable to a wide range of technologies, including the production of energy, materials, electronics, and pharmaceuticals, the processing of food, and environmental protection and remediation. Development of the high-quality materials and large-scale processes characteristic of industrialized economies is an achievement of chemical engineering. Those chemical engineers involved in the design and maintenance of large-scale manufacturing processes are known as process engineers. It is true that chemical engineers are comfortable with chemistry, but they do much more with this knowledge than just make chemicals. In fact, the term "chemical engineer" is not even intended to describe the type of work a chemical engineer performs. Instead it is meant to reveal what makes the field different from the other branches of engineering.

Chemical Engineering is an ever evolving and fascinating branch of engineering having exceptionally high science orientation. It is highly science based and the most versatile disciplines. Chemical engineering enjoys a special and critical place in scientific and engineering disciplines. It deals with world of atoms, molecules and molecular transformations and right from inception. As ecological sustainability takes on ever greater significance in the twenty-first century, there is likely to be a sustained demand for chemical engineers to collaborate with ecologists, mechanical engineers, electrical engineers, material scientists and others in planning eco-industrial projects. Such projects would integrate several different industrial and biological processes into synergistic complexes to produce materials and products needed by society.

7.1.2 Modern Chemical Engineering

The modern discipline of chemical engineering encompasses much more than just process engineering. Chemical engineers are now engaged in the development and production of a diverse range of products, as well as in commodity and specialty chemicals. These products include high performance materials needed for aerospace, automotive, biomedical, electronic, environmental, and space and military applications. Examples include ultra-strong fibers, fabrics, adhesives and composites for vehicles, bio-compatible materials for implants and prosthetics, gels for medical applications, pharmaceuticals, and films with special dielectric, optical, or spectroscopic properties for opto-electronic devices. Additionally, chemical engineering is often intertwined with biology and biomedical engineering. Many chemical engineers work on biological projects such as understanding biopolymers (proteins) and mapping the human genome.

A new paradigm of "borderless chemical engineering science" is emerging. The demands from the society on 'cleaner' technologies rather 'clean-up' technologies, the emergence of 'performance chemicals and materials,' etc., is driving the profession towards achieving a symbiotic relationship with other disciplines. It has always been dealing with pollution prevention, atom economy, recycle, as the Solvay process would suggest. The term 'green chemical engineering' as a mantra for sustainable development and responsible care is at the centre-stage for all activities related to chemical engineering. Future course of an engineering discipline is reflected in current research areas within its folds. The expedition ahead for Chemical Engineering, based on the research profile of Chemical Engineering schools world over suggests that it is embracing biology, bio-engineering, tissue engineering, bio-processing, green chemistry and green engineering, and material science and nanotechnology in a big way and has been a truly working on scales from atom to atmosphere. Readily available computing power is changing the nature of research activity forever. A high level of mathematics and computational methods are intertwined with chemical

engineering. The advent of new measurement techniques is reducing the length scale of investigation to nano and molecular scales irreversibly in many cases. Chemical Engineering thus appears poised for a major expansion. Chemical engineers are getting directly involved in development of new products and new technologies which improve the quality of life which requires highly interdisciplinary work, new ways of treating diseases—a domain of medical practitioners only till very recently, and development of application specific materials and fluids with complex structure at various length scales.

Chemical Engineering is not just Chemistry but a discipline itself with own characteristics. A proficiency in basic sciences such as Chemistry, Physics, Biology, Mathematics and their applications is necessary to effectively conduct the molecular transformations at scales varying from thousands of tonnes to few kilograms per day in economically attractive and environmentally safe manner. Each reaction with unique characteristics gives challenging opportunities to conduct it at profitable scale to produce increasingly purer products as per market demands with minimum energy input in shortest time without producing waste or by-products. Each combination of Reaction and Reactor is, therefore, a challenge to the Chemical engineer to make it faster, simpler and cheaper.

7.1.3 Borderless and Versatile Engineering Profession

Over the last 25 years, Chemical Engineering has evolved developing interfaces with newer areas, including Biochemical Engineering, Nano Technology, and Energy Engineering taking advantage of developments in High performance computations, Electronics and Instrumentations and Information Processing. Although the basic responsibility of a Chemical engineer remains in design, testing, scale-up, operation and control of chemical plants, the interface helps the Chemical Engineers to enter into these newer areas at ease. Large Manufacturing facilities such as cements, petroleum refineries, oil and natural gas exploration and semiconductor Industries, biofuels and biotransformations, nuclear reactors, all involve Chemical engineering operations. Chemical engineers find good job opportunities in a wide spectrum of industries involving speciality chemicals, pharmaceuticals, drugs, paints, dyes, vegetable oils and foods.

Because of excellent analytical skills Chemical Engineers(CE) can work in areas from chemoinformatics to bioinformatics, drug delivery systems, molecular modelling, to handling systems from nanoscales to global scales for environmental impact and climate change. The versatility of Chemical Engineering education, therefore, makes a wide choice of career options available to the CE candidates. There is a huge scope for higher studies in Chemical Engineering because of highly science based discipline and requirement of R&D in the country.

7.1.4 International Standing of Department

The Department of Chemical Engineering is the number one Chemical Engineering Department in the Country by all the standards: teaching, research and industrial relationship, as has been rated by the international surveys conducted by Professor Jude Sommerfield of Georgia Tech, USA since 1964 for every five year period as well as every year and also during the 5-year period during 2004-2009 which included all IITs and IISc. Besides it is among top 10 Departments in the world and in terms of productivity as measured by papers per faculty per dollar spent, it is number one in the world. The number of papers published in peer reviewed journals per faculty is also the highest in India. The FIST programme of DST has revealed that the Chemical Engineering Department is the Best Department in all engineering Departments in India.

This is again the record which has been held due to the research contributions of faculty in international journals of repute. The value and impact of our research is reflected in highest number of papers per faculty member, highest impact factor per paper, and highest number of citations for papers of Chemical Engineering Department. The Department is recognized as the UGC Centre for Advanced Studies for a record time since 1989 and as UGC Networking Resource Centre in Chemical Engineering, since 2008; only one of its kind and further supported by DST-FIST programme with state-of-the-art research facilities.

7.1.5 Connectivity with Industry

The faculty has been acting as consultants to industry and the earnings are the highest for any engineering Department in India. Collaborative Academic Programs have been initiated with international institutes such as Purdue University, Kansas University, University of Saskatchewan, ICGEB, and, CSIR labs. Many foreign universities have shown interest in collaborating with Chemical Engineering faculty, and the most striking is a string of Canadian Universities desirous of signing MOUs with this Department.

7.1.6 Accolades and Awards

A number of awards have come to the faculty members in Chemical Engineering including Jagdish Chandra Bose National Fellowship, fellowships of Indian National Science Academy, Indian Academy of Sciences, National Academy of Sciences in India, Indian National Academy of Engineering and Indian Institute of Chemical Engineers. Not only faculty members but students also have bagged number of awards. Even home paper or design papers of the final year students have been repeatedly rated as the best by the Indian Institute of Chemical Engineers and the Ambuja Cement and Sir P. C. Ray Awards have come several times to ICT which itself is a record. All these awards recognize excellence in the field of Chemical Engineering.

7.1.7 Employment Opportunities

Our graduates, number over 30-35 per year are accepted with full fellowships in leading universities including MIT, Minnesota, UCB, Caltech, Wisconsin-Madison, Princeton, Stanford, Texas A and M, University of Texas, University of Delaware, Purdue University, and many more. All students are placed in some of the leading industries in India, with salaries ranging from Rs. 3.5 lakhs to Rs. 14.00 lakhs per annum and these are hard core industries and not the software companies. Several leading industrialists and owners of fortune-500 company owners are our graduates, including top planners and policy makers, who have been bestowed with Padma awards.

7.1.8 Research Interests of Faculty

The Chemical Engineering faculty has been well known for their publications in peer reviewed high impact factor journals, patents and industrial consultations in a variety of research interests.

Major Thrust of Research Areas

* Development of Novel Reactors, Reactions and Separation Processes	
* Analysis of Multiphase Phenomena	* Computational Fluid Dynamics for Multiphase Systems
* Novel Catalytic Materials and Processes	* Surfactant Science and Hydrotrophy
* Organic Chemical Processes Development	* Biotechnology and Downstream Processing
* Adsorptive and Chromatographic Separations	* Green Technology
* Cavitation Phenomena, Sonochemistry	* Membrane Based Separation Processes

In the global context, the priority research areas as identified by the Chemical Engineering Department are:

* Multiphase reactions, multiphase reactors and separation processes
* Energy engineering with an emphasis on the renewable energy resources
* Bio-Technology and Bio-medicines

♣ Environmental Protection and Safety	♣ Nanoscience and Nano-Technology
♣ Green Technology	♣ Materials Technology

7.1.9 Laboratory and Research Facilities

All Chemical Engineering laboratories and faculty offices have been remodeled during past 3 years. The labs are equipped with state-of-the-art instruments and have gone a total face-lift. UG students are provided computational facility in the main laboratory, including latest software required for modeling and simulation. Some of the sophisticated equipment which have been acquired and used continuously are: GC-MS, LC-MS, SEM, TEM, AFM, IC, FTIR, HP-TLC, HPLC, GC, XRD, DSC, DTA/TGA, AAS, Laser-Doppler anemometer, image analysers, pore and particle size analysers, autoclaves of different sizes and MOCs, catalyst screening bench-top autoclave assembly, supercritical fluid phase monitor and reactor, microwave reactors, computer workstations, laminar flow apparatus, fermenters, and many others. Advanced instrumental facilities have been created under industry sponsored projects as well.

7.1.10 Fellowships

Fifteen Ph.D. fellowships are offered every year under UGC CAS in Chemical Engineering; besides there are 20 Ph.D. fellowships under ICT-DAE Centre for Chemical Engineering Education and Research. Several projects are secured by the faculty in the areas of expertise from central agencies such as DST, DBT, CSIR, including Indian and foreign companies; this number varies from year to year. Interested candidates must appear for the entrance examination for a Ph.D. degree, whether funded government or industry. For GATE qualified students the UGC fellowships are currently

Rs 14000 p.m. plus 30% HRA, which are likely to be revised. For non-GATE students, they are Rs. 10,000 p.m. only.

There is a unique fellowship instituted by Dow Chemicals for Ph.D. (Tech.) in Chemical Engineering for a lady student at a value of Rs 25,000 p.m. with a contingency grant of Rs 1.00 lakh per year, for a period of 4 years. Thus, there will be 4 such lady students at a time. The candidate is required to participate in 10 hours of undergraduate lab./teaching per week. The grand purpose of this fellowship to induct woman chemical engineering faculty in Indian universities and institutes and it was started in 2009. The Centre for Green Technology, which is established in joint collaboration with University of Mumbai also offers 15 UGC SAP Ph.D. fellowships for conducting research, some of which are available under the guidance of concerned Chemical Engineering faculty. Some fellowships will also be offered during 2010-11 under the Centre for Nanomaterials and Nanotechnology of University of Mumbai to work with faculty of chemical engineering.

Apart from Master of Chemical Engineering programme, the department also participates in two interdisciplinary M. Tech. courses - Perfume & Flavour Technology, Green Technology and Bioprocess Technology. At least 19 Masters fellowships offered for GATE qualified students in the first round and typically this number is around 30+ when the admissions are closed. Besides, about 10-15 M. Tech. students in Bioprocess Technology (with a special reference to downstream processing) work under the guidance of Chemical Engineering faculty.

7.1.11 Interdisciplinary and Cross Disciplinary Programmes

Several faculty members guide Ph.D. students in all disciplines of Chemistry and Biotechnology, on interdisciplinary topics and several chemistry graduates have benefitted by their training in the Department of Chemical Engineering.

7.1.12 Visiting Faculty Endowments

There are several endowments created to invite the best of professionals and academics to the ICT. Some eminent faculty from institutes such as MIT, Purdue, Cambridge, 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 these endowments.

These lectures form part of audit courses for research students. Besides, public lectures are organized under each endowment.

7.2 Department of Dyestuff Technology [Dyes]

All chemical technology programmes are designed to lay a sound foundation in basic sciences and chemical engineering such as separation processes, chemical reaction engineering, transport phenomena, chemical engineering economics, instrumentation and process control. The basic sciences syllabi is the same for both chemical engineering and chemical technology courses, including mathematics and computation. As a consequence, B.Tech. students from these 7 branches of chemical technology are treated on par with chemical engineering graduates for higher studies in western universities.

Department of Dyestuff Technology is unique in India and provides UG and PG degrees in Intermediates and Dyestuff Technology. The Department was born out of the research interests and tradition of ICT, particularly, the world-class research initiated by Prof K. Venkataraman, the first Indian Director of ICT, whose treatises on dyestuff chemistry are reference books translated into foreign languages. Leading organic chemical technologists and industrialists have been alumni of this Department. Contrary to popular belief, there is a lot of excitement in courses offered by this Department including new eco-friendly dyestuffs, laser dyes, and biotechnological aspects of dyes, nanotechnology and green chemistry. This Department has a tradition of creating several first generation entrepreneurs, and many dyestuff companies have origins in research conducted in this Department. Since this course combines high level chemistry with technology, and downstream processing, graduates are accepted in other industries including pharmaceuticals and fine chemicals. This Department is also a part of the UGC Centre for Advanced Studies in Physico-chemical Aspects of Textiles, Fibres, Dyes and Polymers, which was the first Centre in ICT, established in 1963. Three fellowships are allotted under this Centre for Ph.D. including those under research schemes.

The B. Tech. (Dyestuff) course is an organic chemistry accented course. The main focus is on the training towards the laboratory as well as large-scale synthesis of colourants (dyes and pigments). Colourants can be prepared either through synthesis or from natural sources. The synthetic colourants are prepared through multi-step synthesis, which requires insight into synthetic organic chemistry. The colourants thus prepared are used for textiles, foods pharmaceuticals, and for hi-tech applications. The education provided to undergraduate students is a perfect blend of chemistry and engineering. Research at this Department is focused on many high technology areas such as lasers, ink jet printing, optical recording devices, biosensors, immunochemistry, green chemistry, peroumary and flavour technology, and high performance pigments for various end uses. There is also a strong emphasis on ab initio computation driven molecular modeling and design of functional fluorescent colorants.

7.3 Department of Fibres & Textile Processing Technology [Textile]

Almost 80 years ago, in 1933, when the Indian Textile Industry was progressing in-full swing in cities like Mumbai, and Ahmedabad, other industries were not even born. It was the time Sir VitthalChandavarkar was the Vice Chancellor of University of Mumbai and also the Chairman of Textile Mill Owners` Association. Along with his industrialist friends, he donated Rs. 200 lakhs for creation of an educational and res earch

institute catering to the need of Textile industry and that's how this UDCT, then called as University Department of Chemical Technology, under the wings of Mumbai University, was established. Initially, UDCT hosted only two disciplines: Textile Chemistry and Chemical Engineering, offering a two-year B.Sc.(Tech.) degree course post B.Sc. chemistry. A number of new disciplines of chemical technology, pharmacy, and biotechnology were opened up over the years as per the need of the nation and all these various technological disciplines have played a paramount role in building the respective industry in the country. Most of the Professional Bodies of the Technocrats of these disciplines, even today operate from the portals of excellence of UDCT. Now, passing through many transitions, the UDCT is known as Institute of Chemical Technology (ICT), which is the Deemed University under section 3 of UGC Act 1956, and also holds the status of being the first Elite Institute & Centre of Excellence conferred by the Govt. of Maharashtra.

Thus, the Department of Fibres and Textile Processing Technology (FTPT), formerly known as Textile Chemistry Section, has the unique distinction of being the first discipline with which this institution started. The Department conducts B.Tech. course with an intake capacity of 34, which is highest among all the B.Tech. courses of ICT. The course involves study of chemistry and manufacture of Fibres, their chemical processing such as bleaching, dyeing, printing and finishing. It further encompasses the study of chemistry as well as application of various kinds of chemicals, dyes, thickeners, and finishing auxiliaries which are used in chemical processing of textile fabrics and garments. It also involves knowledge of green chemistry, biotechnology and nanotechnology with special reference to chemical processing of textiles.

The post graduate courses of M. Tech. in Fibres & Textile Processing Technology both, Regular- 2 years and Sponsored 3- Years, M.Sc. in Textile Chemistry, Ph.D. (Tech.) in Fibres & Textile Processing Technology, Ph.D. (Sci.) in Textile Chemistry and Ph.D. (Sci.) in Chemistry attract a large number of students and so far more than 2250 graduates and 500 post graduates have passed out from this Department. The faculty of the Department has good interaction with the industry. Several industries and institutions have signed MOUs for research collaboration with us. Under these MOUs we offer Ph.D. and M. Tech courses to their scientists. A number of industries have been benefited by the technical advice given by the faculty. There have been a number of industrial and governmental research projects in which problems of mutual interest are investigated and the students as well as the Department have been benefitting by this interaction. The Department is recognized as Centre of Advanced studies in "Physicochemical aspects of Textile, Fibres, Polymers and Dyes" presently in Phase VII, since 1962. It was also recognised under the MODROB scheme of UGC. The Department is has been funded by TEQIP. In the month of December 2012, the Department got recognised as DST-FIST funded Department for the second time. The department also played an important role in evaluating TUFs under Ministry of Textiles, GOI. Also, the Department organizes guest lectures by industry experts under different endowment programmes. An international conference 'Texsummit' was organized by the Department recently, in December 2012. The faculty is engaged in high quality fundamental as well as applied research and they have got over 1000 publications in Indian and International journals as well as reputed fellowships to the credit from recognized institutions in India and abroad.

After the globalization of the markets with border-less trade, textile manufacturing activities are shifted to country like India which is fast developing economy. Textile being one of the fundamental needs of human being, it is a mother industry, next to only agriculture sector, involving over 60 million people. Today, the business is fast growing and will soon touch around US\$ 100 Billion. However, in the border-less trade many multinational brands are competing and the critical area of chemical processing of textile fabrics and garments requires tremendous amount of consolidation in terms of well trained manpower which can keep pace with latest technological operations and demand of stringent quality parameters in shortest delivery time giving competitive edge to the manufacturers. There is a huge shortage of Textile Processing graduates in the core textile industry as well as in multinational and reputed Indian manufacturers of dyes, chemical and auxiliaries. Thus the scope for graduates and postgraduates of this Department is enormous and such a demand with every passing day will only be rising given that consumption of apparels and technical textiles in India and abroad is increasing at galloping rate.

7.4 Department of Food Engineering and Technology [Foods]

This Department is the first in our country to offer specialized education in Food Technology. The B. Tech. (Food Eng. And Tech.) course trains the students in chemical, biochemical and microbial aspects of foods. Students are also taught how high quality products can be prepared and preserved for storage and how the storage conditions might affect the quality. The course gives adequate engineering inputs for large-scale production. The training also includes development of food products, manufacturing processes, design of factory with proper quality assurance system established. Economic feasibility of marketing such products is also taught during the course. The major research interests include carbohydrate chemistry and technology with focus on Indian traditional foods; and food microbiology related to quality, safety and application of new technology. Prof. D.V. Rege Centre has been founded to cater to the needs of Food Technology Research.

The UGC has recognized the Department as Centre of Advanced Studies in Food Engineering and Technology, under which 15 SAP fellowships are awarded per year. A new course assisted by DBT in Food Biotechnology has been in place since 2009-10 with 10 M. Tech. GATE fellowships. The Department also participates in two interdisciplinary M. Tech. courses - Perfumery & Flavour Technology, and Bioprocess Technology.

7.5 Department of Oils, Oleochemicals and Surfactants Technology [Oils]

After WW-II, the Department for Technology of Oils, Fats and Waxes was started, which was headed by Professor J.G.Kane, whose work on non-edible oils was exceptional. The Department has been in forefront for its quality education. Several of its alumni have been industrialists and reputed educationists.

7.5.1 What is this Technology?

The lipids are a class of biochemical compounds, many of which occur naturally in plants and animals. The lipids constitute a very large class of compounds, many of which play essential roles in organisms. Among the most important lipids are fats and oils, waxes, steroids, terpenes, fat-soluble vitamins, prostaglandins, phosphoglycerides, sphingolipids, and glycolipids. Phospholipids, for example, occur in all living organisms, where they are a major component of the membranes of most cells. The main use of fats commercially is in the production of soaps and other cleaning products. Oleochemicals are chemicals derived from biological oils or fats. The hydrolysis or alcoholysis of oils or fats form the basis of the oleochemical industry. The formation of basic oleochemical substances like fatty acids, fatty acid methyl esters (FAME), fatty alcohols, fatty amines and glycerols are by various chemical and enzymatic reactions. Intermediate chemical substances produced from these basic oleochemical substances include alcohol ethoxylates, alcohol sulfates, alcohol ether sulfates, quarterner ammonium substances, monoacylglycerols (MAG), diacylglycerols (DAG), structured triacylglycerols (TAG) and sugar esters. The importance of these chemicals is thus evident.

This Department has been pioneering in the field of Oil Technology. The curriculum has been designed to provide an in-depth knowledge of chemistry and technology of oils and fats, and their industrial applications. Career opportunities exist in oils mills and refineries, oleochemicals, soap and detergent manufacturing industries, surfactants and specialty chemical manufacture producing auxiliary chemicals, Paints. Cosmetics, Perfumery and raw materials used in the above industries. Several short and long term projects instituted by sponsoring bodies for process/product development have been supervised by the faculty as part of their routine research activity.

This Department offers 2 Ph.D. fellowships per year under NON-SAP status by UGC. It also participates in M. Tech. in Perfumery and Flavour Technology, Green Technology and Bio-Process Technology.

7.6 Department of Pharmaceutical Science and Technology [Pharma]

This Department offers two distinct programmes - Pharmaceutical Technology and Pharmacy.

The Pharmaceutical Technology course or the B. Tech. programme, earlier B.Sc. (Tech.), deals with the technology of manufacture of drugs and pharmaceuticals. It has all the ingredients for a solid foundation in basic sciences, mathematics, computation and chemical engineering. B. Tech. (Pharmaceuticals and Fine Chemicals) was started in 1943, and today the course is B.Tech (Pharmaceutical Chemistry and Technology). Basic science subjects like chemistry, mathematics and physics are dealt with in depth, while students are introduced to subjects of biochemistry, microbiology and pharmacology. Strong background knowledge of chemical engineering including chemical reaction engineering, unit operations, separation processes, instrumentation and process control, and stoichiometry is imparted to synergise with the major focus, which is on manufacturing process technology and chemistry of API, intermediates and fine chemicals and dosage form technology. Several distinguished alumni and many first generation renowned industrialists had their training in this Department. The aim of the B.Tech. (Pharma) course is to develop complete professional technologists/entrepreneurs for the active pharmaceutical ingredients (API) and pharmaceutical industry.

The B. Pharm. Course at ICT, started in 1958, was the first course of this kind in the state of Maharashtra. The course involves a detailed study of Pharmaceutics, Pharmaceutical and Medicinal chemistry, Pharmacology, Pharmaceutical Analysis and Pharmacognosy. The goal is to enable an understanding of the science of drugs and drug actions. The course is supported with in depth courses in basic sciences namely, organic chemistry, inorganic chemistry, physical chemistry, biochemistry, microbiology, maths and other relevant subjects like biotechnology, forensic pharmacy, management. The focus is on development of an expertise in the chemistry of drugs, drug effects, dosage regimen, drug toxicity and interactions with adequate knowledge of the synthesis of drugs, principles of drug formulation design and evaluation and regulatory requirements.

The UGC has recognized the Department as Centre of Advanced Studies in Pharmaceutical Science and Technology, under which 15 SAP fellowships are awarded per year. Besides, fellowship are also accorded under various other government projects with individual faculty. The Department has also received support under the DST-FIST programme. Many industry sponsored projects, both National and International, are also currently in progress. Modern equipment, instruments and infrastructure are available for research. The faculty is highly active and has filed patents in a variety of areas including NCE's and drug delivery.

7.7 Polymer and Surface Engineering [Polymer] [Coatings]

The Department of Polymer and Surface Engineering has undergone changes in its nomenclature and was established in 1946. Earlier it was known as Paints, Pigments and Varnishes (PPV) Section and was steered in the beginning by none other than Professor N.R. Kamath, a famous chemical engineer, graduate of first batch of B.Sc. (Tech.), in 1936, who later migrated to IIT-Bombay as Head of Chemical Engineering and Deputy Director. The B.Sc. (Tech.) courses in plastics and paints technologies were started in 1946 and have been popular throughout the world. Several small and medium industries covering plastics, paint, printing ink, adhesive, sealers and allied industries have been founded by the graduates of the Department and maintained excellent connectivity with industry.

The Department runs two B. Tech. programmes: Polymer Engineering and Technology, and Surface Coating Technology.

7.7.1 What is Polymer Science and Engineering

Polymers are macromolecule that contains many monomer units, typically tens of thousands to millions. While many polymers occur naturally as products of biological processes, synthetic polymers are made by

chemical processes that combine many monomers, together in chains, branched chains, or more complicated geometries. Starch, cellulose, proteins, and DNA are examples of natural polymers, while polyolefins, nylon, PET, ABS, Teflon, and PEEK etc. are examples of the synthetic variety. Both classes possess a number of highly useful properties that are as much a consequence of the large size of these molecules as of their chemical composition. Although most synthetic polymers are organic, that is, they contain carbon as an essential element along their chains, other important polymers, such as silicones, are based on noncarbon elements.

The rapid pace of advances in polymers, particularly after World War II, has been remarkable and the birth of this discipline in ICT in mid-1940s was timely. Synthetic polymers are so well integrated into the fabric of society that we take little notice of our dependence on them, whether it is health, medicine, clothing, transportation, housing, defense, energy, electronics, employment, space, and trade. Without a doubt, synthetic polymers have large impacts on our lives.

Although progress in polymer science and engineering can be considered ground-breaking, opportunities are abundant for creating new polymeric materials and modifying existing polymers for new applications; depolymerization and polymer recycling; oxo and biodegradable polymers; nano-composites, and the like. Scientific understanding is now replacing empiricism, and polymeric materials can be designed on the molecular scale to meet the ever more demanding needs of advanced technology. The possible control of synthetic processes by biological systems is promising as a means of perfecting structures. New catalysts offer the opportunity to make new materials with useful properties, and the design of new specialty polymers with high-value-added applications is an area of rapidly increasing emphasis. Theory, based in part on the availability of high-speed computing, offers new understanding and aids in the development of improved techniques for preparing polymers as well as predicting their properties. Analytical methods, including an array of new microscopic techniques particularly suited to polymers, have been developed recently and promise to work hand-in-hand with theoretical advances to provide a rational approach to developing new polymers and polymer products. The field of polymer science and engineering therefore shows no sign of diminished vigor, assuring new applications in medicine, biotechnology, electronics, and communications that will multiply the investment in research many times over in the next few decades.

The education provided to the students is the blend of practice and theory related to polymer science and engineering. The students learn to develop systems which are economically feasible and environmentally acceptable.

7.7.2 What is Surface Coating Technology?

Coating applied on other surface of the materials for the decoration and protection. The surface coating change aesthetic properties such as color, gloss, texture and functional properties like resistance to wear, chemical attack, permeability, weathering resistance without changing the bulk properties. These materials includes coatings, adhesives, sealants, varnishes, enamels, lacquers. Initially coating were solvent based however, the volatile organic compounds are compelling to develop ecofriendly coatings like water based, high solids coatings, powder coatings and radiation curable coatings. In general, organic coatings are based on a vehicle, usually a resin, which, after being spread out in a relatively thin film, changes to a solid. This change, called drying, may be due entirely to evaporation (solvent or water), or it may be caused by a chemical reaction, such as oxidation or polymerization. The materials providing the hiding are the opaque materials called pigments, dispersed in the vehicle, contribute colour, opacity, and increased durability and resistance.

The physical, chemical and mechanical properties of a material surface determine its applicability in many technical devices. Numerous applications could not be realized without the use of surface modifications, coatings and thin film technology. Therefore, the need for efficient and effective methods of surface modification is becoming increasingly evident to allow the production of far superior products in terms of wear resistance, corrosion protection, enhanced biocompatibility, thermal insulation, improved optical and altered electronic properties. Coating technologies of particular interest include physical and chemical

vapor deposition, thermal spraying, electrochemical deposition, sol-gel-syntheses, and plating. Surface modification includes directed energy techniques such as ion, electron and laser beams as well as etching procedures and thermo-chemical diffusion. Beyond that, mono-layers (e.g. SAM, Langmuir-Blodgett) have attained high significance in preparing thin films to modify biomedical surfaces. Recent novel techniques to prepare patterned surfaces (e.g. nano-imprint lithography, micro-contact printing) have proven their potential for the fabrication of integrated circuits and bioactive implants. Thus, this course offers an exciting field of study.

New trends related to surface engineering and coating technology for the synthesis of functional materials surfaces including novel fabrication methods, materials and applications, new characterization techniques as well as numerical simulation and modeling are some of the areas of research.

The Department is supported by UGC, DST, BRNS, etc. It is well equipped and offers 5 Ph.D. fellowships under the UGC SAP meritorious fellowship scheme.

7.8 ICT-DAE Centre for Chemical Engineering Education and Research

7.8.1 Preamble:

The Institute of Chemical Technology (ICT) and the Department of Atomic Energy (DAE) signed a Memorandum of Agreement (MOA) in 2006 having far reaching benefits for Indian S and T, which was based on the excellent relation between these two organizations and successful completion of projects by ICT faculty of Chemical Engineering. The MOU covers the following activities.

- (A) Instituting an interdisciplinary Ph.D. programme in Chemical Engineering.
- (B) Undertaking R&D projects in the areas of common interests and related to nuclear fuel cycle and advanced technologies.

DAE Research Institutions, namely, Bhabha Atomic Research Centre (BARC) and Indira Gandhi Centre of Atomic Research (IGCAR) are premier multidisciplinary R&D organizations engaged in research with the objective of generating knowledge and techniques for nuclear power production, advancement of science, use of radioisotopes in industry, health and agriculture as well as research in frontier areas of science and technology. BARC and IGCAR have multi-disciplinary groups of experts who have contributed to the development of processes and technologies related to thermal and fast nuclear reactors, fuel cycle and related areas. BARC and IGCAR have pursued research and development in chemical engineering in a rigorous way for many years in the areas defined by DAE's mission oriented programmes as well as projects of national interest. BARC and IGCAR support academic programmes within the DAE and also in the academic institutions and research centres in various parts of the country.

ICT is one of the foremost academic institutions in India, and has the necessary infrastructure in terms of trained manpower (including students) and a long tradition of research and development in Chemical Engineering and Chemical Technology. ICT has also had long and fruitful experience of working with BARC and other units of DAE on research projects related to Chemical Engineering and process technologies and have completed them meeting the high standards expected by DAE. On the national level, ICT is a major resource Institution in terms of technology development and fundamental research at the cutting age on the global scale. They have also entered into an MoU with Homi Bhabha National Institute (HBNI) for collaborating on academic programs especially suited to the requirements of DAE institutions.

In the Xth and XIth Five Year Plan, BARC and ICT had undertaken a joint research programme encompassing several DAE research projects in the Chemical Engineering field. Through the Virtual Centre, called, DAE-ICT Centre for Knowledge Based Engineering, BARC scientists and ICT faculty have collaborated and very successfully completed several projects. In view of the success of the collaborative programme through the Centre for Knowledge Based Engineering, BARC and IGCAR proposed to enlarge the scope of collaboration by establishing the DAE-ICT Centre for Chemical Engineering Education and Research that will synergise the strengths of both these organisations. On the one hand, ICT has proven

track record in training high quality manpower and in conducting research in Chemical Engineering and technology, on the other hand BARC and IGCAR have demonstrated over decades their ability to conduct multi-disciplinary, mission oriented R&D leading to a large number of indigenous and innovative chemical engineering processes, equipment and instruments, and technologies.

DAE has to develop several innovative technologies to tackle the problems of efficient nuclear fuel utilisation in the second and third stages of nuclear power programme. This requires a pool of qualified, motivated and talented young research scientists with multidisciplinary expertise. The number of Ph.D. level chemical engineers is small in this country and the number of chemical engineers entering DAE is even less. Thus, the number of Ph.D. scholars working on energy related programmes needs to be increased. Further, these scientists need to have wider knowledge of both basic sciences and allied engineering subjects besides chemical engineering, which is essential for the development of innovative technologies. However, the present education system imparts expertise only in selected areas. To satisfy the need of greater number of Ph.D. scholars well versed in basic sciences and chemical engineering, DAE and ICT wish to take an initiative for imparting doctoral education in chemical engineering with multidisciplinary character.

7.8.2 Scope of Collaboration

1. To provide doctoral degrees to promising candidates with talent and aptitude for carrying out advanced research and development activities in science and technology.
2. To furnish a multidisciplinary, flexible and innovative Ph.D. research programme in Chemical Engineering with special emphasis on :
 - (a) Acquisition of proficiency in research, knowledge, data generation and analysis, mathematical modeling, and management with sharpening skills in innovative experimental methods and problem-solving capabilities;
 - (b) Creation of a pool of young talented, dedicated and committed individuals with passion and involvement in pursuing research and development as a career;
 - (c) Inculcation of attitude, temper, and outlook for developing social commitment as well as high level of scientific ethics and integrity.
3. To evolve a symbiotic relationship between the ICT and DAE Institutions in such a way that it enables the Collaborative Programme to grow and develop, and in turn ensures that research projects of relevance to the objectives of DAE research institutions are integrated with creative and innovative content.
4. To select students on the basis of an all-India test and subsequent interview jointly conducted by ICT and BARC/IGCAR.
5. To promote effective linkages on a continuing basis between ICT, BARC and IGCAR and the Industry for joint research projects and training programmes and other academic activities related to these Institutes. The expertise and experience so gained shall be shared with other Universities in the country at large.
6. To disseminate the new knowledge in the form of publications, theses, seminars and conferences.

7.8.3 Ph. D. Programme in Chemical Engineering

7.8.3.1 Induction of Students

It is proposed to introduce a PhD programme with an initial intake of about 20 students per year, drawn from Chemical Engineering, Metallurgical and Mechanical Engineering disciplines at the Bachelors and Masters Levels, and also from Chemistry, Physics and Mathematics streams with Masters degree. The

Masters Degree holders in Engineering will have to spend a minimum duration of 3 years, the Bachelors degree holder in Engineering 4 years and M.Sc. degree holder in science stream 5 years for earning the Ph.D. degree. The students will be selected on the basis of all India written test and interview conducted jointly by ICT and DAE.

7.8.3.2 Course Work, In-Plant Training and Research

a) Course Work

The proposed curriculum will have a fine balance of basic and engineering sciences. The curriculum will contain adequate fundamental and core courses to equip the students adequately to make them practising chemical engineers, as enumerated below. At the same time, they will have a background for starting independent research career.

7.8.3.3 Areas of teaching and research

- | | |
|--------------------------|------------------------------------|
| (a) Chemical Engineering | (c) Bio-technology |
| (b) Process Technology | (d) Materials Science & Technology |

7.8.3.4 Typical List of courses to be taken by the Post Graduates in Science

- | | |
|--|---|
| (a) Material and Energy Balance Computations | (m) Biochemical Engineering |
| (b) Industrial and Engineering Chemistry | (n) Advanced Separation Processes |
| (c) Generation and Transmission of Power | (o) Process simulations |
| (d) Electrical Engineering and Electronics | (p) Materials Processing and fabrication technology |
| (e) Applied Mechanics and Strength of Materials. | (q) Nuclear Reactor Theory |
| (f) Momentum Transfer | (r) Nuclear Chemical Engineering |
| (g) Heat Transfer | (s) Statistical Methods of Analysis |
| (h) Mass transfer | (t) Instrumental methods of analysis |
| (i) Unit Operations | (u) Nuclear chemistry |
| (j) Chemical Reaction Engineering | (v) Radiation chemistry |
| (k) Engineering Graphics | (w) Chemical Engineering Thermodynamics |
| (l) Project Engineering Management and Economics | (x) Process Hazard Analysis and Safety |

7.8.3.5 Typical List of courses to be taken by the Engineering Graduates/ Post Graduates

- | | |
|--|--|
| (a) Quantum Mechanics | (h) Transport phenomena |
| (b) Structure - Property Relationships | (i) Advanced Reactor Engineering |
| (c) Materials Physics and Chemistry | (j) Advanced Mass Transfer |
| (d) Advanced Chemical Engineering Thermodynamics | (k) Statistical methods of analysis |
| (e) Nuclear Reactor Theory | (l) Instrumental methods of analysis |
| (f) Nuclear Chemical Engineering | (m) Nuclear chemistry |
| (g) Process simulation and optimization | (n) Radiation chemistry |
| | (o) Process Hazard Analysis and Safety |

7.8.3.6 In-Plant Training

All the students before starting Ph.D. research will undergo in plant training for a period of one to three months in the process industry. Some students will undergo training in DAE.

7.8.3.7 Research Projects

The Ph.D. scholars will take up research projects primarily defined by BARC and IGCAR. However, there will be a certain degree of flexibility for selecting research projects outside the areas of relevance to DAE. To take advantage of the excellent laboratory and library facilities at the DAE institutions, the faculty and students will be provided access to conduct experiments and use of the library and computational facilities at the DAE institutions.

7.8.4 COLLABORATION WITH HOMI BHABHA NATIONAL INSTITUTE (HBNI)

7.8.4.1 Preamble

There was a dire need to recognize the common interests of ICT and HBNI constituent institutions (CIs) in pursuit of knowledge through doctoral and master's programmes. There is a possibility of the candidates admitted in some of the CIs of HBNI may study at the ICT and carry out the projects under the joint supervision of the faculty members from the ICT and the scientists and faculty members from the CIs of HBNI. It will be mutually beneficial to have lectures by the ICT faculty members at the HBNI, and by the HBNI faculty members and scientists at the CIs of HBNI at the ICT. For the purpose of academic programmes, the following units of DAE are the Constituent Institutions (CIs) of the HBNI are included:

1. Bhabha Atomic Research Centre (BARC), Mumbai
2. Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam
3. Raja Ramanna Centre for Advanced Technology (RRCAT), Indore
4. Variable Energy Cyclotron Centre (VECC), Kolkata
5. Saha Institute of Nuclear Physics (SINP), Kolkata
6. Institute of Plasma Research (IPR), Gandhinagar
7. Institute of Physics (IOP), Bhubaneshwar
8. Harish-Chandra Research Institute (HRI), Allahabad
9. Tata Memorial Centre (TMC), Mumbai
10. Institute of Mathematical Sciences (IMSc), Chennai

The two Institutes shall recognize each other's research guides in the disciplines of common interests. The identified faculty members of each Institute may function as Honorary Professors of the other Institute and may participate in the teaching programmes of the other Institute in honorary capacity, as per the Rules of the respective institute. The Honorary professors will enjoy the library facilities of each other's institutes like regular faculty. However, a separate request must be made to avail of book-borrowing facilities. In order to share expertise, some seats may be given on priority basis to the faculty and students of the other Institute in the academic/research programmes of one Institute, which are mainly for the in-house persons and where limited access is available for persons coming from outside, such as training programmes, seminars, workshops, etc. The research facilities at one Institute should be made available to the students/scientists/faculty of the other Institute through the involvement of research supervisors or the technology advisors, as per the norms of the respective institute, as follows:

1. A student registered for a post-graduate course in one Institute shall be governed by the Rules of that Institute and will earn the credits of the course as per the prescribed norms. However, a student from one Institute will be permitted to enroll for equivalent courses in the other Institute and earn the

credits by attending the courses and clearing the respective evaluation procedures, provided such courses are duly approved by the parent Institute. Thus, the two Institutes shall recognize the credits earned by the students in the institute other than the one where they are enrolled.

2. To facilitate the process of a student attending the course work in the partner Institute, the supervisor of the student in the Parent Institute shall put up a proposal (in consultation with the appropriate academic bodies of the Institute concerned) to the Dean (HBNI)/Dean(ICT), as the case may be.
3. A research guide in one Institute may select a faculty member from a partner institute as a co-guide for guiding a Master's or doctoral student working under his/her guidance; provided such a declaration is recorded at the time of registering the student, with consents from the Heads of both the Institutes. However, collaboration among faculty of each institute, without any such formal arrangement will be within the frame-work on the MOU. This may be required for joint publications.
4. A student with a co-guide should be permitted to work in the specified laboratories of the organization to which the co-guide belongs and avail the facilities there from, and the organization should have no objection to the inclusion of the outcome of the research under this programme in the thesis of the student.
5. Any liability arising out of the work done by a student in the co-guide's organization shall be the responsibility of the co-guide and the parent Institute of the student shall not be responsible for the same.
6. Any patent emerging out of the research work under such a programme shall be with the authorship of candidate, guide, co-guide, and the parent Institute and shall be filed as per the respective ordinances, regulations and rules of the Institute.
7. In case the co-guide leaves his organization, or retires the guide may accept a co-guide from the same organization, provided the new co-guide is recognized. In case such a co-guide is not available, the entire responsibility of successful completion of the programme shall lie with the guide. If the retired person remains with the institute or with other institute of HBNI, as an emeritus scientist, he/she will be permitted to continue as co-guide till the period of his/her new assignment.
8. In addition to the recognized research supervisor, a student may be advised by a Technology Advisor, who need not be recognized Ph.D. Guide, from the other Institute. The Technology Advisor shall be a person of high repute in the area of research being pursued by the student. The Technology Advisor shall be chosen by a research guide, with consent of the Director, ICT and Director of the respective constituent Institution of the HBNI.

Department of Atomic Energy (DAE) -DGFS programme

Institute of Chemical Technology (ICT) is one of the Institutes recognized by the Department of Atomic Energy for its DGFS programme It is a Two-Year DAE Graduate Fellowship scheme for Engineering Graduates and Post-Graduates in Physics for joining M.Tech in specified specializations

Qualifying Degrees and Disciplines:

B.E/ B.Tech in Mechanical, Chemical, Metallurgical, Civil, Electrical, Electronics, Computers, Instrumentation and Engineering Physics.

OR

M. Sc. in Physics, Chemistry, Biosciences, Geology, and Geophysics.

A minimum of 60% (aggregate) of a CGPA of 7.01 in the qualifying degree is an essential requirement. Science candidates are further required to have secured a minimum of 60% (aggregate) in B.Sc. also.

Screening and Selection of candidates is through a written test or on the basis of valid GATE score. Applications for the programme are to be submitted to DAE as per advertisement in National newspaper and Employment News. (for details visit website: <http://oces.hbni.ac.in>)

7.8.5 Qualification Criteria for Admission and Registration for Ph.D. (Tech.) in Chemical Engineering and the Course Requirements

Category	Basic Qualification for Admission	Course requirement
1	B. E. in Chemical Engineering / B. Tech in Chemical Engineering / B. Chem., Eng. / B. Tech. in Chemical Technology (ICT) in first class or equivalent	Course work for M. Chem. Engg. (credit courses).(to be completed in 2 semesters from the date of admission) and courses related to nuclear Engineering (to be completed in 3 semesters from the date of admission) <ul style="list-style-type: none"> ✦ Nuclear and Reactor Physics ✦ Nuclear Chemical Engineering ✦ Chemistry of Radionuclides ✦ Material Science in Nuclear Engineering
2	Bachelors degree in Chemical Engineering or Chemical Technology in first class or equivalent + Course work in BARC training school	5 courses including one seminar in Chemical Engineering to be decided by the supervisor and approved by the coordinator followed by PGPC. (to be completed in 2 semesters from the date of admission)
3	Bachelors degree in Mechanical / Metallurgical Engineering (except Chemical Engineering / Technology) I first class or equivalent + Course work in BARC training school	10 courses and one Seminar in Chemical Engineering to be decided by the supervisor and approved by the coordinator followed by PGPC. (to be completed in 4 semesters from the date of admission)
4	Masters degree in Chemical Engineering / Masters degree in Chemical Technology (ICT) in first class or equivalent	courses related to nuclear Engineering (to be completed in 2 semesters from the date of admission) <ul style="list-style-type: none"> ✦ Nuclear and Reactor Physics ✦ Nuclear Chemical Engineering ✦ Chemistry of Radionuclides ✦ Material Science in Nuclear Engineering
5	M. Tech. Degree in Chemical Engineering from HBNI + Course Work in BARC training school	Minimum number as required by UGC guidelines.
6	M. Tech. Degree in any branch of Engineering (except Chemical Engineering / Chemical Technology) from HBNI + Course Work in BARC training school	4 - 5 courses and one seminar in Chemical Engineering to be decided by the supervisor and approved by the coordinator followed by PGPC. (to be completed in 2 semesters from the date of admission)
7	M. Sc. Degree in Physics / Chemistry / Mathematics in first class or equivalent + Course work in BARC training school	8 - 10 courses and one seminar in Chemical Engineering to be decided by the supervisor and approved by the coordinator followed by PGPC.(to be completed in 4 semesters from the date of admission)
8	M.Sc. Degree in Physics / Chemistry / Mathematics in first class	14 Credit courses and one seminar in Chemical Eng. courses (to be completed in 4 semesters from the date of admission) courses are listed below in category 9
9	M. Sc. Degree in Physics / Chemistry / Mathematics in first class (Rank in top 3 in University)	(i) Typically 20 courses comprising of: (to be completed in 4 years from the date of admission)

		<p>B. Chem. Eng. Level courses (Credit courses)</p> <ul style="list-style-type: none"> ✦ Applied Mathematics - I, II and III ✦ M. E. B. C. ✦ Momentum and Mass transfer ✦ Energy Engineering ✦ Chemical Engineering Operations ✦ Heat Transfer ✦ Chemical Reaction Engineering ✦ Design and Analysis of Experiments <p>M. Chem. Eng. Level Courses (Credit courses)</p> <ul style="list-style-type: none"> ✦ Advanced Momentum transfer ✦ Advanced Heat Transfer ✦ Advanced Mass Transfer ✦ Advanced Reaction Engineering ✦ Thermodynamics of Phase Equilibrium ✦ Advanced Separation Processes ✦ Advanced Reactor Engineering <p>Nuclear Engineering Level courses (courses)</p> <ul style="list-style-type: none"> ✦ Nuclear and Reactor Physics ✦ Nuclear Chemical Engineering ✦ Chemistry of Radionuclides ✦ Material Science in Nuclear Engineering <p>Any candidate who completes the above course work and completes minimum of 1 year of Research project can be considered for award of M. Tech. degree in Chemical Engineering</p>
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7.9 UGC Networking Resource Centre in Chemical Engineering

7.9.1 Preamble

The spectacular and consistent performance of the Department of Chemical Engineering, having been rated as number one for past several decades, including 2009-10, which has been revealed by the international surveys, has earned it much recognition, accolades and awards. Apart from the Centre of Advanced Studies, the UGC has recognized it further by awarding the first ever Networking Resource Centre in Chemical Engineering, in October 2008, to undertake following activities:

1. Research, training and skills development of the faculty and research scholars through periodic discussion, workshop and summer/winter schools
2. Capacity building by adopting faculty and Departments for augmenting their research skills and to mentor them
3. Hosting and facilitating researcher from other institutes/universities to carry out key experiments
4. Augmentation of information resource facility of the Department to provide quality research information to other institutes/researchers
5. To enhance and build state of the art in-house research infrastructure and other research facilities in the Department.

The rapidly changing face of research in chemical engineering offers new opportunities for integrating new research areas within its fold and several workshops, courses, demonstration experiments, regular experiments and seminars have been organized by the Centre. The objective of many of these activities is to acquaint the Chemical Engineering community especially from academic institutions with the emerging face of our discipline, and the how to meet the new challenges that it poses to contribute at the leading

edge. The idea is also to train the academic fraternity so that overall research and development in chemical engineering is promoted. The interactive workshops also aim at initiating a dialogue on how the new face of Chemical Engineering can be used to address problems, specific to us as a growing nation. The vacation periods, long weekends and week-long programmes are undertaken which are publicized on the homepage of the institute and also communicated to all chemical engineering Departments. Not only the ICT faculty but experts from other institutes, industries, and visiting professors from foreign universities have delivered lectures and interacted with young faculty.

7.9.2 Rules & Guidelines for Registration of Teachers from UGC and/ Or AICTE Approved Colleges for Ph. D.

Under this programme the Centre is required to generate human resource and keep on organizing seminars, workshops, and laboratory sessions for the benefit of teachers and students. One of the primary requirements is to create qualified doctoral degree holding teachers who in turn will generate quality students. Following are the salient points of this programme proposed by the Centre.

1. Teachers who have been in the services of any Engineering and Technology Colleges approved by the UGC/AICTE are entitled for registration for Ph D with Chemical Engineering faculty of the ICT.
2. A minimum service of two years and permanent placement in the concerned college will be the basic criterion.
3. The teacher must have a consistently good academic record with minimum first class in bachelors and/or masters degree from a reputed university.
4. The college management should undertake the responsibility of releasing the person for experimental work or discussions with the concerned research guide from time to time. A proper time table should be prepared by the concerned teacher and his supervisor, which will be approved by the Co-ordinator of the Centre. A bond in this regard should be signed and approved by the Director, ICT.
5. Teachers can work in the ICT labs during vacations and holidays and after their office hours if they come from colleges in the city or nearby. They must indicate on which date they will avail of the research facilities in ICT. A proper log book must be maintained by the candidate duly signed by his supervisor which will be authenticated by the Coordinator of the Centre.
6. A maximum period of 5 years extendable by 1 year will be allowed in case of teachers who are part time but put in at least 3 months full time work in a year in the labs. In such cases, part of the experimental work could be allowed to be done in their premises for which their management will provide them with necessary facilities. The characterization and other sophisticated analysis must be done in ICT. Exclusive theoretical work should be discouraged as much as possible to give the teacher a hands-on experience and bringing them into an environment of research. However, this will be left to the individual supervisor's discretion, who should take abundant precaution to avoid unethical practices.
7. The registered candidates will be required to publish or patent some part of their work within two years of the registration otherwise this registration will not be continued. The publication must be done in international journals with decent impact factors. Multi-authored papers without much input from the teacher should be avoided. Conference proceedings which are not peer reviewed will not be considered as publications.
8. The registered teachers as Ph D students should not register any Masters students with themselves in his/her own college to avoid research by proxy. The candidate as well as his/her supervisor must give an undertaking, with a counter signature of the concerned principal to this effect to avoid degeneration of this novel concept into a Ph D by unscrupulous means.
9. If the teacher intends to join the ICT on leave without pay for a period of three years, then the candidate could be eligible for the UGC fellowship under our SAP programme.
10. Teachers with Masters Degree will be allowed to undertake benefit of this scheme. Those who have got Bachelor's Degree ought to take leave from their colleges in order that they complete the theory

part of the Masters Programme for direct Ph.D.

11. All regular admissions criteria are applicable to these candidates and they must also do the course work required for Ph.D. programme.

Centre of Excellence for Process Intensification (CoE-PI)

The Centre for Process Intensification for Process Industries (CoE-PI) under TEQIP in the Institute of Chemical Technology (ICT), Mumbai, aims to be a world leader in the field of conceptual process design, Process Integration and Process engineering. The methodologies will allow environmentally friendly process design with the most efficient use of raw materials and energy with affordable cost. The Centre shall be dedicated to the development of design methodologies in the field of process intensification and process integration. The Centre aims to change process design practice, by developing and disseminating new process design and integration methods for clean and efficient use of raw materials and energy at lower cost. The process intensification and integration will be based on interactions between elements of the chemical and physical processes that take into account during the process design the material and energy flows. The resulting integrated processes exploit synergies between the system components, leading to processes with superior performances, in terms of their raw materials consumption, energy demand, process economics, environmental impact and sustainability. The centre has identified 13 research projects which have great relevance with present industrial practice.

7.10 DBT-ICT Centre for Energy Biosciences

The DBT-ICT Centre for Energy Biosciences (DBT-ICT-CEB) is a unique place that integrates basic and translational science capabilities for bioprocess development and scale up. Funded by The Department of Biotechnology, Ministry of Science and Technology, India, the Centre was established and formally inaugurated in May 2009. Established at a total cumulative cost equivalent to more than USD 15 million, the Centre is a part of the Institute of Chemical Technology (ICT) at Matunga, Mumbai, which is a deemed University under Section 3 of UGC Act 1956. The Centre was set up as a result of vision and efforts of Dr. M. K. Bhan, Secretary DBT and Dr. Renu Swarup, Advisor, DBT, and functions under the leadership of Dr. G. D. Yadav, Vice Chancellor, ICT. The projects and technical programs at the Centre are coordinated by Dr. Arvind Lali. The Centre is focused primarily at developing biotechnologies for deriving biofuels and other products from renewable resources for reducing India's rising dependence on petroleum and cut down greenhouse gas emissions. The Centre believes in building multidisciplinary capacity for development of integrated technology packages.

The Centre successfully completed its first phase of five years in 2013 and was awarded extension of five years by the Department of Biotechnology with the extended mandate of upscaling and upgrading the platform technologies during the first phase.

The Centre for Energy Biosciences has attracted a large number of industrial and academic collaborations as a result of its reputation. of conducting cutting edge research and delivering viable and scalable solutions to the biotech industry. The 10 Ton/day biomass pilot plant set up by Industry in the first phase has successfully validated all segments of the novel DBT-ICT Lignocellulosic Ethanol Technology in discontinuous mode. The second phase shall involve integration of all the segments at full capacity in a continuous non-stop flow mode from biomass size reduction to ethanol fermentation. Also during the first phase, the Centre has been able to create and develop cutting edge technologies in the areas of biorefinery development, separation sciences, analytical sciences, enzyme technology, fermentation technology, algal biotechnology and metabolic engineering. The Center aims to continue the work in an intensive mission mode aimed at translation of developed technologies. To achieve its objectives the Centre has entered collaborations with several Industrial Partners and several of the joint initiatives have received federal support exceeding 10 million USD.

The Centre is also part of several national and international academic collaborations (Indo-UK, Indo-Australia, Indo-German, Indo-US and several national projects) with grants amounting to more than 10

million USD under various R&D schemes floated by Ministry of Science and Technology, Government of India. The Centre is in the process of expanding its state-of-art facility by procuring several high-end equipments and instruments that will not only lead to high level contemporary research but also an accelerated development of several more scalable technologies based on the knowledge base generated.

7.11 Centre for Green Technology

7.11.1 Preamble

When ICT was part of the University of Mumbai, a proposal for a Centre of Green Technology was submitted by the University of Mumbai to the UGC, under the scheme- University with Potential for Excellence (UPE). The proposal was accepted in totality in which the Centre for Green Technology was to be established with specific objectives and milestones. Meanwhile, ICT attained the status of Deemed University and the UGC agreed to have the Centre as a joint venture of ICT and University of Mumbai, with co-ordination being carried out by ICT.

Synthetic chemicals can perform myriad functions. They protect crops and increase yields, prevent and cure diseases, result in longevity, allow faster modes of communication and transport, entertain, provide insulation to reduce energy use and offer countless other benefits that make life better. All the same, the chemical industry can also have a negative impact on human health and the environment when the production and use of chemicals are not managed responsibly.

The world chemical industries have experienced tremendous changes in the 21st century. There is a growing demand worldwide for processes and products that have less impact on the environment. Various treaties, legislations and programmes are directed towards monitoring this goal and continuous efforts are made to minimize waste and energy.

Although chemical engineering and technology courses include material and energy balance, the emphasis on resource conservation, waste minimization and hazard reduction is not apparent in undergraduate and post graduate programmes. Hence the objective of this Green technology Centre at ICT is to develop post graduate and PhD programmes that are interdisciplinary with emphasis on green technology and sustainability.

The research activity of the Centre will be focused on industrial relevance as well as emerging areas. This includes

1. Green synthesis of bulk chemicals
2. Refinery processes - Novel catalysts and energy efficient process development
3. Synthesis of nanomaterials-
4. Pharmaceuticals and drug synthesis
5. Multi-step intermediate synthesis into cascade engineered synthesis
6. Synthesis of fine and superfine chemicals.
7. Synthesis of biodegradable chemicals.
8. Synthesis of safer and benign chemicals with minimum environmental impact
9. Process equipment design and operation.
10. Carbohydrate based feedstock for catalytic processes.

It is hoped that the Green Technology Center at ICT will emerge as a model school that encompasses various disciplines of science and Technology with a common goal of sustainability and environmental viability.

7.12 Department of Chemistry

1. Courses offered by the Department of Chemistry-

Name of the Course	Number of Students	Eligibility
M.Sc. (Chemistry)(By Papers)	20	1. B.Sc.(Chemistry)& should qualify in the written entrance examination conducted by the Department of Chemistry 2. A candidate must have taken mathematics (Full course) in 12th standard examination.
Ph.D.(Science) Chemistry	10	M.Sc. (Physical/Organic/Inorganic /Analytical Chemistry) with minimum 60% for general category & 55% for SC/ST category & should qualify in the written entrance examination & interview conducted by the Department of Chemistry.

2. Part- Time courses offered by the Department of Chemistry- NONE

3. Profile of the Department of Chemistry-

Department of chemistry was established in 1951 to cater the responsibility of teaching basic chemistry. The department shoulders the responsibility of conducting chemistry courses, theory as well as practical for undergraduate programmes of all the three branches, viz., B.Chem.engg., B.Tech. and B.Pharm. The Department also offers admission to Ph.D. (Science) Chemistry, Ph.D. (Science) Biotechnology, Ph.D.(Tech) chemical engineering programme and the intake of students varies based on the vacancies with the faculty members. Department has started M.Sc. (Chemistry) two years course by papers with an intake capacity of 20 for Academic Year 2010-2011

The Department is active in teaching, research and industrial collaborative work. Considering the contributions the department has been recognised by the university Grant Commission, under special Assistance Programme (SAP), Departmental Research Support (DRS-I) & DST-FIST Programme. Through this programme the Department has 10 PhD fellowships to offer. The faculty members are actively engaged in research areas of current relevance. The research work carried out in the department is funded by the research projects sponsored by funding agencies like UGC, CSIR, DAE, IGCAR and DST some of the faculty members are carrying out research in collaboration with reputed organisation from both India and abroad. In the last five years the department has published more than 200 research publications in international journals of repute with an average impact factor of more than two. The work is also recognised well in term of large number of citations (more than 5000) The faculty member is actively involved in several extra-mural academic activities, like the Indian National Chemistry Olympiad, National Initiative for Undergraduate Sciences (NIUS). Currently the department has 45 PhD and 37 M.Sc. Students. The Students who have obtained doctoral degrees from the Department get attractive placements in industries and research institution. The research students of the department assist the faculty in conducting undergraduate courses. This helps them in their personal Development.

The Department is equipped with sophisticated instruments such as FTIR, UV-VIS, Spectrophotometer, GC-MS, gas chromatographs, HPLC, Zetameter, Viscometer, Microwave synthesizer, Digital polarimeter, computer workstation, Electrochemical Workstation, Vapour pressure reactor, supercritical carbon dioxide reactor, surface area analyser, high pressure reactors, Tensiometer, X-Ray diffraction unit The Department has several endowments through which experts from various leading research institutes working in frontier areas in Science and Technology are invited for lectures and interaction.



GC-MS



HPLC



GC



FT-IR

7.13 Department of General Engineering

General Engineering Department of the Institute was established in the year 1954 and is involved in teaching undergraduate as well as postgraduate students of the institute. The Department is running a full time master's course **M. E. in Plastics** Engineering from 1972. Students having basic qualification in Mechanical, Production, Plastic/ polymer, **Electrical** and chemical engineering and technology are eligible for admission to this course. The course deals with processing of plastics, composites, **design of molds**, design of processing tools/ machinery, **CAD, CAM and CAE** and testing, development of new materials for industrial as well as domestic applications. Apart from laboratories such as workshop, electrical and electronics, applied mechanics and strength of materials, the Department has provision for special facilities of processing of plastic and polymer composites, testing of plastics, and computer aided design and drawing laboratories. These laboratories cater to the needs of the under graduate and post graduate students of the Department and institute. The Department has plastic processing equipment such as micro-processor controlled injection molding machine with molds of standard mechanical test pieces, blow molding machine, rotational molding machine, and single screw extruder. Department have licensed CAD software such as Mold flow, Pro-engineer and Solid Works with high end computer facilities. It also has

testing machines such as impact tester, MFI tester, hardness tester etc. GATE qualified candidates of **M. E. in** Plastics Engineering receive AICTE fellowships and TEQIP program fellowships. Doctoral students of Plastics/ Mechanical/ Production/ Electrical/ Civil/ Engineering will get 1 UGC SAP fellowship per year. **Candidates can register for Ph. D. in Plastics/ Mechanical/ Production/ Electrical/ Civil/ Engineering either full time or as a external candidates (Only for teachers/ employees from Government organizations).**

Department is having specialized teaching faculty from mechanical, plastics, production, civil, electrical and electronics branches. Most of the faculty are guides for the masters and doctoral programs of the institute in the area of their specialization. Students can take up research in multidisciplinary areas.

Department is also responsible for Civil and Electrical maintenance and repairs of institute buildings, laboratories, faculty quarters and hostels. Department is actively involved in the development of the new buildings and infrastructural facilities. Department looks after Liasoning with BEST and Municipal Corporation for all the requirements of the institute.

The department has recently setup cement composites laboratory for doing work on different cement composites using Industrial wastes, construction chemicals, fibres etc.

7.14 Department of Mathematics

The Department of Mathematics has research expertise mainly in the areas of Computational Fluid Dynamics and Mathematical Modeling, Momentum, Heat and Mass Transfer in Newtonian Non-Newtonian Fluids, Singular Perturbation Theory, optimization techniques, Statistical Analysis, Mathematical Pedagogy and Math Education. At present the Department has one research project sponsored by IGCAR. This project is related to the study of thermal stratification in molten sodium pool. Since the flow is highly turbulent, various turbulent models are tested for their applicability to this type of flows. The students are developing in-house codes for the numerical simulation and validating the results with experimental data. Finally the designing of the pool will be proposed based on the numerical findings.

The faculty of this Department is involved in a joint research project with the University of Mumbai on "Computational Social Sciences" under University with Potential for Excellence (UPE) sponsored by UGC.

The Department will start a two year Masters programme in Engineering Mathematics from the academic year 2011-2012. This course has been approved by UGC under its innovative schemes. The highlight of this course is to give practical knowledge to the students in the fields of computational mathematics, mathematical aspect of momentum, heat and mass transfer mechanism, computer programming, bioinformatics, mathematical biology, optimization techniques, statistical analysis and design of experiments. The students joining for Ph.D. will also have one semester course work which is necessary for their Ph. D. work.

From the academic year 2010-2011 the Department has decided to arrange two workshops for college teachers on "Math Modeling and Uses of Free Math Software".

The Department has a SGI workstation for high level computations and simulations. The Department will have its own P.G. lab with latest mathematical software and equipments for providing computational facilities to master's and Ph.D. students.

7.15 Department of Physics

Department of Physics at the ICT has the distinction of being one of the earliest Departments in the Institute. It was started as Optics Section in 1935 which was subsequently changed as Physics Section in the Second Five Year Plan and then to Department of Physics under MUICT. Department of Physics undertakes undergraduate and post graduate teaching in Physics. The Department participates in 1st year B.Tech and B.Chem. UG teaching - theory and practical's. The Department offers electives at 2nd year B.Tech and B.Chem. The faculty of the Department undertakes a full course of Physical Methods of Analysis for all branches of M.Tech students in both the semesters which also serves as a credit course for majority of PhD students. The Department intends to start a new M.Sc (Physics) (Material Science) course from year 2014.

The Department is one of the participating Departments of Centre of Advanced Studies in Physio-Chemical Aspects in Textiles, Fibers, Dyes. The Department has made significant contributions in the field of Material Science (Study of Polymer/Polymer composites & nano-composites and their various properties), Solar Thermal Applications, Nano-aided Drug Delivery. The research in Colour assessment of dyed textiles and colour perception is also carried out in this Department. Currently 20 doctoral students are working on various topics. Faculty members have actively participated and attended national and international seminars / workshops and presented their papers. A good number of papers are published in peer reviewed journals. Faculty members have research projects from industry and various government funding agencies. Two patents on solar thermal system are also filed recently.

THRUST AREAS OF RESEARCH:

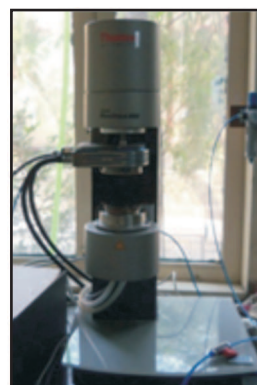
Polymer/Polymer Composites and nano-composites : i) - Study of crystallization kinetics in polymers, polymer composites & polymer-nanocomposites, Orientation studies of Polymers/Polymer composites & nanocomposites, Structure property relationship in Polymers/Polymer composites & nanocomposites, ii) Surface modification of polymer materials using plasma for improvement of adhesion of printability properties iii) Study of electrical, thermal, mechanical, dielectric and piezo electric properties of polymers and their composites.

Solar Thermal Applications: Designing of reflector shape, Determination of efficiency of collection of solar radiations, Studying configuration & surfaces of absorber pipes under different parameters, Generation of steam upto 250° C for refrigeration and other industrial applications.

Colour Assessment of Dyed Fabric, Study of Geometric Attributes of Colour.



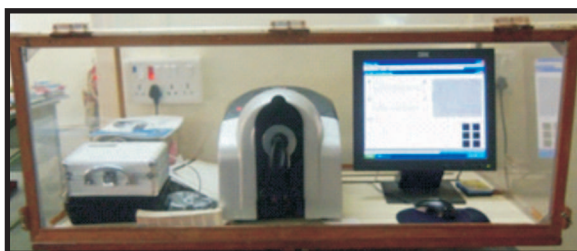
MINI MELT EXTRUDER



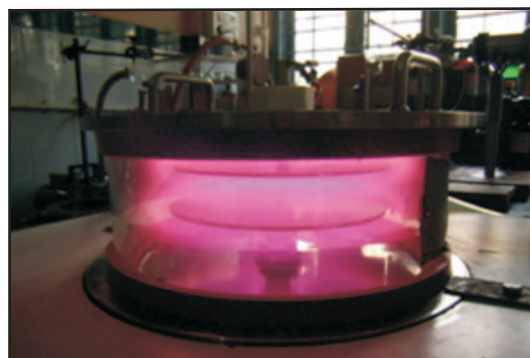
MODULAR RHEOMETER



FTIR



COLOR SPECTROPHOTOMETER



PLASMA REACTOR

8. ADMISSION TO BACHELOR'S COURSES

ADMISSION TO FIRST YEAR OF FOUR YEARS- B.CHEM.ENGG., B.TECH. (SEVEN BRANCHES) AND B.PHARM. DEGREE COURSES IN ICT, MUMBAI (FOR THE ACADEMIC YEAR 2014- 2015)

All these admissions will be conducted by the Directorate of Technical Education (DTE),
Govt. of Maharashtra.

**PLEASE REFER DTE BROCHURE OF ADMISSIONS AND THEIR WEBSITE
FOR ALL DETAILS. (www.dte.org)**

Admission quota for B.Chem. Engg. / B.Tech. (seven branches) / B.Pharm. courses are as follows.

I [B.CHEM.ENGG. AND B.TECH. (SEVEN BRANCHES)]

The availability of seats for these courses shall be as

- a) **70% for State of Maharashtra and**
- b) **30% for All India (all States and Union Territories including Maharashtra)**

(Additional 5% seats are available under AICTE Tuition Fee Waiver Scheme (TFWS) for above courses).

II [B.PHARM.]

100% for State of Maharashtra.

BACHELOR'S COURSES OF STUDIES AND INTAKE CAPACITY

All UG courses are post - HSC / XIIth Std. Four - Year Semesterised Degree Courses.

1. **Bachelor of Chemical Engineering (B.Chem. Engg.)** : 75 Seats
2. **Bachelor of Technology (B.Tech.) in**
 - (a) Dyestuff Technology : 20 Seats
 - (b) Fibres and Textiles Processing Technology : 34 Seats
 - (c) Food Engineering and Technology : 16 Seats
 - (d) Oils, Oleochemicals and Surfactants Technology : 16 Seats
 - (e) Pharmaceuticals Chemistry and Technology : 18 Seats
 - (f) Polymer Engineering and Technology : 16 Seats
 - (g) Surface Coating Technology : 16 Seats
3. **Bachelor of Pharmacy (B.Pharm.)** : 30 Seats

FEES, CONCESSIONS, CANCELLATIONS AND REFUND:

Course Fees prescribed:

The candidates admitted during 2014-15 are required to pay fees as prescribed by the State Government. The institutional fees to be paid by all the admitted candidates are as follows :

Sr. No.	Type of Fees	Amount Rs.
1.	Library Deposit	Rs. 1,000/-
2.	Student Diary	Rs. 300/-
3.	Alumni Association	Rs. 525/-
TOTAL		Rs. 1,825/-
Eligibility fee of Rs. 500/- is applicable to candidates other than Maharashtra State Board		

Notes :

The fees such as Development fees and other fees which are not reimbursed by the Govt. of Maharashtra from second year onwards of the course will have to be paid by all the students.

Hostel Fees shall be charged additionally in case of candidates opting for hostel accommodation (the details are given in Section on Hostels.)

9. MASTER'S DEGREE PROGRAMMES

COURSES OF STUDIES, ADMISSION CRITERIA AND CAPACITY

- (1) All Full- time Master's courses (other than M. Sc. courses) are Two-Years programmes [partly by papers (two semesters) and partly by thesis (two semesters)] with fellowship for GATE/ GPAT qualified candidates.
- (2) All Sponsored Master's courses (other than M. Sc. courses) are Three-Years programmes for sponsored candidates [partly by papers (four semesters) and partly by thesis (two semesters)] without fellowship.
- (3) All M.Sc. courses are Two- Years programmes (four semesters) only by papers.
(See **Table 9.1** below for different courses).

TABLE 9.1: MASTERS DEGREE COURSES

SR.NO.	DEGREE	BRANCH	INTAKE
1.	M. Chem. Engg. (Full-time 2-years)	Chemical Engineering	30
2.	M. Tech. (Full-time 2-years)	Dyestuff Technology	18
3.		Fibres & Textile Processing Technology	30
4.		Food Engineering & Technology	18
5.		Oils, Oleochemicals & Surfactants Technology	18
6.		Pharmaceutical Sciences & Technology	18
7.		Polymer Engineering & Technology	30
8.		Surface Coating Technology	18
9.		M. Pharm. (Full-time 2-years)	Pharmaceutics
10.	Pharmaceutical Chemistry		
11.	Medicinal Natural Products@		
12.	M.E. (Plastic Engg.) (Full-time 2-years)	Plastic Engineering	18
13.	M. Tech. (Full-time 2-years)	Bioprocess Technology	40
14.		Food Biotechnology	30
15.		Green Technology	30
16.		Perfumery & Flavour Technology	18
17.	M. Chem Engg. (Sponsored 3 years)	Chemical Engineering	10
18.	M. Tech. (Sponsored 3-years)	Dyestuff Technology	10
19.		Fibres & Textile Processing Technology	10
20.		Food Engineering & Technology	10
21.		Oils, Oleochemicals & Surfactants Technology	10
22.		Pharmaceutical Sciences & Technology	10
23.		Polymer Engineering & Technology	10
24.		Surface Coating Technology	10

25.	M.E. (Plastics Engg.) (Sponsored 3-years)	Plastics Engineering	10
26.	M. Tech.	Green Technology	10
27.	(Sponsored 3-years)	Perfumery & Flavour Technology	10
28.	M.Sc.	Chemistry	20
29.	(Full-time 2-years)	Engineering Mathematics	20
30.	(by papers)	Physics (Material Science)	20
31.		Textile Chemistry	20

* The tentative seat distribution given is for intake (Sr. No. 1-12 in Table 9.1) of GATE/ GPAT qualified candidates eligible to receive UGC Fellowship (Subject to sanction). The Vice-Chancellor, ICT reserves the right to change the course/ branch wise distribution of these fellowships, based on availability of the candidates.

The selection for the UGC Fellowships shall be based on the GATE/ GPAT score (Level 1- Table 9.2) and the performance in the Institute's written test (Level 2 and Level 3 - Table 9.2), as the case may be.

@ "Medicinal Natural Products" includes the subjects related to Pharmacognosy and Pharmacology.

The seat distribution given is for intake (Sr. No. 13 in Table 9.1) of GATE/ GPAT qualified candidates eligible to receive DBT Fellowship.

€ The seat distribution given is for intake (Sr. No. 14 in Table 9.1) of GATE qualified candidates eligible to receive DBT Fellowship.

β (Sr. No. 15 in Table 9.1). Efforts are underway to get fellowships sanctioned. At the moment, the ICT cannot guarantee any fellowship for this programme.

¥ (Sr. No. 16 in Table No. 9.1) Subject to availability of fellowships from PAFAI, ICEOFF

• No fellowships are available for Sponsored 3 - years Master's courses (Sr. No. 17 - 27 in Table 9.1), which are meant only for industry / academic - sponsored candidates having relevant experience. Also, no fees concessions, as applicable to unemployed Reserved Category Students, can be availed and full fees need to be paid by the candidate. (See Section 9.1.8).

• Please note that no scholarship or fee concession will be available to employed candidates for any courses even if they belong to backward class category.

• No fellowships are available to any of the M. Sc. Courses by papers (Sr. No. 28 - 31 in Table 9.1).

• The number of seats mentioned against full time 2 yrs. course (Sr. 1 to 16) are the intake as per the AICTE guidelines. The actual number to be admitted will be subject to number of fellowships requirement of individual department and availability of Research Guide.

• Reservation policy will be applicable as per the norms by Govt. of Maharashtra.

9.1 Eligibility Criteria for the Admission (Indian Nationals)

9.1.1. M.Chem.Engg., M.Tech. (Sr. Nos. 1-8 Full time 2-years and Sr. Nos. 17-24 Sponsored 3-years in Table 9.1)

The candidate should have passed any one of the following Bachelor's degrees of the ICT or any equivalent examination of a post-HSSC four-year degree course of IIT/NIT or any University/ Institute recognized by the UGC/ AICTE, with 60% marks in aggregate or equivalent CGPA. [55% marks in aggregate or equivalent CGPA for the backward class candidate].

Additionally, Candidates from the following different courses will be eligible for admission to M. Chem. Engg. course at ICT only if they have undergone "minimum 120 hours of class-room teaching /contact hours of Mathematics course(s) at the UG level.

- i. B.Chem.Engg. or B.E. / B.Tech. in Chemical Engineering/ Biotechnology/ Biochemical Engg.
- ii. B.Sc. (Tech.) (Technology of Intermediates and Dyestuff) / B.Tech. (Dyestuff Technology).
- iii. B.Tech. (Textile Processing/ Textile Chemistry), B.Sc. (Tech.) (Textile Processing / Chemistry), B.Text. (Textile Chemistry), B.E. (Textile Chemistry or Textile Technology), B.Tech. (Textile Chemistry or Textile Technology), B.Tech. (Fibres and Textile processing Technology/ Fibre Technology) with significant emphasis on chemical processing of textiles.
- iv. B.Tech. (Food Engineering and Technology) or B.E./ B.Tech. in Food Engineering/ Food Technology/ Food Science/ Food Process Technology/ Food Process Engineering, or B.Sc. (Tech.) (Food Technology).
- v. B.Sc. (Tech.) (Oils Technology) or B. Tech. (Oils, Oleochemicals and Surfactants Technology).
- vi. B.Sc. (Tech.) (Pharmaceutical Sciences and Technology) or B. Tech. (Pharmaceutical Chemistry and Technology).
- vii. B.Tech. (Polymer Engineering and Technology /Surface Coating Technology); B.Sc. (Tech.) (Technology of Plastics or Technology of Paints), B.Sc. (Tech.) (Rubber Technology), B.E. (Polymer Engg. / Plastic Engg.), B.E. (Petrochemical Engineering/ Technology).
- viii. B.Sc. (Tech.) (Paints Technology / Plastics Technology), B.Tech. (Paints Technology / Polymer Engineering and Technology), B.Chem.Tech. (Paints Technology / Polymer Engineering / Polymer Technology / Plastic Technology), B.E. (Paints Technology / Polymer Engineering / Polymer Technology / Plastic Technology / Plastic Engineering).

9.1.2 M.Pharm. (Sr. Nos. 9-11 Full time 2-years in Table 9.1)

The candidate should have passed the Bachelor's degree in Pharmacy (B. Pharm.) of the ICT or any UGC recognized University/ Institute, with 60% marks in aggregate or equivalent CGPA. [55% marks in aggregate or equivalent CGPA for the backward class candidate].

The following THREE specializations are offered for M. Pharm.

- Pharmaceutics (Sr. No. 9 in Table 9.1)
- Pharmaceutical Chemistry (Sr. No. 10 in Table 9.1)
- Medicinal Natural Products (Sr. No. 11 in Table 9.1)

For specialization, option form will be given at the time of admission offered. Once a candidate is offered a seat in any one specialization, according to the availability of seats at the time of allotment and in the order of merit and preference given by the candidate, no request for any transfer or change of preference shall be entertained. However, if seat falls vacant, the candidate shall be transferred to the higher preference and it shall remain binding on the candidate.

9.1.3 M.E. (Plastic Engineering) (Sr. No. 12 Full time 2-years and Sr. No. 25 Sponsored 3-years in Table 9.1)

The candidate should have passed B.E. or B.Tech. in Mechanical engineering/ Electrical Engineering/ Plastics engineering / Polymer engineering / Production Engineering /Chemical Engineering/ Chemical Plant Engineering of any post-HSSC four year degree course of IIT/NIT or any University/ Institute recognized by the UGC/ AICTE, with 60% marks in aggregate or equivalent CGPA. [55% marks in aggregate or equivalent CGPA for the backward class candidate].

9.1.4 M.Tech. (Bioprocess Technology) (Sr. No. 13 Full time 2-years in Table 9.1)

The eligibility criterion for the admission to this course is as mentioned in 9.1.1 above. In addition, candidates with B.Pharm. degree of the ICT or any other equivalent degree of any University recognized by the UGC, of four-year degree course after HSSC/Std. XII, with 60% marks in aggregate or equivalent CGPA. [55% marks in aggregate or equivalent CGPA for the backward class candidate] are eligible.

9.1.5 M.Tech. (Food Biotechnology) (Sr. No. 14 Full time 2-years in Table 9.1)

The candidate should have passed B. Tech. degree in Food Engineering and Technology of the ICT or any other equivalent degree of any University recognized by the UGC, of four-year degree course after HSSC/Std. XII, with 60% marks in aggregate or equivalent CGPA. [55% marks in aggregate or equivalent CGPA for the backward class candidate].

OR

B.Tech./ B.Sc.(Tech.) /B.E. in Food Engineering and Technology /Food Engineering /Food Technology /Food Science /Food Process Technology /Food Process Engineering/ Dairy Technology/ Biotechnology/ Chemical Engineering/ Biochemical Engineering/ Pharmaceutical Technology/ Oil Technology or any equivalent degree of full four-year's duration of any University recognized by the UGC. Three year degree programmes in these disciplines are not recognized for admission.

9.1.6 M.Tech. (Green Technology) (Sr. No. 15 Full time 2-years and Sr. No. 26 Sponsored 3-years in Table 9.1)

The candidate should have passed any one of the following Bachelor's/Master's degrees of ICT or any equivalent examination of IIT/NIT or any University recognized by the UGC, with 60% marks in aggregate or equivalent CGPA). [55% marks in aggregate or equivalent CGPA for the backward class candidate].

B.Chem. Engg./ B. Sc.(Tech.)/B.Tech (in any branch of Chemical Technology)/ B. Pharm.

OR

M. Phil. (Chemistry, Biology, Microbiology, Biotechnology, Biochemistry)

OR

M.Sc. (Chemistry, Biology, Microbiology, Biotechnology, Biochemistry).

9.1.7 M.Tech. (Perfumery and Flavour Technology) (Sr. No. 16 Full time 2-years and Sr. No. 27 Sponsored 3-years in Table 9.1)

The candidate should have passed B. Sc. (Tech.)/ B. Tech. Degree in Dyestuff Technology/ Food Engineering & Technology / Food Engineering/ Oils, Oleochemicals & Surfactants Technology/ Pharmaceuticals Technology of the ICT or any equivalent examination of four-year degree course of any University recognized by the UGC, after HSSC/Std. XII, with 60% marks in aggregate or equivalent CGPA. [55% marks in aggregate or equivalent CGPA for the backward class candidate].

9.1.8 Master's ([Sponsored 3- Years courses] (Sr. Nos. 17-27 in Table 9.1)

These courses are meant only for industry / academic - sponsored candidates. Candidates must possess two years teaching or industrial experience. The eligibility criteria shall be as described in Section 9.1.1, 9.1.3, 9.1.6 and 9.1.7 above, as applicable.

All regular admissions criteria are applicable to these candidates and the fees applicable per year shall be at par with those for Master's 2-year regular courses.

In addition, for such candidates, the following shall be applicable:

1. The candidate should be
 - a) full time industrial/ R & D employee with at least two years experience in a chemical or allied industry or dealing with chemical business or
 - b) a permanent teacher having full time teaching experience of at least two years in Engineering and Technology College.

2. The industry/ college/ University/ Institute management should undertake the responsibility of releasing the candidate for course work (Theory Classes), experimental work (Laboratory work) or discussions with the concerned research guide from time to time. A proper time table should be prepared by the concerned teacher and his supervisor, which will be approved by the Head of Department/ Centre Co-ordinator. A bond in this regard should be signed and approved by the Vice Chancellor, ICT.
3. The candidates taking admission to these courses will have option to attend the lectures/practicals over a total span of two years and clear the examinations, third year being utilized for thesis work.
4. Candidates can work in the ICT laboratories during holidays (with a prior permission to work on holiday/ late working) and also after their office hours. They must indicate on which date they will avail of the research facilities in ICT. A proper log book must be maintained by the candidate duly signed by his/ her supervisor which will be authenticated by the Head of Department/ Centre Co-ordinator.
5. Part of the experimental work could be allowed to be done in their premises (concerned industry/ institute) for which their management will provide them with necessary facilities.

9.1.9 M.Sc. (Chemistry) by papers, Full time 2-years (Sr. No. 28 in Table 9.1)

The candidate should have passed with post-HSSC 3-year degree course of B.Sc. with Chemistry at the third year of the course of any University recognized by the UGC; and passed the qualifying examination with at least 55% marks in aggregate or equivalent CGPA (50% marks or equivalent CGPA for the backward class candidates) are eligible to apply. The candidates who have cleared the qualifying examination in one sitting will be preferred.

9.1.10 M.Sc. (Engineering Mathematics) by papers, Full time 2-years (Sr. No. 29 in Table 9.1)

The candidate should have passed B.Sc. with Mathematics or B.Tech./B.E./B.Sc. (Statistics) with at least four mathematics courses from a UGC/AICTE recognised university / Institute, and passed the qualifying examination with at least 55% of the marks in aggregate or equivalent CGPA (50% for the students from reserved category only from Maharashtra State) are eligible to apply. The candidates who have cleared the qualifying examination in one sitting will be preferred.

9.1.11 M.Sc. (Physics) (Material Science) by papers, Full time 2-years (Sr. No. 30 in Table 9.1)

The candidate should have passed with post-HSSC 3-year degree course of B.Sc. with Physics at the third year of the course of any University recognized by the UGC; and passed the qualifying examination with at least 55% marks in aggregate or equivalent CGPA (50% marks in aggregate or equivalent CGPA for the backward class candidates) are eligible to apply. The candidates who have cleared the qualifying examination in one sitting will be preferred.

9.1.12 M.Sc. (Textile Chemistry) by papers, Full time 2-years (Sr. No. 31 in Table 9.1)

The candidate should have passed with post-HSSC 3-year degree course of B.Sc. with Chemistry at the third year of the course of any University recognized by the UGC; and passed the qualifying examination with at least 55% marks in aggregate or equivalent CGPA. [50% marks in aggregate or equivalent CGPA for the backward class candidates] are only eligible to apply. The candidates who have cleared the qualifying examination in one sitting will be preferred.

9.2 GRADUATE APTITUDE TEST IN ENGINEERING (GATE) & GRADUATE PHARMACY APTITUDE TEST (GPAT) FOR THE UGC FELLOWSHIPS

- (1) The candidates seeking admission to the degrees of M.Chem.Engg./ M.Tech./ M.E.(Plastic Engg.) are required to qualify the **Graduate Aptitude Test in Engineering (GATE)** conducted at the national level.
- (2) The candidates seeking admission to M.Pharm. are required to qualify the Graduate Pharmacy Aptitude Test (**GPAT**) conducted at the national level. GPAT qualified candidates are also eligible for admission to M. Tech (Bioprocess Tech.) and M. Tech. (Green Tech.) courses.
- (3) Rules for availing GATE/ GPAT scholarships:
 - a. The Fellowships (subject to sanction and availability) are awarded only to the candidates who have passed the GATE/GPAT examination with valid score and on the basis of merit. NON-GATE/NON-GPAT candidates, if admitted, will not be eligible for these Fellowships.
 - b. The student must give an undertaking to the effect that he/she would not leave the course midway in order to be eligible to receive the Fellowship. During the course of studies, such student shall not receive any other fellowship/ honorarium/emoluments, salary, stipend, etc., from any other source.
 - c. The student receiving the fellowship must secure minimum 60% marks or equivalent CGPA during the first and the second semester course work examinations to become eligible for continuation of the Fellowship at the existing rate during the second, third and fourth semesters, respectively.
 - d. Students are being cautioned that according to UGC rules, a student who secures marks below 60% or equivalent CGPA in the first and/or second semester examination shall be eligible to get a reduced fellowship at the rate of Rs. 1,000/- p.m. only.
 - e. In case of failure at the semester I examination, the fellowship shall be discontinued during the remaining period of the course. The fellowship may also be discontinued at any kind of misconduct by the student receiving the same. The fellowship once discontinued shall not be restored, even if a student secures 60% marks or equivalent CGPA at the second semester.
 - f. The Fellowship amounts are normally disbursed every month after starting the Fellowship, subject to receiving the grant from the UGC. The fellowship amount shall be disbursed only after receiving the appropriate grant from the UGC.
 - **The Institute shall not be responsible for non-receipt of fellowship grant from UGC in time. The students will be required to give an Undertaking in writing to this effect.**

9.3 ADMISSION CRITERIA

- Admission to the Master's courses (Sr. No. 1- 15 in Table 9.1) are available subject to the rules given below:
- These admissions will be based on GATE/GPAT score, as applicable.
- The first preference for admission to a course/ branch will be given to the candidates qualifying Bachelor's course with valid GATE/GPAT score, as applicable from the respective discipline (Level 1 - Table 9.2).
- Only after filling the vacancies by such candidates, the candidates possessing a qualifying Bachelor's degree with valid GATE/GPAT score from any other course/branch will be considered for admission. (Level 2 - See Table 9.2)
- Preparation of the merit list will be done at two levels, Level 1 and Level 2 separately.

- Sponsored candidates without valid GATE/ GPAT score will be treated as Level 2 and/or Level 3, as applicable and separate merit lists will be generated for them.

Level 1: Merit list will be prepared on valid GATE/ GPAT score in the specified subject and no written test or interview will be conducted. Admissions through Level 2 shall be made only if any seats remain vacant after exhausting the merit list from Level 1.

Level 2: Merit list will be prepared on the basis of valid GATE score (in any subject) and written test (based on the syllabus specified by the Department for the course in which the candidate is seeking admission.) on the basis of 70:30 weightage. In case of interdisciplinary shift of course/ branch, interviews will be conducted to find the suitability of the candidate. There will be an external expert on the interview committee. However, no marks will be assigned to the interview.

Level 3: Merit list will be prepared on the basis of written test alone (based on the syllabus specified by the Department for the course in which the candidate is seeking admission).

Table 9.2: Criterion for Preparation of Merit List

Department conducting the written test	Course in which the candidate is seeking admission	Preparation of first Merit list
Chemical Engineering	M.Chem.Engg.	Level 1 & 2
	M.Tech. in Bioprocess Technology	Level 2
Dyestuff Technology	M.Tech. in Dyestuff Technology	Level 2
	M.Tech. in Perfumery & Flavour Technology	Level 2
Fibres & Textile Processing Technology	M.Tech. in Fibres & Textile Processing Technology	Level 2
	M.Sc. in Textile Chemistry	Level 3
Food Engineering & Technology	M.Tech. in Food Engineering & Technology	Level 1 & 2
	M.Tech. in Food Biotechnology	Level 1 & 2
Oils, Oleochemicals & Surfactants Technology	M.Tech. in Oils, Oleochemicals & Surfactants Technology	Level 2
Pharmaceutical Sciences & Technology	M.Tech. in Pharmaceutical Science & Technology	Level 2
	M.Pharm.	Level 1
Polymer & Surface Engineering	M.Tech. in Polymer Engineering & Technology	Level 1 & 2
	M.Tech. in Surface Coating Technology	Level 2
General Engineering	M.E. in Plastics Engineering	Level 2
Chemistry	M.Tech. in Green Technology	Level 2
	M.Sc. in Chemistry	Level 3
Mathematics	M.Sc. in Engineering Mathematics	Level 3
Physics	M.Sc. in Physics (Material Science)	Level 3

- The admission procedure for M.Chem.Engg., M.Tech. and M.Pharm. courses will be conducted after declaration of GATE/GPAT results. Candidates are requested to visit the institute website time to time for admission related matters. The candidates who are qualified with valid GATE/ GPAT score and

appearing for final semester examination of the qualifying Bachelor's course must have obtained aggregate 60% of the marks or equivalent CGPA [55% of the marks or equivalent CGPA for the backward class candidate only from Maharashtra State] at the end of 6th semester of the qualifying Bachelor's course. Only a provisional admission will be offered in such cases. For confirmation of admission, at a later date, however, overall 60% of the marks in aggregate or equivalent CGPA [55% of the marks in aggregate or equivalent CGPA for the backward class candidate only from Maharashtra State] are necessary at the qualifying examination. The admission of candidate not fulfilling the admission criteria may be cancelled at any time during the course.

- In case the candidate is admitted to a course/ branch other than the one in which s/he has obtained qualifying Bachelor's degree, s/he will have to undergo at least Three Make-Up Credit Courses (to be decided by the department admitting such candidate).
- Preference will be given to candidates with valid GATE/GPAT score; however, Non-GATE/Non-GPAT candidates may also apply. The merit of Non-GATE candidates will be totally based on the written test designed on the basic course, the syllabus of which shall be provided by each Department and displayed on the ICT website.
- Design of written test would be such that basic knowledge in the discipline in which the candidate is seeking admission is tested. The syllabus for the written test will be available on the ICT website. The duration of test shall be 01 hour.
- The final merit lists would be prepared on the basis of the criteria given above.
- The group of selected candidates, unless selected on a specific project, may be given a presentation about all research activities in the department and available projects for selection of project/ guide. The final allotment of the research guides will be done by the Departmental committee based on the merit and preferences given by the candidate and admissible rules and regulations.
- All these rules also apply to the candidates who shall be conducting their research work leading to a Degree under any type of sponsored projects (Govt. or Private).
- The candidates who have cleared the qualifying examination in one sitting will be preferred.

9.4 APPLICATION PROCEDURE FOR MASTER'S COURSES

For admissions at the ICT for any of the Master's courses, a candidate should obtain appropriate application form(s) for the course to which he/she is seeking admission; along with Handbook.

(Refer time schedule for each of the following stages displayed on ICT website www.ictmumbai.edu.in)

9.4.1 Step I: Purchase of Application Form

The candidate shall purchase and fill the appropriate application form/s, separate for each course of choice and separate for Full time and Sponsored courses, namely,

- ◆ M.Chem.Engg.
- ◆ M.Pharm.
- ◆ M.Tech. (each branch separately)
- ◆ M.E. (Plastic Engg.)
- ◆ M.Sc. (each branch separately)

The admission form and Handbook will be available for sale at the ICT counter (11 a.m. to 4 p.m.) by cash payment except on Sundays, 2nd & 4th Saturday and Public Holidays. The fees for application along with Handbook are given elsewhere in this Handbook.

The forms may also be ordered by post or downloaded from the ICT web site, www.ictmumbai.edu.in. The payment, while ordering by post, should include the amount equal to the **"By Post"** amount and be made only by a **Pay Order/DD** of any Nationalized/ Scheduled/ Private Sector Commercial Bank drawn in favour of **"INSTITUTE OF CHEMICAL TECHNOLOGY, Mumbai"**, payable at Mumbai and it is non-refundable and non-transferable under any circumstances.

Payment by cheque or money order will not be accepted.

The admission form requested by post, will be sent by **Registered Post Parcel** along with the Handbook.

9.4.2 Step II: Submission of Application Form

All the relevant entries in the application form must be completed in legible handwriting or may be typewritten. Incomplete forms will be rejected and no correspondence will be made in this regard.

Writing contact details such as permanent address, address for correspondence, Mobile No./ Telephone No./ and email address in the application form is essential. Do not leave any space blank.

The duly filled form along with **ATTESTED PHOTOCOPIES** of required certificates to substantiate the claims made in their application form should be submitted, by the last date notified, at ICT counter or sent to the ICT by Post/ Courier, etc. along with a **Pay Order/DD** of any Nationalized/ Scheduled/ Private Sector Commercial Bank drawn in favour of **"INSTITUTE OF CHEMICAL TECHNOLOGY, Mumbai"**, payable at Mumbai and it is non-refundable and non-transferable under any circumstances. **Payment by cheque or money order will not be accepted.**

The application form has a tear-off receipt at the bottom with the application number. The receipt should be filled in by the candidate and shall be signed and stamped by the clerk at the counter while accepting the form. **This receipt should be preserved and the application number must be stated for any future correspondence.**

Applications received after the due date will not be considered for generating merit list. ICT is not responsible for the delay occurred by Post/ Courier, etc. Incomplete applications shall be rejected without entering into any correspondence with the applicant.

- The candidates seeking admission at the ICT must submit ATTESTED PHOTOCOPIES of all the documents as given in Table 9.3 below along with the application form.
- Attachment of any certificates will not be accepted separately after submission of the application form.
- The candidates belonging to the SC/ ST categories will be required to submit The Caste Certificate, the Caste/ Tribe Validity Certificate as applicable at the time of submitting the application form, failing which the category claimed, will not be granted and the candidate will be treated as a General candidate.
- The candidates shall not attach a copy of any other certificate which is not asked for, such as certificates for participation in sports, cultural activities, etc.
- The photocopies of certificates or documents attached to the application form SHOULD BE ATTESTED by the Principal of the College or Gazetted Officer or Special Executive Magistrate or Head Master of a Secondary School or teaching staff of a Government /Govt. Aided College / Polytechnic not below the rank of a Lecturer/ Assistant Professor.
- If the candidate produces any certificate, which is not in Marathi, Hindi or English language, authenticated Marathi, Hindi or English version of the same, duly attested by a Gazetted Officer shall also be produced.

TABLE 9.3: Documents to be attached with the Application form for PG admissions

Sr. No.	Type of Candidate	Attested true copies of documents to be attached along with application form
I	All Candidates	1. SSC (Std. X) mark sheet, 2. HSSC (Std. XII) mark sheet, 3. All Mark sheets of Bachelor's Course 4. Bachelor's degree certificate 5. College Leaving / Transfer certificate 6. Migration certificate (within one month after confirmation of admission) 7. Industrial / Teaching experience/ Gap Certificate, if any 8. GATE/GPAT score card.
II	Backward class Candidates belonging to SC/ ST Categories	Caste certificate, Caste/ Tribe Validity certificate, as applicable. (In addition to the documents mentioned in Sr. No. I)
III	Backward class Candidates belonging to VJ/ DT (NT(A))/ NT(B)/ NT(C)/ NT(D)/OBC/ SBC categories (Maharashtra State candidates only)	Caste certificate, Caste/ Tribe Validity certificate, Non Creamy Layer Certificate valid up to 31st March 2015. (In addition to the documents mentioned in Sr. No. I)

- ◆ **Original certificates should not be attached with the application form. However, those must be made available at the time of admission, failing which the admission cannot be granted.**

9.5. Rules and Regulations about Reservation

Reservation in admission only for SC/ST categories on All India basis is applicable to all the Masters' courses M.Chem.Engg., M.Pharm., M.Tech. (all branches), M.E.(Plastic Engg.), M.Sc., as per the Government norms.

9.5.1 Caste Certificate and Caste/ Tribe Validity Certificate.

- Caste Certificate:** The candidates belonging to the backward class category will be required to submit the Caste Certificate at the time of admission, failing which the category claimed will not be granted and the candidate will be treated as a General Candidate.
- Caste Validity Certificate:** The candidates belonging to the SC/ST category will be required to submit the Caste/Tribe Validity Certificate at the time of admission, failing which the category claimed will not be granted and the candidate will be treated as a General Candidate.

9.6 Fees, Concessions, Cancellations and Refund

9.6.1 Fees prescribed:

The candidates admitted during 2014-15 are required to pay fees as prescribed by the State Government . The institutional fees to be paid by all the admitted candidates are as follows :

Sr. No.	Type of Fees	Amount Rs.
1.	Library Deposit	Rs. 1,000/-
2.	Student Diary	Rs. 300/-
3.	Alumni Association	Rs. 1,050/-
	TOTAL	Rs. 2,350/-
Eligibility fee of Rs. 500/- is applicable to candidates other than ICT students		

- Fees structure for all courses except for M. Sc. in Engineering Mathematics will be at par with fees for UG Courses as decided by State Government of Maharashtra.
- The fees for M. Sc. by papers in Engineering Mathematics are Rs. 25,000/- per year.
- The fees such as Development fees and other fees which are not reimbursed by the Govt. of Maharashtra during subsequent years of the course will have to be paid by all the students.

Notes:-

- a) For confirmation of seat allotted, all candidates have to submit Demand Draft/ Pay Order in favour of '**INSTITUTE OF CHEMICAL TECHNOLOGY, Mumbai**', payable at Mumbai, of appropriate values as shown in above TABLE.
- b) Candidate who is Domicile of Maharashtra state and belonging to Backward Class category, if admitted, will be eligible for fee concessions as applicable by Maharashtra State rules.
- c) The SC/ST Candidates belonging to 'other than state of Maharashtra' will have reservation in admission only and they will have to pay full fees at the time of admission. They should submit their fee concession claims to their respective state Govt. through ICT office. If and when their fee concession amount is received, they will be given reimbursement of the due fees paid.
- d) Candidates claiming fee concession under Backward Class category shall produce the Caste Validity Certificate at the time of submission of application form. Candidates claiming for fee concession under OBC, SBC, VJ/ DT NT(A), NT(B), NT(C) and NT(D) category shall also produce Non-Creamy layer certificate Valid up to 31st March 2015.
- e) Hostel Fees shall be charged additionally in case of candidates opting for hostel accommodation (the details are given in Section on Hostels).

9.6.2 Library Deposit:

Library deposit received from the students shall be refunded after successful completion of the course or after cancelling the admission, subject to producing Original Receipt. Unless there is any recovery, no deduction shall be made from the Library deposit. However, the amount of Library deposit shall be credited to institute, if the candidate does not apply for refund, within 3 complete financial years after the student actually leaves the institution; or, within 3 complete financial years after the date of successful completion of the course, whichever is earlier.

9.6.3 Reimbursement of Tuition fee:

Candidates claiming concession under the categories of EBC and sons and daughters for teaching and non-teaching staff of primary, secondary and higher secondary schools shall pay entire fee as applicable at the time of admission and subsequently candidates have to apply to the respective authorities for reimbursement of tuition fees. The quantum of reimbursement received by the institute from the concerned authorities shall be disbursed to the candidate.

9.6.4 Cancellation of admission and Refund of fees:

Refund of tuition fee, development and other fees after cancellation of admission secured at ICT Candidate who has been admitted to ICT may cancel admission by submitting an application in duplicate, in the prescribed Pro forma - E and request for refund of fees. The refund of fees as applicable shall be made in due course of time. It is made clear that such application for cancellations will be considered if and only if the admission has been confirmed by paying the prescribed tuition fee and other fees in full and by submitting all the necessary original documents. Refund shall be made after deduction of cancellation charges as shown below -

Sr. No.	SITUATION	REFUND
1	Request received before the date of start of academic session.	Entire fee less Rs.1000/-
2	Request received after the date of start of academic session.	Entire fee less the total fee for one month. (Tuition, development, other and hostel fee)
3	Request received after 30 days from the date of start of academic session.	No refund (except Library Deposit)

Notes:

- 1) Academic session means start of lectures, which will be displayed on the ICT website and Notice Board.
- 2) For calculation of amount on the pro-rata basis, one month shall be treated as one unit.

All Rights regarding the admissions at the ICT are reserved with the Vice Chancellor, ICT.

10. DOCTOR OF PHILOSOPHY (Ph.D.) PROGRAMMES

10.1 Courses of Doctoral Studies

Table 10.1 shows the various doctoral programmes (by research) in various disciplines in Science and Technology. Apart from original research, all Ph.D. programmes have a course work component effective from September 2009.

TABLE 10.1: DOCTORAL (Doctor of Philosophy) DEGREE COURSES

No.	DEGREE	COURSE
1.	Ph.D. (Tech.) in Chemical Technology	Bioprocess Technology
2.		Chemical Engineering
3.		Dyestuff Technology
4.		Fibres and Textile Processing Technology
5.		Food Biotechnology
6.		Food Engineering and Technology
7.		Green Technology
8.		Nano Technology
9.		Oils, Oleochemicals & Surfactants Technology
10.		Perfumery and Flavour Technology
11.		Pharmacy@
12.		Pharmaceutical Technology
13.		Polymer Engineering and Technology
14.		Surface Coating Technology
15.		Plastic Engineering
16.	Ph.D. (Tech.) in Technology	Civil Engineering
17.		Electrical Engineering
18.		Electronics Engineering
19.		Mechanical Engineering
20.	Ph.D. (Sci.)	Biochemistry
21.		Biotechnology
22.		Chemistry (Inorganic/Organic/Physical)
23.		Food Science
24.		Mathematics
25.		Physics
26.		Textile Chemistry

Intake Capacity: There is no prescribed intake capacity for any of the Doctoral courses/ branches since the number of available fellowships and the requirement by the research supervisors varies every year. Several research projects, either funded by various government agencies or private industries, have

provisions for fellowships. **No admission to a Ph.D. course is done without fellowship**, although the amounts vary depending on the source of funding and the candidate's qualifications.

@Ph.D. (Tech) in Pharmacy is offered in four different branches: (i) Pharmaceutics, (ii) Pharmaceutical Chemistry, (iii) Pharmacology and (iv) Pharmacognosy. Candidates shall fill up a single form for all these courses. Separate written tests will be conducted for each of the above branches. Candidates may appear for written tests in one or more of these and a separate merit list will be prepared for each.

- Candidates admitted to Ph.D. (Tech.) in Chemical Technology (Sr. No. 1 - 14) conduct research under the recognized faculty from the Department of Chemical Engineering, all Departments of Chemical Technology, DBT-ICT Centre for Energy Bio-sciences and ICT-DAE Centre for Chemical Engineering Education & Research.
- Candidates admitted to Ph.D. (Tech.) in Technology (Sr. No. 15 - 18) conduct research under the recognized faculty from the Department of General Engineering.
- There will be combined entrance test for Ph.D Science in Biotechnology (Sr No.20) and Ph.D Science in Biochemistry (Sr No. 19). Shortlisted Candidates will be eligible for admission to PhD. Science Biotechnology (Sr No.20) and Ph.D Science Biochemistry depending upon availability of fellowship.
- Candidates admitted to Ph.D. (Sci.) in Food Science (Sr. No. 22) conduct research under the recognized faculty from the Department of Food Engineering & Technology.[See Section 10.3.1]
- Candidates admitted to Ph.D. (Sci.) in Mathematics (Sr. No. 23) conduct research under the recognized faculty from the Department of Mathematics.
- Candidates admitted to Ph.D. (Sci.) in Physics (Sr. No. 24) conduct research under the recognized faculty from the Department of Physics.
- Candidates admitted to Ph.D. (Sci.) in Textile Chemistry (Sr. No. 25) conduct research under the recognized faculty from the Department of Fibres & Textile Processing Technology. [See Section 10.3.1]

Note: A Single form has to be filled for Ph.D Science in Biotechnology (Sr No.20) and Ph.D Science in Biochemistry (Sr No.19). Candidates should mention Biotechnology/ Biochemistry on the Form.

10.2 Fellowships for Doctoral Programmes

10.2.1 UGC-SAP Meritorious Fellowships for Ph.D. Programmes:

- The Empowered Committee of the UGC has taken several innovative steps to encourage Science and Technology research and building of infrastructure in Universities and Colleges. Thus, UGC has been providing these fellowships to all Departments recognized under Special Assistance Programme (SAP) or Non-SAP Departments. The number of fellowships sanctioned by UGC for a particular department depends on its track record of producing Ph.D.s, number of publications in peer reviewed journals, and the SAP status. **TO AVAIL UGC-SAP FELLOWSHIP, CANDIDATE MUST SECURE 60% MARKS OR EQUIVALENT CGPA (55 % MARKS OR EQUIVALENT CGPA IN CASE OF RESERVED CATEGORY) IN MASTER'S DEGREE.**
 1. 20 **UGC-SAP** fellowships in Department of Chemical Engineering
 2. 15 **UGC-SAP** fellowships in the Centre for Physico-chemical Aspects of Textiles, Fibres, Dyes and Polymers to be distributed among the Dept. of Fibres & Textile Processing Technology, Dept. of Dyestuff Technology and Dept. of Physics).
 3. 15 **UGC-SAP** fellowships in Department of Food Engineering & Technology
 4. 15 **UGC-SAP** fellowships in Department of Pharmaceutical Sciences & Technology
 5. 10 **UGC-SAP** fellowships in Department of Chemistry

6. 05 **UGC-SAP** fellowships in Department of Polymer & Surface Engineering
7. 02 **UGC-Non-SAP** fellowships in Department of Oils, Oleochemicals & Surfactants Technology
8. 15 **UGC-SAP** fellowships for Green Technology (with University of Mumbai)

Note: Additional fellowships for single girl child are available in UGC-SAP programme (01 fellowship per 05 UGC-SAP fellowships in each).

10.2.2 Inspire Fellowship from Department of Science and Technology, Govt.of India

First Rank holders in Bachelor's degree or Master's degree in Engineering/ Technology/ Pharmacy/Science of any UGC/ AICTE recognized Indian University or Institute/ Statutory Body in India can apply for award of INSPIRE FELLOWSHIP, a scheme of the Government of India to avail research grants for a period of five years for doing research leading to Ph.D. degree. The Bachelor's degree holders with INSPIRE FELLOWSHIP need to register for Integrated Ph.D. degree from the beginning of the research. Application format and necessary documents for application are available on the website www.inspire-dst.gov.in. Eligible candidates should apply directly to DST and after getting provisional acceptance, they may be considered for admission at ICT, subject to fulfillment of other criteria.

10.3 Eligibility Criteria for the Admissions:

10.3.1 - A Eligibility Criteria for Admission to Ph.D. (Tech.)/ Ph.D. (Sci.)

- For **Ph.D. (Tech.)** courses at Sr. No. 1-14 in Table 10.1, the candidate must have passed the Master's degree examination in the Chemical Engineering / Chemical Technology (any branch at ICT)/ Pharmacy/ Plastic Engineering of ICT or any other UGC recognized University as equivalent thereto with 60% marks or equivalent CGPA (55% marks or equivalent CGPA in case of reserved category).
 - For **Ph.D. (Tech.)** courses at Sr. No. 15-18 in Table 10.1, the candidate must have passed the Master's degree examination in Civil/ Electrical/ Electronics/ Mechanical/ Production/ Industrial/ Instrumentation Engineering from any UGC recognized University as equivalent thereto with 60% marks or equivalent CGPA (55% marks or equivalent CGPA in case of reserved category).
 - For **Ph.D. (Sci.)** courses at Sr. No. 19-21, 23 and 24 in Table 10.1, the candidate must have passed the Master's degree examination in the respective faculty of Science of any University recognized by UGC with minimum of 55% marks or equivalent CGPA (50% marks or equivalent CGPA in case of reserved category).
 - For **Ph.D. (Sci.)** course at Sr. No. 22 in Table 10.1, in Food Science the candidate must have passed the M. Sc. examination in Food Science, Agricultural Science, other allied fields like Dairy Science, Sugar, other Food Commodity Sciences, Post-Harvest Technology, Food Processing, Nutrition and Home science, Bio-Chemistry, Micro Biology of any University recognized by UGC with minimum of 55% marks or equivalent CGPA (50 % marks or equivalent CGPA in case of reserved category).
 - For **Ph.D. (Sci.)** course at Sr. No. 25 in Table 10.1, in Textile Chemistry, the candidate must have passed the M. Sc. examination in Textile Chemistry/ Textile Clothing/ Life Sciences/ Biochemistry/ Microbiology/ Chemistry of ICT or of any University recognized by UGC with minimum of 55% marks or equivalent CGPA (50 % marks or equivalent CGPA in case of reserved category).
- Further, candidates from any of these streams must clear the written test and interviews of the institute which are based on the syllabus of M.Sc. (Textile Chemistry).
- The candidates who have passed the Master's degree by Research of any University recognized by UGC may be considered for admission only if they hold fellowship from any recognized funding agency.

- In addition, the candidates must undergo institutional written test and interview to qualify for admission through merit.
- The candidates qualified in NET/ GATE/ GPAT/ CSIR/ DBT/ - JRF examinations or other equivalent examinations and holding valid fellowship will be preferred.

Apart from regular full time on- campus candidates, following candidates are also eligible for admission to Ph.D. (Tech.)/ Ph.D. (Sci.):

- (i) Permanent full time teachers of College/ Institute (See **10.3.1.B** for details)
- (ii) Employees of National laboratories/ Government Institutions (See **10.3.1.C** for details)
- (iii) Employees of Industry (See **10.3.1.D** for details)

NOTE:- The selection of all the candidates for Ph.D. (Tech.) including GATE/ GPAT- JRF qualified candidates shall be based on the score in the qualifying examination, performance in the written test and interview (if short listed in written test) conducted by the Institute.

However, persons qualified in NET/ CSIR/ DBT-JRF and holding valid fellowship obtained from Government funding agencies such as DST, ICMR, UGC, CSIR, etc. are exempted from the entrance written Test. Admissions to such candidates are open throughout the academic year.

10.3.1 - B Eligibility Criteria for Teachers for admission to Ph. D. (Tech.) / Ph. D. (Sci.)

Following are the requirements in addition to the criteria mentioned under heading 10.3.1. A above.

- a) The candidate should be a permanent teacher having full time teaching experience of at least two years in Degree College or five years in Junior college / Diploma College / Polytechnics (affiliated to statutory bodies).
- b) Teachers who have been in the service of any Engineering and Technology College approved by the UGC/AICTE are entitled for registration for Ph. D. (Tech.) with the faculty of the ICT.
- c) Teachers who have been in the service of any Science College approved by the UGC are entitled for registration for Ph. D. (Sci.) with the faculty of the ICT.
- d) The college management should undertake the responsibility of releasing the candidate for course work, experimental work or discussions with the concerned research guide from time to time. A proper time table should be prepared by the concerned teacher and his supervisor, which will be approved by the Head of Department/ Centre Co-ordinator. A bond in this regard should be signed and approved by the Vice Chancellor, ICT.
- e) Teachers can work in the ICT laboratories during vacations and holidays and after their office hours if they come from colleges in the city or nearby. They must indicate on which date they will avail of the research facilities in ICT. A proper log book must be maintained by the candidate duly signed by his supervisor which will be authenticated by the Head of Department/ Centre Co-ordinator.
- f) A maximum period of 5 years extendable by 1 year will be allowed in case of teachers who carry out research part time but put in at least 3 months full time work in a year in the ICT labs. In such cases, part of the experimental work could be allowed to be done in their premises for which their management will provide them with necessary facilities. The characterization and other sophisticated analysis must be done in ICT. Exclusive theoretical work should be discouraged as much as possible to give the teachers a hands-on experience and to bring them into an environment of research. However, this will be left to the individual supervisor's discretion, who should take abundant precaution to avoid unethical practices.
- g) The registered candidates will be required to publish or patent some part of their work within two years of the registration otherwise this registration will not be continued. The publication must be done in peer reviewed international journals. Multi-authored papers without much input from the teacher should be avoided. Conference proceedings which are not peer reviewed will not be considered as publications.

- h) Teachers registering themselves as Ph.D. student of ICT should not register any Masters students with themselves in his/her own college to avoid research by proxy. The candidate as well as his/her supervisor must give an undertaking, with a counter signature of the concerned principal to this effect to avoid degeneration of this novel concept into a Ph.D. by unscrupulous means.
- i) If the teacher intends to join the ICT on leave without pay for a period of three years, then the candidate may be eligible for the UGC fellowship under our SAP programme, provided he/ she successfully clears the Institutional entrance tests.
- j) All regular admissions criteria are applicable to these candidates and they must also do the course work required for Ph.D. programme.

10.3.1 - C Eligibility Criteria for Candidates Working in National Laboratories/ Government Institutions for Admission to Ph. D. (Tech.) / Ph. D. (Sci.)

Following are the requirements in addition to the criteria mentioned under heading 10.3.1. A above.

- a) The candidate should be a permanent employee working in National Laboratories/ Government Institutions having minimum 2 years of service.
- b) The management of the organisation should undertake the responsibility of releasing the candidate for course work, experimental work or discussions with the concerned research guide from time to time. A proper time table should be prepared by the concerned candidate and his supervisor, which will be approved by the Head of Department/ Centre Co-ordinator. A bond in this regard should be signed and approved by the Vice Chancellor, ICT.
- c) Such candidates can work in the ICT laboratories during vacations and holidays and after their office hours if they come from organisation in the city or nearby. They must indicate on which date they will avail of the research facilities in ICT. A proper log book must be maintained by the candidate duly signed by his supervisor which will be authenticated by the Head of Department/ Centre Co-ordinator.
- d) The registered candidates will be required to publish or patent some part of their work within two years of the registration otherwise this registration will not be continued. The publication must be done in peer reviewed international journals. Multi-authored papers without much input from the teacher should be avoided. Conference proceedings which are not peer reviewed will not be considered as publications.
- e) All regular admissions criteria are applicable to these candidates and they must also do the course work required for Doctoral programme.

10.3.1 - D. Admission for Industry -sponsored in-house candidates to Ph.D. (Tech.) / Ph.D. (Sci.)

Following are the requirements in addition to the criteria mentioned under heading 10.3.1. A above.

1. The candidate should have minimum 2 years of industrial experience.
2. Industry should have a well-equipped Research & Development and Quality Control laboratory with at least one Ph.D. employee working in the set up in the relevant area.
3. Industry is required to get recognition from ICT by the following procedure:
 - i. After receiving request from an industry, a Committee appointed by the Vice Chancellor, ICT will make a visit to the industry laboratory. The ICT appointed Committee will consist of Dean (RCRM) as Chairman with a Professor nominated by the Vice Chancellor and the Head of the Department in the area of proposed research.
 - ii. The committee will evaluate the activities and the competence of the R & D of industry following the guidelines of similar to those proposed by DSIR. All the expenses in connection with the visit will be borne by the industry concerned. The ICT committee will make recommendations to the

Vice Chancellor, ICT for approval. The industry R & D will be recognized by the approval of the Vice Chancellor, ICT. In case the laboratory is already recognized by DSIR, the visit by ICT committee will not be necessary.

- iii. Once the R & D laboratory is recognized by the ICT, the industry is required to pay Rs. 5 lakhs for first four years (typical duration of Ph.D. work) and necessary contingency amount of Rs. 50,000/- per candidate per year (in the name of ICT, to be utilized by the Research Guide) for the conduction of the research activity. After four years, the renewal of the recognition will continue by payment of Rs. one lakh per year. Further, the industry should try to get recognition for their R&D set up from DSIR, based on the recommendation of the ICT appointed Committee.
4. During a year, an industry may nominate up to two employees (with required qualification) for registering for the doctoral degree at ICT under the supervision of ICT faculty.
5. The candidate is required to pay all the Ph.D. fees (over and above laboratory eligibility fees) as proposed by the ICT at appropriate time and will not be eligible for any fellowship. Also, the other requirements, like eligibility criteria, qualifying institutional tests, completion of course work, etc. need to be fulfilled by the industry candidate.

10.3.1 - E. Rules and Eligibility Criteria for admission to Integrated Ph.D. (Tech.)

Institute of Chemical Technology (ICT) has a proven track record in training high quality manpower and in conducting research in Chemical Engineering, Chemical Technology, Pharmacy and Allied sciences. In view of the need of attracting talented graduates to Research career in Engineering and Technology, and for enhancing the number of quality Ph.D.s, ICT has initiated a programme of Integrated Ph.D. (Tech.) in Chemical Engineering, Chemical Technology. This programme is not available for Integrated Ph. D. (Tech.) in Pharmacy.

The Integrated Ph.D. (Tech.) Degree Programme is designed to identify candidates with strong potential for a career in Research and to Develop Human resources for the India's future needs in Chemical Engineering and Chemical Technology.

The programme has the following objectives:

- (i) To provide avenues for Doctoral degrees to candidates with talent and aptitude for carrying out advanced research and development activities in Technology.
- (ii) To furnish a multidisciplinary, flexible and innovative Doctoral research programme with special emphasis on
 - (a) Acquisition of proficiency in research, knowledge, data generation and analysis, mathematical modelling, and management with sharpening skills in innovative experimental methods and problem-solving capabilities.
 - (b) Creation of a pool of young talented, dedicated and committed individuals with passion and involvement in pursuing research and development as a career.
 - (c) Inculcation of attitude, temper and outlook for developing social commitment as well as high level of scientific ethics and integrity.
- (iii) To disseminate the new knowledge in the form of publications, patents, theses, seminars and conferences. Efforts will also be made to help the society and the industry and hence the economy of the country.

Selection of candidates:

- i. The candidate, applying for the Integrated Ph.D. (Tech.) programme, must have a Bachelor's degree in Chemical Engineering or Chemical Technology with more than 65% marks or equivalent CGPA (60% marks or equivalent CGPA for candidates from reserved category) of ICT or from any accredited or AICTE recognized Engineering and Technology Institute. A valid GATE score is mandatory.

Selection process:

- i. The candidates will be selected on the basis of an Institute level written test and an Interview.
- ii. The candidate must score a minimum of 50% in the written examination of the Institute to qualify for the interview.
- iii. The selection of the candidates shall be strictly on merit and on the basis of performance in the written test and interview conducted by the ICT.
- iv. The list of qualifying candidates will be prepared on the basis of marks in written test and Interviews in 70:30 ratio.

Course Work and Registration for Integrated Ph.D. (Tech.):

- a) The registration of the candidate of integrated Ph.D. (Tech.) shall be initially for Master's degree in the same discipline until he/she completes the Course work.
- b) The candidates will have to complete the course work of Master's degree in the same discipline with a minimum CGPA of 7.0 before change of registration to Ph.D. (Tech.) degree. Since the programme has an objective of developing best human resources in Research, it is essential that the selection of the candidates is done with utmost care. They are also emphasized about successful completion of the course work.
- c) The candidate may be permitted to carry the credits of equivalent course, work of at least two semesters, if it is completed in IITs/NIT/HBNI, or any other reputed Government/ AICTE recognized Institution that has signed an MoU with ICT for transfer of credits, provided as the course work is certified by the competent authority of that Institution. Such candidates may be exempted from taking the respective course work required for the Ph.D. (Tech.) programme. These candidates should be encouraged to take 4 audit courses related to their own research topic.
- d) Integrated Ph.D. (Tech.) candidates shall first register for Master's degree and only after successful completion of course work for Master's and in the month of April of second year their registration will be changed to Doctoral degree. The certificate for completion of course work will be mandatory for this.
- e) The Registration and review of progress of these candidates will follow the same procedures as for other Ph.D. (Tech.) candidates registered in the Institute.
- f) Any candidate who completes the course work as specified above and completes minimum of 1 year of Research project will be awarded the Master's degree in respective discipline, if he/she wishes to discontinue further research or fails to acquire requisite CGPA of 7.0 in Master's programme.
- g) Candidate having poor performance in the Master's course work (as given above) will not be registered for Ph.D. (Tech.) degree and may be allowed to submit a thesis on the basis of one year of research work to get Master's degree.
- h) On successful completion of the entire programme the candidate will be awarded both the degrees, respective Master's and Ph.D. (Tech.)(Dual Degree) at the end of the programme.
- i) Integrated Ph.D. (Tech.) INSPIRE fellows will be given master's fellowship till 31st March of the second year. They will be given Provisional master's degree certificate to become eligible for the Ph.D. (Tech.) fellowship from April, 01 of the second year.

Course Work for Ph.D. (Tech.)/ Ph.D. (Sci.):

As per the UGC directives and the Ph.D. reforms initiated at ICT, following are the rules governing the course work for a Ph.D. degree programme:

1. All candidates registered at ICT for the Ph.D. degree from academic year 1st July, 2009 will have to complete the course work.
2. Every Ph.D. candidate will complete two Credit courses (theory) and three Audit courses (theory) during the entire duration of Ph.D. The total credit points should be minimum 15.

3. All the course work must be completed before submission of synopsis for the thesis.
4. The selection of the credit and audit courses will be by mutual consultation between the Candidate and the Research Supervisor.
5. The candidate can select any courses offered by ICT that he/ she had not undergone earlier at ICT or elsewhere, either as credit or audit courses.
6. The candidate may choose to take the courses at Institute(s) other than ICT, provided there is an MOU signed between the Institute and ICT for transfer of credits.
7. For the audit courses, a minimum 75% attendance is compulsory.
8. Each course instructor will issue an Attendance certificate in a prescribed format to the candidate at the end of the semester on completion of the course.
9. Submission of copies of attendance certificates will be compulsory at the time of submission of synopsis of the thesis for the Ph.D. Degree.
10. The Attendance Certificates for the audit courses will be maintained by candidate and sent to the Academic Office through the Supervisor and Head of the Department at the time of the submission of the synopsis.

10.3.2 Ph. D. Programmes under ICT-DAE Centre and UGC Netowrking Centre in Chemical Engineering

Ph.D. (Tech.) Programme in Chemical Engineering under ICT-DAE Centre for Knowledge Based Engineering

This Ph.D. programme will induct maximum 20 students per year.

In view of the success of the collaborative programme through the Centre for Knowledge Based Engineering (KBE) after, BARC and IGCAR enlarged the scope of collaboration by establishing the ICT-DAE Centre for Chemical Engineering Education and Research that synergizes the strengths of these organizations. ICT has proven track record in training high quality manpower and in conducting research in Chemical Engineering and Technology. On the other hand, BARC and IGCAR have demonstrated over decades their ability to conduct multi-disciplinary, mission oriented R&D leading to a large number of indigenous and innovative chemical engineering processes, equipment and instruments, and technologies. DAE and ICT therefore entered into an MoU to establish the ICT-DAE Centre **for Chemical Engineering Education and Research**, to cover the following activities.

- (A) Instituting an interdisciplinary Ph.D. programme in Chemical Engineering.
- (B) Undertaking R&D projects in the areas of common interests and related to nuclear reactor, fuel cycle and advanced technologies.

The ICT-DAE Ph.D. Degree Programme is designed to identify candidates with strong potential for a career in Research and to Develop Human resources for the India's Nuclear Energy Programme. The ICT-DAE Centre for Chemical Engineering Education and Research has the following objectives:

- (i) To provide avenues for Doctoral degrees to Ph.D. scholars with talent and aptitude for carrying out advanced research and development activities in Science and Technology.
- (ii) To furnish a multidisciplinary, flexible and innovative Ph.D. research programme in Chemical Engineering with special emphasis on:
 - (a) Acquisition of proficiency in research, knowledge, data generation and analysis, mathematical modelling, and management with sharpening skills in innovative experimental methods and problem-solving capabilities;
 - (b) Creation of a pool of young talented, dedicated and committed individuals with passion and involvement in pursuing research and development as a career;

- (c) Inculcation of attitude, temper and outlook for developing social commitment as well as high level of scientific ethics and integrity.
- (iii) To evolve a symbiotic relationship between the ICT and DAE Institutions in such a way that it enables the Collaborative Programme to grow and develop, and in turn ensures that research projects of relevance to the objectives of DAE research institutions are integrated with creative and innovative content.
- (iv) To select students on the basis of an all-India test and subsequent interview jointly conducted by ICT and BARC/IGCAR.
- (v) To promote effective linkages on a continuing basis between ICT, BARC and IGCAR and the Industry for joint research projects and training programmes and other academic activities related to these Institutes. The expertise and experience so gained shall be shared with other Universities in the country at large.
- (vi) To disseminate the new knowledge in the form of publications, patents, theses, seminars and conferences. Effort will also be made to help the society and the industry and hence the economy of the country.

The Ph.D. scholars will take up research projects primarily defined by BARC and IGCAR. However, there will be a certain degree of flexibility for selecting research projects outside the areas of relevance to DAE. To take advantage of the excellent laboratory and library facilities at the DAE institutions, the faculty and students will be provided access to conduct experiments and use of the library and computational facilities at the DAE institutions.

The research projects will be defined by the collaboration team, enumerating the work methodology, the components of research to be done at ICT and BARC / IGCAR, the starting point and the end goals and the performance indicators.

1. Selection of candidates:

1.1 Qualifications

- a) Master's degree in Chemical Engineering, Metallurgical and Mechanical Engineering

The engineering post-graduate candidates should have a good academic record (more than 60 % marks) or equivalent CGPA and above at the graduation /post-graduation level. Although GATE is not essential, qualifying GATE with minimum 85 percentile would be desirable.

- b) Bachelor's degree in Chemical Engineering, Metallurgical and Mechanical Engineering

The engineering graduate candidates should have a good academic record with more than 65 % marks or equivalent CGPA and above at the graduation/post-graduation levels. The Engineering graduates should have cleared GATE examination with at least 85 percentile score.

- c) M.Sc. degree in Chemistry and Physics.

- d) The Science post-graduate students should have a good academic record with minimum 65% Mathematics marks or equivalent grade in graduate and post graduate examinations.

Candidates qualified in CSIR/NET examination will get preference.

(In exceptional cases candidates having B.Sc. qualification with minimum 70% marks and among top three rank in the qualifying examination will be considered.)

- e) DAE employees with above qualifications

DAE scientists and employees in DAE establishments with above qualifications will be considered only on recommendation from respective DAE establishment's competent authority.

2. Selection process:

- 2.1 The candidates will be selected strictly by merit on the basis of performance in the all India written test

and interview conducted jointly by ICT faculty and DAE experts. External experts can be invited for the interviews.

- 2.2 The candidate must score a minimum percentage of 50% in the written examination of the Institute to qualify for the interview.
- 2.3 The list of qualifying candidates will be prepared on the basis of marks in written test and interviews in 70:30 ratio.

3. Course Work and Registration:

The Details of the course work prescribed to candidates with different backgrounds is given in guidelines separately.

- 3.1 For post-graduates in Engineering, the rules and regulations of Ph.D. Programme are the same as other candidates pursuing Ph.D. in the Institute. (See 10.3.1 A)
- 3.2 The Engineering graduates and Post-graduates in Science will initially register for M. Chem. Engg. and M.Tech in Chemical Engineering degrees, respectively, and will have to complete the course work with FIRST class before applying for transfer of registration to Ph.D. degree in Chemical Engineering. They will follow the ICT's rules for transfer of registration to Ph.D. degree.
- 3.3 The Post-graduate candidates in Science qualified in CSIR/NET examination can be considered for the selection without written test. However, they will have to appear for the interviews. On selection they will have to clear the **course work** as prescribed in guidelines for the programme.

Since the DAE programme has an objective of developing human resources in Chemical Engineering, the selection of the candidates is done with utmost care. They are also emphasized about successful completion of the course work.

- 3.4 DAE scientists/engineers with Master's degree holders in Chemical/Mechanical /Metallurgical Engineering disciplines can be considered for admission to the ICT-DAE programme of Ph.D. in Chemical Engineering provided they clear the Institute's entrance examination and interview.
- 3.5 The candidates with B. Tech./ M.Sc. degree from DAE establishments will be considered for the programme on a case- to-case basis, only if they have completed successfully the DAE-BARC Training School programme and/or completed equivalent course work in other recognized and reputed institutes such as IITs, HBNI, to get sufficient number of credits as prescribed by the Institute for Master's degree course work. These candidates will have to clear the entrance examination and interviews. The DAE candidates may be permitted to carry the credits of equivalent course work if it is completed in reputed Government/AICTE/ICT recognized Institutions, such as IITs, NITs, HBNI, BARC training school, etc. so long as the course work is certified by the competent authority of such Institution. Such candidates are exempted from taking up the course work required for the Ph.D. programme. But these candidates should be encouraged to take audit courses related to their own research topic.
- 3.6 Only after the successful completion of the course work the candidate's registration for Ph.D. programme will be confirmed. The certificate for completion of Course work will be mandatory for final registration to the Ph.D. degree programme.
- 3.7 The Registration and progress review of the candidates will follow the same procedures as the other Ph.D. candidates registered in the Institute.
- 3.8 Any candidate who completes the course work as specified against each category and completes minimum of 1 year of Research project can be considered for award of M. Tech. degree in Chemical Engineering.

Course work- Typical List of subjects to be taken by Science Post Graduates, Engineering Graduates & post-graduates:

Material and Energy Balance Computations	Chemical Reaction Engineering	Momentum Transfer
Industrial and Engineering Chemistry	Biochemical Engineering	Heat Transfer
Generation and Transmission of Power	Advanced Separation Processes	Mass transfer
Electrical Engineering and Electronics	Nuclear Chemical Engineering	Unit Operations
Applied Mechanics and Strength of Materials	Structure - Property Relationships	Engineering Graphics
Process simulation and optimization	Materials Physics and Chemistry	Process simulations
Materials Processing and fabrication technology	Advanced Reactor Engineering	Nuclear chemistry
Classical and Statistical Quantum Mechanics	Statistical methods of analysis	Transport phenomena
Instrumental methods of analysis	Advanced Mass Transfer	Sources of energy
Nuclear Reactor Theory	Radiation chemistry	
Advanced Chemical Engineering Thermodynamics	Project Engineering Management and Economics	

Guidelines for Ph.D. (Tech.) in Chemical Engineering under ICT-DAE Centre

Category 1: B.E. in Chemical Engineering / B.Tech (Chem.Engg.)/ B.Chem.Engg. / B.Tech.(Chem.Tech.) (ICT)

Required Courses:

- (i) Course work for M.Chem.Engg. (credit courses) (to be completed in 2 semesters from the date of admission).
- (ii) 4 Credit courses related to Nuclear Engineering (to be completed in 3 semesters from the date of admission).

Nuclear and Reactor Physics	Chemistry of Radionuclides
Nuclear Chemical Engineering	Material Science in Nuclear Engineering

Category 2: Bachelor's degree in Chemical Engineering + Course work in BARC Training School

Required Courses:

- (i) 4 credit courses including one seminar in Chemical Engineering to be decided by the supervisor and approved by the coordinator followed by PGPC (to be completed in 2 semesters from the date of admission).
- (ii) If the candidate has completed equivalent course work in reputed and recognized Institute such IIT, the credit transfer can be permitted for the candidates from DAE establishments.

Category 3: Bachelor's degree in any branch of Engineering (Mechanical/Metallurgical) (except Chemical Engineering / Chemical Technology) + Course work in BARC Training School.

Required Courses:

8 courses and one Seminar in Chemical Engineering to be decided by the supervisor and approved by the coordinator followed by PGPC (to be completed in 4 semesters from the date of admission).

Applied Mathematics - I, II and III	Material and Energy Balance Computations
Momentum and Mass transfer	Energy Engineering
Chemical Engineering Operations	Heat Transfer
Chemical Reaction Engineering	Design and Analysis of Experiments

Category 4: Master's degree in Chemical Engineering / Master's degree in Chemical Technology (ICT)

Required Courses:

4 credit courses related to nuclear Engineering (to be completed in 2 semesters from the date of admission)

Nuclear and Reactor Physics	Nuclear Chemical Engineering
Chemistry of Radionuclides	Material Science in Nuclear Engineering

Category 5: M.Tech. Degree in Chemical Engineering from HBNI + Course Work in BARC Training School

Required Courses: NIL

Category 6: M.Tech. Degree in any branch of Engineering (Mechanical/Metallurgical) (except Chemical Engineering / Chemical Technology) from HBNI + Course Work in BARC Training School

Required Courses:

- (i) 5 credit courses and one seminar in Chemical Engineering to be decided by the supervisor and approved by the coordinator followed by PGPC (to be completed in 2 semesters from the date of admission).

Category 7: M.Sc. Degree in Physics / Chemistry / Mathematics + Course work in BARC Training School

Required Courses:

- (i) 10 credit courses and one seminar in Chemical Engineering to be decided by the supervisor and approved by the coordinator followed by PGPC (To be completed in 4 semesters from the date of admission).

Category 8: M.Sc. Degree in Physics / Chemistry / Mathematics

Required Courses:

- (i) 14 credit courses and one seminar in Chemical Engineering to be decided by the supervisor and approved by the coordinator followed by PGPC. The typical courses will be those listed below (similar to Category 9) (to be completed in 4 semesters from the date of admission).

Category 9: B.Sc. Degree in Physics / Chemistry / Mathematics

Required Courses:

- (i) Typically 20 credit courses related to comprising of: (to be completed in 4 years from the date of admission).
- (a) B. Chem. Level courses (Credit courses)
- (b) M. Chem. Level Courses (Credit courses)

Advanced Momentum transfer	Thermodynamics of Phase Equilibrium
Advanced Heat Transfer	Advanced Separation Processes
Advanced Mass Transfer	Advanced Reactor Engineering
Advanced Reaction Engineering	

(c) Nuclear Engineering Level courses (audit courses)

Nuclear and Reactor Physics	Nuclear Chemical Engineering
Chemistry of Radionuclides	Material Science in Nuclear Engineering

10.4 APPLICATION PROCEDURE FOR PH.D. COURSES

For admissions at the ICT for all the Ph.D. courses, a candidate should obtain appropriate application form(s) for the course to which he/she is seeking admission; along with Handbook.

(Refer time schedule for each of the following stages displayed on ICT Notice Board and website www.ictmumbai.edu.in)

10.4.1 Step I: Purchase of Application Form

The candidate shall purchase and fill the appropriate application form/s, separate for each course of choice, namely,

- Ph.D. (Tech.) (separate for each course)
- Ph.D. (Sci.) (separate for each course)

The admission form and Handbook will be available for sale at the ICT counter (11 a.m. to 4 p.m.) by cash payment except on Sundays, 2nd & 4th Saturday and Public Holidays. The fees for application along with Handbook are given elsewhere of this Handbook.

The forms may also be ordered by post or downloaded from the ICT web site, www.ictmumbai.edu.in. The payment, while ordering by post, should include the amount equal to the "**By Post**" amount and be made only by a Pay Order/DD of any Nationalized/ Scheduled/ Private Sector Commercial Bank drawn in favour of "**Institute of Chemical Technology, Mumbai**", payable at Mumbai and it is non-refundable and non-transferable under any circumstances. **Payment by cheque or money order will not be accepted.** The admission form along with a copy of the Handbook will be sent by **Registered Post Parcel** on the address provided by the candidate.

10.4.2 Step II: Submission of Application Form

All the relevant entries in the application form must be completed in legible handwriting or may be typewritten. Incomplete forms will be rejected and no correspondence will be made in this regard. **Writing contact details such as Mobile No./ Telephone No. and email address in the application form is essential.**

The duly filled form along with attested photocopies of required certificates to substantiate the claims made in their application form should be submitted, by the last date notified, at ICT counter or sent to the ICT by Post/ Courier, etc. along with a **Pay Order/DD** of any Nationalized/ Scheduled/ Private Sector Commercial Bank drawn in favour of "**Institute of Chemical Technology, Mumbai**", payable at Mumbai and it is non-refundable and non-transferable under any circumstances. **Payment by cheque or money order will not be accepted.**

The application form has a tear-off receipt at the bottom with the application number. The receipt should be filled in by the candidate and shall be signed and stamped by the clerk at the counter while accepting the form. This receipt should be preserved and the application number must be stated for any future correspondence.

Applications received after the due date will not be considered for generating merit list. ICT is not responsible for the delay occurred by Post/ Courier, etc. Incomplete applications shall be

rejected without entering into any correspondence with the applicant.

- The candidates seeking admission at the ICT must submit attested photocopies of all the documents as given in Table below along with the application form.
- Attachment of any certificates will not be accepted separately after submission of the application form.
- The candidates belonging to the SC/ ST categories will be required to submit The Caste Certificate, the Caste/ Tribe Validity Certificate wherever applicable at the time of submitting the application form, failing which the category claimed, will not be granted and the candidate will be treated as a General candidate.
- The candidates shall not attach a copy of any other certificate which is not asked for, such as certificates for participation in sports, cultural activities, etc.
- The photocopies of certificates or documents attached to the application form should be attested by the Principal of the College or Gazetted Officer or Special Executive Magistrate or Head Master of a Secondary School or teaching staff of a Government /Govt. Aided College / Polytechnic not below the rank of a Lecturer.
- If the candidate produces any certificate, which is not in Marathi, Hindi or English language, authenticated Marathi, Hindi or English version of the same, duly attested by a Gazetted Officer shall also be produced.

TABLE 10.4.3: Documents to be attached with the Application form for Ph.D. admissions

Sr. No.	Type of Candidate	Attested true copies of documents to be attached along with application form
I	All Candidates	1.SSC (Std. X) mark sheet, 2.HSSC (Std. XII) mark sheet, 3. All Mark sheets of Bachelor's Course 4. Bachelor's degree certificate 5. All Mark sheets of Master's Course 6. Master's degree certificate 7. College Leaving / Transfer certificate 8. Industrial/Teaching experience/Relieving letter/ Gap Certificate, if any
II	Backward class Candidates belonging to SC/ ST Categories	Caste certificate, Caste/ Tribe Validity certificate, as applicable. (In addition to the documents mentioned in Sr. No. I)
III	Backward class Candidates belonging to VJ/ DT (NT(A))/ NT(B)/ NT(C)/ NT(D)/OBC/ SBC categories (Maharashtra State candidates only)	Caste certificate, Caste/ Tribe Validity certificate, Non Creamy Layer Certificate valid up to 31 st March 2015. (In addition to the documents mentioned in Sr. No. I)

- **Original certificates should not be attached with the application form. However, those must be made available at the time of admission, failing which the admission cannot be granted.**
- The Entrance examination for Ph.D. courses will be conducted after declaration of results from University of Mumbai. Candidates are requested to visit the institute website for a detail time table as well as updates for the same. List of the eligible candidates for written test will be displayed on the website. Only eligible candidates will be allowed to appear for the written exam. Depending upon the required number of candidates, institute reserves right to call specific number of candidates for

interview. A merit list will be generated on the basis of written test (70% weightage) and oral examination/interviews (30% weightage). Only final list will be displayed on the website as per merit. Other lists of eligible candidates will be displayed as per alphabetic order. Candidates are responsible to visit website for updates for attending interview; no intimation will be made to candidates. List of candidates admitted to various course will be displayed at ICT website. ICT reserves the right to cancel the admission at any time, if it is found that the candidate does not full fill the required criteria.

10.5 Rules and Regulations about Reservation

Reservation in admission for SC/ST categories is applicable to all Ph.D. courses (all branches) as per the Maharashtra government norms.

10.5.1 Caste Certificate and Caste/ Tribe Validity Certificate.

- Caste Certificate: The candidates belonging to the backward class categories will be required to submit the Caste Certificate at the time of admission, failing which the category claimed will not be granted and the candidate will be treated as a General Candidate.
- Caste Validity Certificate: The candidates belonging to the SC/ST category will be required to submit the Caste/Tribe Validity Certificate at the time of admission, failing which the category claimed will not be granted and the candidate will be treated as a General Candidate.

10.6 Fees, Concessions, Cancellations and Refund

10.6.1 Fees prescribed:

The candidates admitted during 2014-15 are required to pay fees as prescribed by the State Government.

The institutional fees to be paid by all the admitted candidates are as follows :

Ph.D. (Tech.)/ Ph.D. (Sci.)		
Sr. No.	Type of Fees	Amount Rs.
1.	Library Deposit	Rs. 1,000/-
2.	Student Diary	Rs. 300/-
3.	Alumni Association	Rs. 700/-
	TOTAL	Rs. 2,000/-
Eligibility fee of Rs. 500/- is applicable to candidates other than ICT students		

The fees such as Development fees and Other fees which are not reimbursed by the Govt. of Maharashtra during subsequent years of the course will have to be paid by all the students.

Notes:-

- For confirmation of seat allotted, all candidates have to submit Demand Draft/ Pay Order in favour of 'Institute of Chemical Technology, Mumbai', payable at Mumbai, of appropriate values as shown in above TABLE.
- Candidate, who is Domicile of Maharashtra state and belonging to Backward Class category, if admitted, will be eligible for fee concessions as applicable by Maharashtra State rules.

- c) The SC/ST Candidates belonging to 'other than state of Maharashtra' will have reservation in admission only and they will have to pay full fees at the time of admission. They should submit their fee concession claims to their respective state Govt. through ICT office.
- d) Candidates claiming fee concession under Backward Class category shall produce the Caste Validity Certificate at the time of submission of application form. Candidates claiming for fee concession under OBC, SBC, VJ/ DT NT (A), NT (B), NT(C) and NT (D) category shall also produce Non-Creamy layer certificate Valid up to 31st March 2015.
- e) Hostel Fees shall be charged additionally in case of candidates opting for hostel accommodation (the details are given in Section on Hostels).

10.6.2 Library Deposit

Library deposit received from the students shall be refunded after successful completion of the course or after cancelling the admission, subject to producing Original Receipt. Unless there is any recovery, no deduction shall be made from the Library deposit. However, the amount of Library deposit shall be credited to institute, if the candidate does not apply for refund, within 3 complete financial years after the student actually leaves the institution; or, within 3 complete financial years after the date of successful completion of the course, whichever is earlier.

10.6.3 Reimbursement of Tuition fee:

Candidates claiming concession under the categories of EBC and sons and daughters for teaching and non-teaching staff of primary, secondary and higher secondary schools shall pay entire fee as applicable at the time of admission and subsequently candidates have to apply to the respective authorities for reimbursement of tuition fees. The quantum of reimbursement received by the institute from the concerned authorities shall be disbursed to the candidate.

10.6.4 Cancellation of admission and Refund of fees:

Refund of tuition fee, development and other fees after cancellation of admission secured at ICT.

Candidate who has been admitted to ICT may cancel admission by submitting an application in duplicate, in the prescribed Pro forma - E and request for refund of fees. The refund of fees as applicable shall be made in due course of time. It is made clear that such application for cancellations will be considered if and only if the admission has been confirmed by paying the prescribed tuition fee and other fees in full and by submitting all the necessary original documents. Refund shall be made after deduction of cancellation charges as shown below -

SR. NO.	SITUATION	REFUND
1	Request received within 10 days from the date of admission	Entire fee less Rs.1000/-
2	Request received within 30 days from the date of admission	Entire fee less the total fee for one month. (Tuition, development, other and hostel fee)
3	Request received after 30 days from the date of admission	No refund (except Library Deposit)

Note: For calculation of amount on the pro-rata basis, one month shall be treated as one unit.

ALL RIGHTS REGARDING THE ADMISSIONS AT THE ICT ARE RESERVED WITH THE VICE CHANCELLOR, ICT.

11. POST GRADUATE DIPLOMA IN CHEMICAL TECHNOLOGY MANAGEMENT

The ICT has a rich tradition of first generation entrepreneurs as its graduates. In order to groom our Ph.D. students into etiquettes of business management, a certificate course in Chemical Technology was started for the ICT students. This popular course is now converted into a PG Diploma Chemical Technology Management to give Ph.D. research students and industry personnel, an orientation in business and technology management of chemical industry and to sharpen entrepreneurship skills.

The course covers topics such as Chemical Technology Management, Product/Process Design and Development, Finance Management, Marketing management, Intellectual Property Rights (IPR) and other laws, Communication, HRD, Project Management, Team and Organization Management.

The course is run with the assistance of the UDCT Alumni Association, with several alumni and other experts from within and outside ICT, having vast experience. This is a two-year Semesterised course conducted on Saturdays and Sundays. The course commences in January, every year and the admission procedure may commence from October, every year (see website www.ictmumbai.edu.in).

Type NO.	ELIGIBILITY AND TYPE OF CANDIDATE	SEATS
1.	Candidates registered for Ph.D. (Tech.)/ Ph.D. (Sci.) in the ICT, who have completed the course work required for Ph.D. and have spent at least a year in their Ph.D. programme	10
2.	Candidates registered for Ph.D. (Tech.)/ Ph.D. (Sci.) in any other University / Institute of repute, who have completed the course work required for Ph.D. and have spent at least a year in their Ph.D. programme	10
3.	Industry- sponsored candidates working for not less than 3 years, having Master's degree in Chemical Technology/ Chemical Engineering/ Science/ Pharmacy/ Mathematics or any other equivalent course	10

- ◆ Admission will be conducted on the basis of written test & interview (equal weightage).
- ◆ In case the candidates from a particular type are not available, the seats may be transferred to other type of candidature on the basis of merit.
- ◆ Fees once paid shall not be refunded.
- ◆ The **post-graduate diploma in Chemical Technology Management** (30 seats) is meant for candidates registered for Doctoral degree from the ICT or other institutes/Universities as well as for industry personnel.

PG Diploma in Chemical Technology Management	
Ph.D.- Registered Candidates	Industry Sponsored Candidates
Rs. 15,000/-	Rs. 45,000/-

All Rights regarding the admissions at the ICT are reserved with the Vice Chancellor, ICT.

12. EXAMINATION PATTERN

12.1 Semester Examinations

12.1.1 Examination Schedule: All the courses at Bachelor's and Master's level are Semesterised and credit based from 2009-10. There is a continuous evaluation of the students on grade basis through internal assessment. For B.Chem.Engg./ B.Pharm./ B.Tech./ M.Chem.Engg./ M.Pharm./ M.Tech./ M.E.(Plastic Engg.)/ M.Sc. (by papers), the Odd semester (Semester-I, III, V and VII) examinations shall be held in the month of December/ January and Even Semester (Semester-II, IV, VI and VIII) examinations in the month of April/May every year.

Students are advised to read the Regulation R-9, given below, carefully.

12.1.2 **Application Forms:** The application form for appearing the examination/s, must be submitted to the Accounts Section along with prescribed fees before the specified dates, which are notified well in advance on the ICT Notice Board. Examination forms will be accepted after the last date only up to one week with late fees. Thereafter, it is not obligatory for the institute to accept the forms.

12.1.3 No examination form shall be accepted unless the examination fee is fully paid in cash.

12.1.4 Master's courses (Regular 2 years) have theory courses in Semester-I and II. Those who take admission to Master's courses (Sponsored 3 years) may split those courses over first two years. That is, Semester-I courses may be taken in Semester-I & III, and Semester-II courses may be taken in Semester-II & IV.

12.1.5 Doctoral courses students have to undergo minimum 2 Theory Credit courses and 3 Audit Courses. They will have to follow the same procedure of applying for admission to the examination in the subjects selected by them for credit courses during the respective examination schedule. Doctoral students are therefore required to submit the list of their choice of Credit and Audit courses with clear mention of course, semester and subject code within 15 days of their admission to the Academic Office. The form may be downloaded from ICT intranet.

12.1.6 **Repeat Semester Examinations (Regulation R-14):** To provide an avenue to improve the performance of the students, a provision of repeat semester examination is made. These examinations for Bachelor's and Master's courses are generally held within a month after declaration of the results of regular semester examinations. Those who want to take repeat examinations should apply for the same with the necessary fee in a stipulated period; notice for the same shall be displayed on the ICT Notice Board.

12.1.7 There is a provision of amendment of result of an examination (Regulation R-13). For these, separate applications should be submitted to the office within the prescribed time.

12.1.8 The students undergoing theory courses at all levels (UG, Master's and Ph.D.) may please note that a provision exists for them to see their assessed answer books for Continuous Evaluations, Mid-Semester and Final Semester examinations. They may discuss their marks obtained with the concerned teacher within 3 days after a notice is put up by the teacher displaying the marks awarded, with prior appointment at the convenience of the teacher.

12.2. Regulation Relevant to Examination

R.9 Credit System and Mode of evaluation

1. Introduction

All the courses at ICT are credit based and the evaluation is grade based.

Credit system is a systematic way of describing an educational programme by attaching credits to its components. The definition of credits may be based on different parameters, such as student workload, learning outcomes and contact hours. It is a student-centric system based on the student workload required to achieve the objectives of a programme. It should facilitate academic recognition of the courses and mobility of the students. Credits assignment is based on the principle that Credits can only be obtained after successful completion of the work required and appropriate assessment of the learning outcomes achieved. As per the AICTE norms 2L/week of lectures are 2 credits, while 2h/week of practicals/tutorials are 1 credit. This may be taken as the basis.

Student workload consists of the time required to complete all prescribed learning activities such as attendance at lectures/practicals, seminars, projects, etc. Credits are allocated to all the educational components of a study programme and indicate the quantity of work each component requires to achieve its specific objectives.

Evaluation is an important component of any teaching-learning process. The Institute gives emphasis on continuous evaluation with considerable freedom to the teacher in deciding the mode of evaluation of the students. The performance of the student is documented by a grade at the end of the semester. The grading scale ranks the students on a statistical basis. Therefore, statistical data on student performance is a prerequisite for applying the grading system.

2. Course Credits

In general a certain quantum of work measured in terms of credits is laid down as the requirement for a particular degree. The student acquires credits by passing courses every semester, the amount of credit associated with a course being dependent upon the number of hours of instruction per week in that course.

There are mainly two types of courses in the Institute - lecture courses and laboratory courses. Lecture courses consist of lecture (L) and tutorial (T) hours. Laboratory courses consist of practical (P) hours. The credit (C) for a course is dependent on the number of hours of instruction per week in that course, as given below:

- (1) 1h/week of lecture (L) or tutorial (T) = 1 credit
- (2) 2h/week of Practicals (P) = 1 credit
- (3) Credit (C) for a theory course = No. of hours of lectures per week + No. of hours of tutorials per week
= L + T
- (4) Credits (C) for a Laboratory course = $\frac{1}{2}$ x No. of hours of laboratory course per week

Credits will be assigned to In-plant, Seminar, Projects and other mandatory course requirements also and these will be mentioned in the respective syllabi. There may be some non-credit requirements. A student is required to earn credits as mentioned in the syllabus.

3. Evaluation

3.1 Weight ages of different modes of assessments shall be as under.

	In-Semester evaluation		End-Semester-Exam	Components of continuous mode
	Continuous mode	Mid Semester-Exam		
Theory	30%	30%	40%	Quizzes, class tests (open or closed book), home assignments, group assignments, viva voce assignments, discussions
Practicals	50%	-	50%	Attendance, viva -voce, journal, assignments, project, experiments, tests

3.2 In-Semester Evaluation:

- It is expected that the teacher would conduct at least two assessments under the continuous mode in a Semester.
- The teacher will announce at the beginning of the respective course the method of conducting the tests under the continuous mode and the assignment of marks
- In-semester performance of all students should be displayed and sent to the academic office by the teacher at least 15 days before the end-semester examination.
- For the theory courses, there will be one mid-semester test for each course to be held as per the schedule fixed in the Academic Calendar.
- For mid -semester examinations in theory papers, duration of examination will be 1 hour for 3 credit courses and 2 hours for 4 credit courses.

3.3 End-Semester examination:

- The End- semester examination will cover the full syllabus of the course and will be conducted as per the Institutional time table at the end of each semester.
- For End- semester examinations in theory papers, duration of examination will be 1 hour for 3 credit courses and 2 hours for 4 credit courses

3.4 Passes and Failures

- The candidates who obtain 40% and more marks of the total marks of a subject head shall be deemed to have passed the respective subject head.
- The candidates who obtain marks less than 40% of the total marks of a subject head shall be deemed to have failed in the respective subject head (Grade FF).

3.5 Grades:

- The performance of a student shall be documented by a Letter grade. Each letter grade has a Grade point associated with it. The Grades and Grade points shall be assigned to each head of passing and both will be indicated in the mark-list of the semester examination.
- The total marks (in-semester + end-semester) of a candidate in a subject head are converted into a letter grade, based on the relative (and sometimes the absolute) performance of the student.

Letter Grade	Grade Point
AA	10
AB	9
BB	8
BC	7
CC	6.5
CD	6
DD	5.5
EE	5

- c. In view of our elite status 6 out of 10 CGPA will be first class.
Thus (CGPA x 10) formula will be used to calculate % and class

Repeat examination in Practicals subject is permitted to the students in the following cases :

1. Candidate has obtained 50% marks in Continuous Assessment and appeared for regular End semester practical examination and Failed. (Continuous Assessment here means attendance, submission and evaluation of journals, assignments).
2. Candidate has obtained 50% marks in Continuous Assessment and could not appear for regular End Semester practical examination due to valid Medical reason and or family bereavement. (Continuous Assessment here means attendance, submission and evaluation of journals, assignments).
3. The candidates not fulfilling above two criteria will be given year drop.

Distinction, (70%)

First Class (60-69.99)

Second Class (50-59.99)

will be used like old ICT cut-out marks.

- d. The grades to be allotted in the case of students who fail or do not appear at the end-semester examination shall be as under.

Letter Grade	Grade Point	Explanation
FF	0	The candidate fails in subject head. The candidate will be allowed to take end-semester repeat or subsequent examinations as per rule.
XX		The candidate has not kept term for the subject head due to attendance less than requisite. Further see 3.5(h) below. In the above cases, the candidate has to repeat the respective course by paying the fees.
I	0	The candidate has kept term for the subject head, has taken all the internal examinations with satisfactory performance, but has failed to take the end-semester examination or repeat examination due to genuine reasons. The candidate will be allowed to take end-semester repeat or subsequent examinations as per rule.

FR	0	The candidate has exhausted all the permissible chances to clear the end semester examinations. The candidate has to register for the respective semester again for all the subject heads or will be out of the respective degree course as per the rules.
DR	0	(i) The candidate hasn't participated in academic programme. (ii) The candidate has taken a drop for the subject head; - provided he/she intimates the same (i or ii) at least 7 days in advance of the commencement of the end-semester examination for the respective year.

- e. Grades **FF** and **I** are place-holders only and do not enter into CPI/SPI calculations directly. These grades get converted to one of the regular grades after the end-semester examination.
- f. A candidate with an **FR** grade is not eligible for any repeat examination in that course and has to re-register for that semester by paying the appropriate fees.
- g. The grade **I** will not be continued beyond the permissible number of end-semester/repeat examinations [Refer to current Regulation R.9 (9) and R.9 (10)]. In the six consecutive exams conducted by the institute, irrespective of whether the candidate fails to take any of these exams.
- h. **'XX' Grade:** The grade **XX** in a course is awarded if - (i) candidate does not maintain the minimum 75% attendance in the Lecture/Tutorial/Practical classes, (ii) candidate receives less than 20% of the combined marks assigned for continuous assessment and mid-semester examination, and (iii) candidate indulges in a misconduct/uses unfair means in the examination, assignments, etc., of a nature serious enough to invite disciplinary action in the opinion of the teacher.
(Note: Award of the **XX** grade in the case of h (iii) above shall be done by Disciplinary Action Committee (DAC)).
- i. The names/roll numbers of students to be awarded the **XX** grade should be communicated by the teacher to the Academic office as per academic calendar before the last date of submission of the application for end-semester examination.

3.6 Awarding the grades

The grading scale ranks the students statistically on the basis of the overall performance of the students of a given class in the given subject head. Therefore, statistical data on students' performance is a prerequisite for applying the grading system. While assigning grades in a given subject head, it is essential to know the average marks (AM) obtained by the students who have passed the subject head and the highest marks (HM) obtained in the same subject head.

- 3.6.1 If the average marks (AM) obtained by the students who have passed the subject head is <60%, the interval AM shall be awarded grade **CC** and the other grades shall be decided as follows:
- AA, AB, BB, and BC grades shall be decided between the AM and HM by dividing the range in equal intervals.
 - CD, DD and EE grades shall be decided between the AM and minimum marks required for passing the head (i.e. 40%) by dividing the range in equal intervals.
- 3.6.2 If the average marks (AM) obtained by the students who have passed the subject head is such that $60\% \leq AM < 70\%$, the interval AM shall be awarded grade **BC** and the other grades shall be decided as follows:
- AA, AB, BB grades shall be decided between the AM and HM by dividing the range in equal intervals.
 - CC, CD, DD and EE grades shall be decided between the AM and minimum marks required for passing

the head (i.e. 40%) by dividing the range in equal intervals.

3.6.3 If the average marks (AM) obtained by the students who have passed the subject head is $\geq 70\%$, the interval AM shall be awarded grade BB and the other grades shall be decided as follows:

- i. AA and AB grades shall be decided between the AM and HM by dividing the range in equal intervals.
- ii. BC CC, CD, DD and EE grades shall be decided between the AM and minimum marks required for passing the head (i.e. 40%) by dividing the range in equal intervals.

4. SPI and CPI

a) Semester Performance Index (SPI): The performance of a student in a semester is indicated by Semester Performance Index (SPI), which is a weighted average of the grade points obtained in all the courses taken by the student in the semester and scaled to a maximum of 10. (SPI is to be calculated up to two decimal places.)

A Semester Grade Point Average (SGPA) will be computed for each semester as follows:

$$\text{SGPA} = \frac{\left(\sum_{i=1}^n c_i g_i \right)}{\left(\sum_{i=1}^n c_i \right)}$$

Where

'n' is the number of subjects for the semester,

'c_i' is the number of credits allotted to a particular subject, and

'g_i' is the grade-points awarded to the student for the subject based on his performance as per the above table.

SGPA will be rounded off to the second place of decimal and recorded as such.

b) Cumulative Performance Index (CPI): An up to date assessment of the overall performance of a student from the time he entered the Institute is obtained by calculating Cumulative Performance Index (CPI) of a student. The CPI is weighted average of the grade points obtained in all the courses registered by the student since he entered the Institute. CPI is also calculated at the end of every semester (upto two decimal places).

Starting from the first semester at the end of each semester (S), a Cumulative Grade Point Average (CGPA) will be computed as follows:

$$\text{CGPA} = \frac{\left(\sum_{i=1}^m c_i g_i \right)}{\left(\sum_{i=1}^m c_i \right)}$$

Where

'm' is the total number of subjects from the first semester onwards up to and including the semester S,

'c_i' is the number of credits allotted to a particular subject, and

'g_i' is the grade-points awarded to the student for the subject based on his performance as per the above table.

CGPA will be rounded off to the second place of decimal and recorded as such.

- c) The CGPA, SGPA and the grades obtained in all the subjects in a semester will be communicated to every student at the end of every semester / beginning of the next semester.
- d) When a student gets the grade 'FF' or 'I' in any subject head during a semester, the SGPA and CGPA from that semester onwards will be tentatively calculated, taking only 'zero' grade point for each such 'FF' or 'I' grade. When the 'FF' grade(s) has / have been substituted by better grades after the repeat examination or subsequent semester examination, the SGPA and CGPA will be recomputed and recorded.

5. Repeat End-Semester Examination

- 5.1 For those candidates who fail in a subject head or are eligible for appearing at the repeat examination, **Repeat End-Semester Examination** will be conducted within one month from the declaration of the results of regular end-semester examination, as per **Regulation R.14**.
- 5.2 The marks obtained by candidates in the in-semester examinations (continuous assessment and periodic test) will be carried forward in such cases.
- 5.3 **Grading the performance in the Repeat Examination:** The grades will be assigned as per 3.5 and 3.6 above. However, for a candidate taking any repeat examination or subsequent regular semester examination or performance improvement examination shall be awarded **one grade lower** than that decided on the basis of the actual marks obtained; provided 'EE' grade obtained in such an examination shall remain 'EE'. For reference see the table below.

Grade obtained in repeat or subsequent end-semester examination	Grade to be assigned	Grade point
AA	AB	9.0
AB	BB	8.0
BB	BC	7.0
BC	CC	6.5
CC	CD	6.0
CD	DD	5.5
DD	EE	5.0
EE	EE	5.0

- 5.4 End-semester and repeat examination: Candidate's performance in these examinations will be displayed on proper notice board and after 3 days of such display the marks will be sent to the Academic Office. No revaluation of these examinations will be allowed.

6. Passing of a Semester examination

A candidate shall be declared as 'PASSED' any semester examination if he/she has

- a. Cleared all heads of passing by securing grades EE or higher in all the heads;
- b. Passed all the heads of passing such as project, seminar, training, etc as per the rules;
- c. Satisfactorily completed all the mandatory requirements of the course;
- d. Paid all the Institute dues;
- e. No case of indiscipline pending against him/her.

7. Eligibility for the Award of a Degree

A candidate shall be declared eligible for the award of a degree, if he/she has cleared all the semester examinations as given in (6) above.

8. Allowed to keep terms (ATKT)

- 8.1 A candidate who has I grade in one or more heads of passing of an odd semester of an academic year shall be allowed to keep terms for the respective even semester.
- 8.2 A candidate shall be allowed to keep terms for the subsequent academic year if he/she has FF or I grades in not more than two heads of passing from all the heads of passing of the two terms of the previous academic year taken together. Such a candidate shall be declared as FAILED, ATKT.
- 8.3 A candidate who has not cleared Semester-I and II as per clause 6 above shall not be eligible to register for semester-V and VI.
- 8.4 A candidate who has not cleared Semester-III and IV as per clause 6 above shall not be eligible to register for semester-VII and VIII.

9. Repeating a course

- 9.1 A student is required to repeat the course of a subject head under the following situations:
 - (a) A student who gets an XX, FR, or DR grade in a course; or
 - (b) A student has exhausted all permissible chances to clear the subject head.
- 9.2 A candidate from second, third and fourth years who remains absent for the regular end-semester examination of a semester and the corresponding repeat examination for ALL SUBJECTS shall have to take fresh admission for the corresponding year; unless the candidate has dropped out / terminated from the course.
- 9.3 If a candidate at the Second, Third or Fourth year fails to pass any semester examination in not more than 4 consecutive examinations, including the repeat examinations, from the date of registering for the respective year, the candidate shall have to take readmission for the corresponding year again in which the failure has occurred, provided the course is not changed.

10. Improvement of performance

A candidate will be allowed to appear at the entire examination after the regular end-semester examination as per the respective rules to improve the performance. In such a case if the result of the examination repeated -

1. Is better than the previous one, the previous result shall be declared null and void; and
2. Is worse than the previous one, the result of the subsequent examination shall not be declared.
3. However, awarding of final grade will be made under the provision of sub clause 5.3 above.

11. Exit Rules for poorly performing students

A candidate shall be excluded from a course under the following conditions:

- a. If he/she does not keep two consecutive terms without giving any reasonable justification (as prescribed by the institute) for doing so.
- b. If he/ she fails to fulfill all the requirements of his/her respective degree within the prescribed period from the date of taking admission to the course.

12. Miscellaneous

- c. Although CPI will be given in the Semester grade report, the final degree certificate will not mention any Class whatsoever.

- d. Notwithstanding anything said above, if a course is revised /restructured then transient provisions applicable at the time of revision /restructuring shall be applicable.

12.3 Regulation R-13 (Amendment of Results)

In rare cases the result of a candidate might be wrongly represented due to errors inadvertently committed by the persons involved in the preparation of the results. Such a wrong representation is also possible due to intentional tampering with the results. The regulations below are meant for correcting the results under such conditions, when revealed.

(A) Amendment of result with errors

- (1) In case where it is found that the result of an examination has been affected by errors, the Controller of Examination shall have the power to amend such result in such a manner as shall be in accordance with the true position and to make such declaration as is necessary, with the necessary approval of the Dean (Academic Programmes), Provided the errors are reported/detected within 6 months from the date of declaration of results. Errors detected thereafter shall be placed before the UGPC or PGPC, as the case may be.

(2) Error means-

- i) Error in computer/date entry, printing or programming and the like
- ii) Clerical error, manual or machine, in totaling or entering of marks on ledger/register
- iii) Error due to negligence or oversight of examiner or any other person connected with evaluation, moderation and result preparation.

(B) Amendment of result affected by fraud, malpractices, etc.

In any case where the result of an examination has been ascertained and published and it is found that such result has been affected by any malpractices, fraud or any other improper conduct whereby an examinee has benefited and that such examinee, and in the opinion of the UGPC or PGPC, as the case may be, been party of privy to or connived at such malpractice, fraud or improper conduct, the UGPC or PGPC shall have the power at any time notwithstanding the issue of the Certificate or the award of a Prize or Scholarship, to amend the result of such examinee and to make such declaration as the UGPC or PGPC considers necessary.

12.4 Regulation R-14 (Repeat Semester Examination)

Repeat semester examination is a special feature of the examinations at the Institute. It provides an avenue for the students, who do not perform well in the main semester examination. A repeat examination therefore should be conducted immediately after the main examination.

- (1) For each regular semester examination, one repeat semester examination shall be provided.
- (2) A repeat semester examination shall be equivalent in all respect to the corresponding regular semester examination.
- (3) A repeat semester examination should commence after 15 days from the date of declaration of the results of verification of marks; preferably within one month from the date of declaration of the semester examination results.
- (4) The time tables for the repeat examinations shall be put up immediately after the declaration of the results of the regular semester examinations.
- (5) The candidates who have failed, or have got ATKT, or have obtained less than 50% marks in one or more subject heads and desire to improve the performance may be permitted to appear at the repeat examination.

- (6) The last date of submission of application forms for the repeat examination shall be minimum two days after the declaration of the results of the verification of marks.
- (7) The rules for the conduct of the repeat examination shall be the same as the regular semester examination.
- (8) The result of a repeat examination of a candidate shall override the respective result of the regular examination.
- (9) Only for the first year of an undergraduate course, the repeat semester examination of the first semester will be conducted 15 days after the regular semester examination of the second semester.

Repeat Practical Examination

Repeat examination in practical subject is permitted to the students in the following cases:

- (1) Candidate has obtained 50 % marks in Continuous Assessment and appeared for regular End Semester practical examination and Failed. (Continuous Assessment here means attendance, submission and evaluation of journals, assignments).
- (2) Candidate has obtained 50 % marks in Continuous Assessment and could not appear for regular End Semester practical examination due to valid Medical reason and/ or family bereavement. (Continuous Assessment here means attendance, submission and evaluation of journals, assignments).
- (3) The candidates not fulfilling the above two criteria shall get a Year Drop.

12.5 Work Practice or In-Plant Training

The Regulations require that the B. Chem. Eng. and B.Tech. students work for at least six weeks, while the B. Pharm. Students work for at least four weeks, in approved industries at the end of the third year of the respective courses (i.e. at the end of the sixth semester) and to submit a satisfactory report to the Head of the department. The Heads of Department normally arrange for the placement of the students for the works practice.

12.6 Malpractice at the Examination (Regulation R-16)

Very strong action will be taken against students using, attempting to use, aiding, abetting, instigating or allowing using "unfair means" at the examination. This will be reported to the Unfair Means Inquiry Committee and the action taken by the Vice Chancellor shall be final.

13. ELIGIBILITY, ENROLMENT AND TRANSFER / LEAVING / MIGRATION CERTIFICATES

(Applicable only to the candidates who have been offered seats)

13.1 Transfer Certificate

A student admitted to the ICT is required to submit within a month from the commencement of the term, a Transfer Certificate/ Leaving Certificate / Migration Certificate from the Principal of the College last attended by him/ her.

13.2 Provisional Statement of Eligibility

No student from other University/ Board can be admitted to any of the ICT courses without submission of a "Provisional Statement of Eligibility" to be procured from the ICT office. An application for a provisional statement of eligibility may be made only when a student is informed that he/ she is allotted a seat in the ICT. However, candidates should keep all the necessary documents, such as statement of marks, passing certificate, migration certificate, etc., ready for obtaining the provisional statement of eligibility. The provisional eligibility will be confirmed only after due verification of the statement of marks and passing certificate from the candidate's parent University/ Board. The charges levied by the parent University of the Student for this purpose will have to be borne by the concerned candidate. The information regarding equivalence of examinations may be obtained from the Assistant Registrar (Academic) of the ICT.

IMPORTANT INSTRUCTIONS

The ICT does not recognize degrees from overseas Universities/ Boards, on a regular basis. However, candidates desirous of seeking admission to the ICT, on the basis of qualifications obtained in overseas Universities/Boards may be considered for the admission on the merits of each individual case. For this purpose, passing certificates, transcripts of record and a copy of the syllabus, containing the details of the courses of studies pursued in the various subjects at the examination passed by the applicant (duly countersigned by the High Commissioner of India in the country or the officer authorized by him) and standard of passing laid down at the examination should be forwarded to the office well in advance. In case the certificates or transcripts are in a language other than English, these certificates and the English translation of the same, duly certified by a competent authority, should be sent. The candidate should enclose all the permissions stipulated by the concerned Government Departments.

13.3 Enrolment Certificate

The students admitted after passing the XII standard (HSSC) Examination are required to submit to the ICT the duly filled in enrolment form, along with a copy of Statement of Marks and the prescribed fee at the time of admission. The enrolment form can be obtained from the office of the ICT.

14. ACADEMIC YEAR, CODE OF CONDUCT AND DISCIPLINE

14.1 Commencement of Academic Year

- The date of commencement of the first semester of the academic year 2014-15 shall be July 01st, 2014.
- All Bachelor's (2nd Year Onwards) and Master's courses shall start from 01st July 2014.
- The academic calendar for all the Bachelor's and Master's courses is divided into two semesters.

14.2 Academic Calendar 2014-2015

(A) DIVISION OF SEMESTERS FOR ALL UG COURSES

First Semester	:	July 01, 2014 (Tue) to December 12, 2014 (Fri.).
Diwali Vacation	:	October 18, 2014 (Sat.) to November 02, 2014 (Sun.).
Second Semester	:	December 15, 2014 (Mon.) to May 15, 2015 (Fri.).
Summer Vacation	:	May 16, 2015 (Sat.) to June 30, 2015 (Tue.).

(B) EXAMINATION SCHEDULE FOR ALL COURSES

Mid Semester Examination		
First Semester	:	September 04, 2014 (Thu.) to September 06, 2014 (Sat.).
Second Semester	:	February 18, 2015 (Wed.) to February 20, 2015 (Fri.).

(C) SEMESTER EXAMINATIONS FOR UG COURSES

First Semester		
a) Theory	:	November 24, 2014 (Mon.) to December 02, 2014 (Tue.).
b) Practical	:	December 03, 2014 (Wed.) to December 12, 2014 (Fri.).
c) Evaluation & Declaration of Results	:	December 31, 2014 (Wed.).
Second Semester		
a) Theory	:	April 27, 2015 (Mon.) to May 04, 2015 (Mon.).
b) Practical	:	May 05, 2015 (Tue.) to May 15, 2015 (Fri.).
c) Evaluation & Declaration of Results	:	May 30, 2015 (Sat.).

(D) SEMESTER EXAMINATIONS FOR PG COURSES

First Semester		
a) Theory	:	December 04, 2014 (Thu.) to December 12, 2014 (Fri.).
b) Practical	:	November 24, 2014 (Mon.) to December 03, 2014 (Wed.).
c) Evaluation & Declaration of Results	:	December 31, 2014 (Wed.).
Second Semester		
a) Theory	:	May 07, 2015 (Thu.) to May 15, 2015 (Fri.).
b) Practical	:	April 27, 2015 (Mon.) to May 06, 2015 (Wed.).
c) Evaluation & Declaration of Results	:	May 30, 2015 (Sat.).

NOTE :

- First Year B. Chem. Engg./B. Tech./B. Pharm. Semester - I Time Table will be declared only after start of these courses. End Semester examinations will be as per the schedule of UG course.
- All Undergraduate courses will observe same Calendar for Semester - II.
- The Master's courses [(M. Tech./M. Chem. Engg./M. Pharm./M.E.(Plastic Engg.)] student will not have any vacation and they will submit thesis June 30, 2015. They are entitled to 30 days year leave by approval of Supervisor.
- For M. Sc. (Mathematics/Textile Chemistry) time table will be as per UG course.

14.3 Requirement of Attendance

The attention of the students is drawn to the Regulation R-1 regarding the attendance of the student and Grant of Term.

As per R-1(2), the minimum attendance necessary for granting a term (Semester) in each subject shall be minimum of 75% of the lectures and practicals, taken separately, out of the total number of lectures and practicals conducted in a semester. The students shall be deemed to have submitted the undertaking about the attendance after the admission has been secured at the ICT.

14.4 Identity card

At the beginning of each academic year, a regular bonafide student is issued a smart Identity Card with his/her latest photograph printed it, on payment of the necessary charges. The students must wear the I-card while on campus. I-card is also necessary for appearing at all tests and examinations. If a student leaves the course halfway, after taking admission, he/she must surrender the I-Card in the Academic office.

14.5 Working hours

(a) Academic Timings: The academic working hours of the institute are between 8.30 a.m. to 5.30 p.m., with lunch break from 12.35 to 1.30 p.m.

(b) Office Hours:

- 10.30 a.m. to 6.00 p.m., with lunch break from 1.00 to 1.30 p.m. - on all working days.
- Cash Counter: 11.00 a.m. to 1.00 p.m. and 1.30 p.m. to 4.00 p.m.

The office will remain closed on second and fourth Saturdays of a month, in addition to Sundays and public holidays.

14.6 General

- The medium of instruction for all courses is English.
- Physical fitness: The Vice Chancellor at his discretion may refer any candidate to the appropriate medical authority for ascertaining the physical fitness of the candidate to undergo the requirements of the course. The report of medical authority and the action taken by the Vice Chancellor shall be submitted to the Regional Head of Technical Education for information. It is to be noted that physically handicapped candidates are not provided with any additional facilities as far as the academic activities pertaining to the course is concerned.
- The Vice Chancellor may verify the antecedents of any candidate through the appropriate police authority. The report received from police authority and the action taken by the Vice Chancellor shall be submitted to the Regional Head of Technical Education for information.
- Notwithstanding anything contained in these Rules, if the Govt. / Institute takes any policy decision pertaining to F.Y. admissions, the same shall be brought in to effect at that point of time.

14.7 Conduct and discipline for all students:

Students while studying at ICT, if found indulging in any anti-national activity contrary to the provisions of Acts and Laws enforced by Government or in any activity contrary to Rules of discipline, will be liable to be expelled from the Institute without any notice by the Vice Chancellor of the Institute.

Action against ragging: Maharashtra Prohibition of Ragging Act 1999 which is in effect from 15th May 1999 has the following provisions for Action against Ragging.

- a) Ragging within or outside of any educational institution is prohibited,
- b) Whosoever directly or indirectly commits, participates in, or propagates ragging within or outside any educational institution shall, on conviction, be punished with imprisonment for a term up to 2 years and/ or penalty, which may extend to ten thousand rupees.
- c) Any student convicted of an offence of ragging shall be dismissed from the educational institution and such student shall not be admitted in any other educational institution for a period of five years from the date of order of such dismissal.
- d) Whenever any student or, as the case may be, the parent or guardian or a teacher of an educational institution complains, in writing, of ragging to the head of the educational institution, the head of the educational institution shall, without prejudice to the foregoing provisions, within seven days of the receipt of the complaint, enquire into the matter mentioned in the complaint and if, prima facie, it is found true, suspend the student who is accused of the offence, and shall, immediately forward the complaint to the police station having jurisdiction over the area in which the educational institution is situated, for further action. Where, on enquiry by the head of the educational institution, it is found that there is no substance, prima facie, in the complaint received; he/ she shall intimate the fact, in writing, to the complainant. The decision of the head of the educational institution shall be final.
- e) If the head of the educational institution fails or neglects to act in the manner specified in section "d" above when a complaint of ragging is made, such person shall be deemed to have abetted the offence and shall, on conviction, be punished as provided for in section "b" above.

If any of the statement made in application form or any information supplied by the candidate in connection with his or her admission is later on at any time, found to be false or incorrect, his or her admission will be cancelled, fees forfeited and he or she may be expelled from the Institute by the Vice Chancellor.

Note:

The orders issued by the Hon'ble Supreme Court/High Court/Government regarding Prohibition of Ragging Act, will be made applicable as and when issued. The same shall be binding on all concerned.

See detailed booklet appended in this Handbook.

15. Professor M.M. SHARMA LIBRARY

Established in the year 1934, it functions as the central library of the institute and is one of the best Special Libraries in the country. It performs a dual role of an Academic Library as well as a Research Library, catering to the information needs of the in-house students and faculty, in particular, and, the academic and research community, in general. It is housed in a separate two-storeyed building and follows a completely open-access concept. It has a specialized collection in Chemical Engineering, Chemical Sciences, Chemical Technology and Pharmacy and their allied fields.

Speciality areas: Chemistry, Applied Chemistry, Chemical Technology, Chemical Engineering, Pharmacy, Energy & Environmental Engineering, Biotechnology, Food Technology & Fermentation, Polymer Science & Technology, Textile Science & Technology, Oils & Surfactants, Dyestuff Technology.

Library Collection : Number of volumes: 76165; Number of scientific and technical journals subscribed: 129 (Foreign:108 + Indian:21); Theses & Dissertations: 4039; CD-ROMs: 1249; Online Journals (via IP) from Elsevier (Sciencedirect), Springer, Wiley, Royal Society of Chemistry and Taylor and Francis. Databases such as SciFinder, Scopus, Reaxys.

Facilities offered : The bona fide students and faculty of the institute have book-lending facility. Photocopying facility is available for all, on payment. Internet and online journals access facility is available for the bona fide research students and faculty. Reference and Referral service is also provided. Book Bank facility is also provided.

Book Bank : Under this scheme, students belonging to the backward classes receive the benefits of Book bank scheme. Two books shall be issued per student under the scheme, in addition to the two normal books issued from the library. The due date shall be stamped on the book(s) issued. In case of damage or loss of book(s), all the rules applicable to the loss of library book will apply to these books also.

Library Timings : The library is open from 8.30 A.M. to 8.30 P.M. on all working days and from 11.00 A.M. to 6.00 P.M. on Sundays, Holidays and the 2nd and the 4th Saturdays of every month.

The library remains closed on the Independence Day, the Republic Day, Ganesh Chaturthi and Dasara.

16. HOSTELS AND COUNSELLING SERVICES

16.1 Preamble

ICT has five hostel blocks on the campus including 3 boys' and 2 girls' hostels. The total number of hostel accommodation seats available for the students at the ICT is nearly 855 (for all courses and years) including 210 lady students.

Hostel No. 1, is the first hostel built in 1951, as University and Birla Hostel, with provision of accommodation for all students of the University of Mumbai. In 1966, Hostel No. 2 was built for accommodating UG and research students with capacity of accommodating 120 students. In 1987, Hostel No.3 was built to accommodate the students of both ICT (then UDCT) and JJ School of Architecture, which was exclusively meant for ICT students since mid-1990s. In 1993, a 66-seater girl's hostel was built. Hostel No. 5, a 7-storey building with the capacity to accommodate 352 students was built during early 2000s and occupied in 2005. The hostel has a good gymnasium and play grounds with sports facilities for in-door and out-door sports activities.

16.2 Process of Allocation of Hostels

1. Hostel No. 1, 4, and 5 are allotted to boys. Hostel No. 2 and 3 are only for girls. All the hostels are unaided and maintained by the Institute. Hostel No. 1 is allotted to 1st year undergraduate and Master's degree students and no senior undergraduate will be allotted to the hostel. Hostel No. 3 has 1st year undergraduate, Master's and Doctoral girls students.
2. Total number of seats available for fresh admissions is about 200 per year, which includes all Undergraduates, Master's and Doctoral students out of which seats available for the first year UG admissions (B.Chem.Engg., B.Pharm. and B.Tech.) are limited to only 30 girls and 90 boys maximum. Those for first year Master's degree (M.Chem.Engg., M.E., M.Tech., M.Sc., M.Pharm.) are limited to 19 girls and 50 boys depending on availability. Hostel admission to new doctoral students are subject to availability created due to vacating the hostel by earlier Ph.D. students with respect to the departmental allocation.

Accommodation in hostels cannot be guaranteed to all the students taken admission to ICT for various courses. Students are therefore advised to verify the availability of hostel accommodation personally by contacting the hostel office (Phone: 91-22-33611452, Fax : 91-22-33611495, Time: 10.30 a.m. to 5.00 p.m. E-mail: hostel@staff.ictmumbai.edu.in)

3. Admission will be offered strictly on merit basis. Preference will always be given to out-station students who come from places beyond the limits of Mumbai and suburbs (i.e., beyond Virar, Titwala, Ambarnath and Panvel). As a proof of stay beyond the limits of Mumbai and suburbs, they are required to submit certified copies of ration card/ Adhar card and school-leaving certificate. Any false representation in this regard will be strictly dealt with.
4. Prescribed application form for accommodation to hostels may be purchased (Rs. 50/- in cash) from the Hostel Office situated at Ground Floor of Hostel No. 5. The Master's and Doctoral students are required to submit their applications through the Heads of the concerned Departments. The duly completed application form along with photocopies of the receipt of fees paid for admission at ICT and residence proof should be submitted at the Hostel Office.
5. The Hostel Office will advise aspirant students if a seat can be allotted to him/her. Once a seat is offered, the payment of charges should be made by separate Demand Draft/Pay order at the Hostel Office situated at Ground Floor of Hostel No. 5, as given below and a receipt for the same should be procured.

1. Accommodation Fees (as per 16.3.1 below) by a Demand Draft/Pay order drawn in favour of 'Institute of Chemical Technology, Mumbai', payable at Mumbai.
2. Common Charges (as per section 16.3.2 below) by a Demand Draft/Pay order drawn in favour of 'Warden, ICT Hostels' payable at Mumbai.
3. The admission to the hostel will be done by the Head Warden and Hostel Office in concern with respective hostel wardens. All the rights for hostel admissions are reserved with Head Warden, ICT.
4. The Warden of the respective hostel has all the rights to change/transfer a student from one room to other within the hostel for convenience of the administration. Also, every year the student may be shifted from the accommodation provided in earlier year.
5. In case of the year-drop, the candidate will have no claim for hostel accommodation and will have to vacate the hostel. Readmission for such student on clearing the year-drop will not be guaranteed.

16.3 Hostel Fees

16.3.1 Accommodation Fees:

(Including Electricity and Development Charges) for the Year 2014-15 for the academic year

Hostel	Category	Type of Accommodation	No. of Seats	Fees, Rs.
Hostel No. 1	Boys	Single Seated	52	15,000/-
		Triple Seated	144	12,000/-
		Six Seated	18	12,000/-
Hostel No. 2	Girls	Single Seated	27	15,000/-
		Double Seated	22	12,500/-
		Triple Seated	69	12,000/-
Hostel No. 3	Girls	Double Seated	88	15,000/-
		Triple Seated	9	15,000/-
Hostel No. 4	UG Boys	Double Seated	66	12,500/-
Hostel No. 5	UG Boys and Ph. D. Boys	Double Seated	332	17,000/-
		Triple Seated	33	17,000/-

The accommodation charges for all those Doctoral Students recipient of fellowships with HRA from various funding agencies are exempted. The accommodation charges of such doctoral students will be claimed separately by ICT against their HRA from the respective funding agencies.

Accommodation fees should be paid by a Demand Draft/ Pay order in the name of 'Institute of Chemical Technology, Mumbai' payable at Mumbai. No Cash payments will be accepted.






16.3.2 Common charges to all Hostels - Rs. 5000/- per year to be paid at the beginning of every year by all students.

- i) Students Sports & Cultural Activity Fees Rs. 3000/- per year
- ii) Other Fees / Charges (Mess Depreciation, Insurance, etc.) Rs. 2000/- per year

16.4 Hostel Messes

It is mandatory for all hostel students to join the Hostel Mess allotted to them. Each mess is run by the students on co-operative "no-loss - no-profit" basis under the Control of the concerned Warden. Hostel students have been managing their messes since 1951, with an excellent tradition and managerial skills. Typical mess charges including breakfast and two meals a day are around Rs. 1500/- per month. Mess Deposit Advances / Monthly Expenses will be extra as per the norms of the respective messes. Mess deposit of Rs. 5,000/- is required to be paid at the time of joining of Mess, which will be refunded at the end of the stay.

16.5 Hostel Management

Hostel No.	Warden	Telephone
	HEAD WARDEN - Dr. U.S. ANNAPURE	
5	Dr. U. S. Annapure (Department of Food Engineering & Technology) Email: us.annapure@ictmumbai.edu.in	 3361 2507
1	Dr. P. D. Vaidya (Department of Chemical Engineering) Email: pd.vaidya@ictmumbai.edu.in	 3361 2708
2	Prof. R. V. Jayaram (Department of Chemistry) Email: rv.jayaram@ictmumbai.edu.in	 3361 2607
3	Dr. Mrs. Shalini Arya (Department of Food Engineering & Technology) Email: ss.arya@ictmumbai.edu.in	 3361 2511
4	Dr. S.T. Mhaske (Department of Polymer and Surface Engineering) Email: st.mhaske@ictmumbai.edu.in	 3361 2412
Hostel Office	For details please contact Mr. F. M. Tariq Mrs. Surekha Kamble	3361 1452 3361 1453

16.6. General

1. Guest Room facility is available at Hostel No. 2 (only for lady guests) and Hostel No. 5 for parents who wish to meet their Wards studying at ICT on payment basis.
2. Hostels are equipped with Mess, T.V. Room, Reading Room, Playground, Health Centre, Gymkhana, Library and Study Room Facilities.
3. Senior MBBS doctors are available in the health centre of the hostel on all working days at designated times at free of cost for all the students residing in ICT hostels.
4. All students are covered under Accident Policy of the Institute.
5. Each hostel block is supervised by a Warden, who is a faculty member of the Institute.

6. It is mandatory that all the new entrants to the hostels get their hostel admission forms signed by the Student's Counsellor - Prof. (Ms) Rita Doctor, whose office is located on the first floor, Godrej Students Centre) (Tel No. 91-22-3361 1351; email: rf.doctor@ictmumbai.edu.in) immediately after joining the hostel.

16.7 Discipline and Decorum

1. Smoking and consumption of alcohol is strictly prohibited in hostels and public places in the entire campus of ICT. A strict disciplinary action will be taken against the student involved in misdemeanour and illegal activities.
2. All the girl students have to be in their respective hostels by 10.00 pm and boys by 11.00 pm. An affidavit to this effect has to be given by students and their parents at the time of admission.
3. All senior students must create a conducive and healthy atmosphere in the rich tradition of the ICT and the hostels. Several hostel residents have attained very high positions in their profession, as industrialists, educators and policy makers and brought laurels to the institute; including Padma awards of President of India. Three Directors of the ICT- Former Directors, Professor M.M. Sharma and Prof J.B. Joshi, the incumbent Director (Vice Chancellor) Professor G.D. Yadav as well as the Registrar, Professor S. R. Shukla have been hostel residents on this campus. Prof Yadav has also served as the Warden, and Head Warden, earlier. Dr. Uday Annapure, Dr. Shashank Mhaske, Dr. P. D. Vaidya, and Dr. Shalini Arya who are hostel wardens currently were themselves ICT Hostel residents during their student days. Several other faculty members have also been hostel residents. Faculty and staff quarters are also situated near the hostels bringing a sense of community feeling. Faculty members participate in the programmes arranged by the hostelites and often make themselves available for counselling, whether they are wardens or not. Hostel Day is a special annual day in the lives of hostelites to show their skills and talents in sports, cultural programmes and the like.
4. Another grand tradition of the hostels is that the past students, from all over the world, try to assist the hostel activities by providing monetary help, either through personal donations or company sponsorships.
5. Action against ragging: Maharashtra Prohibition of Ragging Act 1999 is in effect from 15th May 1999. (See details later from UGC in this regard]. Any case of ragging should be reported by the victim in writing within three days of the incident to the respective warden with copies marked to: Head Warden, Dr. U. S. Annapure (us.annapure@ictmumbai.edu.in), Dean- Student Affairs and Human Resource Development, Professor A. B. Pandit (ab.pandit@ictmumbai.edu.in), and Registrar, Professor S. R. Shukla (registrar@ictmumbai.edu.in).

16.8 Counselling Services

Counseling services are available for the benefit of all the students of the Institute - right from First year to those doing their Doctorate. The Counselor - **Professor (Ms) Rita Doctor**, with her in-depth knowledge of Philosophy and Psychology, has been actively participating in this important activity. The Counselor deals with all types of personal and academically related problems and students are free to meet her from Tuesday to Friday any time between 11.30 a.m. and 4.30 p.m.

It is mandatory for all the first year students (UG and PG) including hostelites to meet the Counselor [in her office on 1st floor, Godrej Students Centre) (Intercom No. 1351), in groups of ten for an interactive session. Interactive Sessions are held from time to time to make the students aware of their plus points and weak points. Later on, a one - to - one session is held in order to help them develop confidence and overcome difficulties which may be too personal. All the students are free to meet Prof. (Ms) Rita Doctor any time they feel by prior appointment.

17. TECHNOLOGICAL ASSOCIATION

Technological Association (TA) is an organisation that conducts co-curricular and extra-curricular activities in ICT. All faculty and students of ICT are members of TA. Currently, the Vice-Chancellor, Prof G. D. Yadav is the President of TA and Prof P. M. Bhate is its Vice President. A 26-member core student body organises these activities. Cultural activities (music, literature and dance) are conducted throughout the year by Arts Club and Manthan. Intercollegiate festivals are generally organised in January-February. YICC and YRC (Young Investigators' Choice Competition and Young Researcher's Conference) are purely technical events that give an opportunity to students from all over the country to solve industry defined problems and present their research work. Exergy is a technical-cum-cultural event that includes lectures (on line as well as in person) by eminent faculty worldwide, debates, quizzes, paper and poster presentations, ad making etc. Manzar is a purely cultural festival and includes events such as a city-wide treasure hunt, movie-making workshop, music programs, etc. Sportsaga is a sports festival that attracts individuals and teams from colleges all over Mumbai. Funtech is ICT's sports festival for students, faculty and alumni.



YRC-2013



YICC-2013

18. UDCT ALUMNI ASSOCIATION

UDCT Alumni Association (UAA) was formed in 1989 to foster fellowship and provide a forum to bring together the alumni of UICT, its past and present faculty members on a common platform and to promote the activities of the ICT in India and abroad and to institute awards, fellowships and grants. Several well wishers are members of UAA. All current students are invited to join UAA as well wiser members and participate in all activities. For the last 20 years, UAA has striven hard to achieve its objectives with valuable and timely support of the members, well wishers and through donations or membership fees. UAA currently has more than 3500 life members and 14 Patron members. The main objectives of UAA are:

1. Providing direct financial assistance to ICT :

- To support infrastructure development of the institute
- To support student activities along with Technological Association
- To support needy students
- To provide books in special areas such as management

2. Enhancing studentship at ICT :

- Sponsoring factory visits
- Arranging lectures, seminars, symposia, workshops
- Awarding best students of ICT for their meritorious performance
- Encouraging, promoting, supporting providing, spreading and arranging for education and research in Chemical Technology, Chemical Engineering, Pharmaceutical Sciences and related Basic Sciences, Management studies and related topics.
- The Post Graduate Diploma Course in Chemical Technology Management (CTM) for the Ph.D. students in ICT is fully supported by UAA

3. Organizing Institution level events :

- Instituting the UAA Dhirubhai Ambani Lifetime Achievement Award every year to the person who excels in the chemical field internationally.
- Organizing ICT Foundation Day celebrations
- Awarding UAA Distinguished Alumnus awards every year to three or four distinguished persons for their contributions to teaching, research, industry, defence public/government
- UAA Annual Day celebrations
- Training and Placement Service to current students and alumni.

4. Managing the Alumni Network :

- Managing the database of all alumni
- Increasing UAA Membership - Any present or past student faculty member or a well-wisher can become a life member of the UAA. It has a membership of about 3500
- Maintaining UAA Website
- Issuing UAA bulletins
- Promoting ICT at national and international level

5. UAA Chapters

- UAA has local chapters in different cities in the country and also abroad in UK, USA, Singapore, Australia and Thailand.

19. CULTURE OF ENDOWMENTS

The ICT has sanctioned positions of 108 faculty (29 Professors, 38 Associate Professors and 41 Assistant Professors) and a support staff of 240.

The ICT has a tradition of establishment of endowments with an objective of supporting faculty positions, foreign travel assistance, merit-cum-means scholarships, staff welfare, library, campus development, research fellowships and seed money for research by young faculty. There are 90 endowments in the Institute. All these endowments have been established through generous donations by alumni, industries, philanthropists and well wishers. Only part of the interest (upto 50-70%) is used towards the purpose of the endowment and the remaining is ploughed back into the corpus allowing it to grow with time.

19.1 Faculty endowments

1. R.T. Mody Professor of Chemical Technology and Director (1933)
2. Sir Dorabji Tata Reader in Pharmaceutical Chemistry (1943)
3. Singhanee Reader in Chemical Engineering (1936)
4. Singhanee Lecturer in Chemical Engineering (1936)
5. Singhanee Lecturer in Pharmacy (1943)
6. Singhanee Lecturer in Paint Technology (1946)
7. Singhanee Associate Lecturer in Chemical Engineering (1936)
8. Singhanee Associate Lecturer in Food Technology (1945)
9. Sir Homi Mehta Reader in Oil Technology (1943)
10. Sir Homi Mehta Associate Lecturer in Food Technology (1943)
11. Darbari Seth Professor of Inorganic Chemical Technology (1995)
12. BPCL Professor of Chemical Engineering (2001)
13. V.V. Mariwala Chair in Chemical Engineering (2004)
14. J.G. Kane Chair of Oil Technology (2008)
15. M.M.Sharma Distinguished Professor of Chemical Engineering (2009)
16. Narotam Sekhsaria Distinguished Professor of Chemical Engineering (2009)
17. R.A. Mashelkar Chair of Chemical Engineering (2009)
18. K.V.Mariwala-J.B. Joshi Chair of Chemical Engineering (2009)
19. Gunavati Kapoor Chair in Pharmaceutical Technology (2009)
20. Dr. John Kapoor lecturer in Pharmaceutical Technology (2010)
21. RCF Professor of Chemical Engineering (2012)

19.2 Visiting Professors/Fellows/Lecturers/Orations Endowments

There are 42 endowments which have helped us immensely in attracting the best professionals to the Institute from all over the world who have interacted 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 MIT, Purdue, Cambridge, Monash, UC Berkeley, UCSB, Montreal have taught UG and PG courses in ICT under these endowments. These lectures will form part of audit courses for research students. Besides, public lectures are organized under each endowment. All departments have been benefitted and the list is as follows:

A. Institute Level

1. Professor B.D. Tilak Distinguished Lectureship
2. Professor B.D. Tilak Visiting Fellowships.
3. Golden Jubilee Visiting Fellowships.
4. Dr. Balwant S. Joshi Distinguished Visiting Professorship in Chemical Engineering Chemical Technology / Applied Chemistry "
5. Shri. B. S. Rajpurohit Visiting Faculty and Orator Endowment

B. Department of Chemical Engineering

6. Dr. G.P. Kane Visiting Professorship in Chemical Engineering.
7. The Dow Professor M.M. Sharma Distinguished Visiting Professorship in Chemical Engineering.
8. Shri V.V. Mariwala Visiting Professorship in Chemical Engineering
9. Shri G.M. (alias Dada) Abhyankar Memorial Distinguished Fellowship in Chemical Engineering
10. Professor R.A. Rajadhyaksha Memorial Lecture series.
11. Shrimati Kusumben and Shri Mathradas Kothari Visiting Professorship in Chemical Engineering
12. K. J. Somaiya Visiting Professor of Chemical Engineering Endowment
13. Professor Arun S. Mujumdar Visiting Fellowship

C. Department of Chemistry

14. Dai-Ichi Karkaria Ltd. Visiting Fellowship
15. The Dharamsi Morarji Chemical Co. Visiting Fellowship in Chemistry
16. The (Late) Shri. G.D.Gokhale Endowment Lectureship
17. Spinco-Biotech - Ramanathan Lectureship

D. Department of Dyestuff Technology

18. K.H. Kabbur Memorial Silver Jubilee Lectureship.
19. Professor K. Venkatraman Lectureship.
20. Pidilite Industries Ltd. Visiting fellow in Dyestuff Science & Technology.

E. Department of Food Engineering and Technology

21. Professor A. Sreenivasan Felicitation Lectureship.
22. Marico Industries Visiting Fellowship
23. ICT - Lupin Visiting Fellowship for Bioprocess Technology

F. Department of Oils, Oleochemicals and Surfactants Technology

24. Professor J.G. Kane Visiting Professorship in Chemical Technology
25. Professor J.G. Kane Memorial Lectureship

G. Department of Pharmaceutical Sciences and Technology

26. CIPLA Distinguished Visiting Fellowship in Pharmaceutical Sciences
27. Themis Medicare - ICT Diamond Jubilee Distinguished Fellowship in Pharmaceutical Sciences
28. Professor (Mrs.) Malati R. Baichwal Visiting Fellowship in Pharmaceutical Science and Technology
29. AAIPS- Dr. R. S. Baichwal Pharmaceutical Seminar
30. Dr. S.K. Pradhan Endowment
31. Professor V.M. Kulkarni Endowment Fund in Pharmaceutical Science and Technology

H. Department of Polymer and Surface Engineering

32. Shri K. S. S. Raghavan - Chemical Weekly Visiting Professorship in Polymer Science and Technology

33. Indian Plastics Institute (IPI)-ICT Diamond Jubilee Visiting Fellowship in Polymer Processing
34. Chemimpex Rastogi-ICT Diamond Jubilee Visiting Fellowship in Surface Coatings.
35. Synpol-ICT Diamond Jubilee Distinguished Visiting Fellow in Science & Technology of Pigment
36. Tipco-ICT Diamond Jubilee Distinguished Visiting Fellow in Thermosets
37. Jayvee Organics & Polymers(P)Ltd. Visiting Fellowship in Polymer Additives and Compounding
38. Parmanand F. Parikh Endowment

J. Department of Physics

39. Dr. Mooljibhai Shivabhai Patel Trust Visiting Fellowship in Polymer Physics

D. Department of Fibres and Textile Processing Technology

40. Professor G.M. Nabar Endowment Lectureship.
41. L.N. Chemicals ICT Diamond Jubilee Visiting Fellow
42. Class of 1966 Visiting Fellowship.

19.3 Scholarships for UG Students

The ICT supports 251 students under merit-cum-means scholarships. The range is Rs. 3000/- to Rs. 75,000/ per annum per person through several endowments, private trust and annual commitments by alumni. All economically deprived students are given assistance in the form of tuition fees, hostel fees, mess bills and travel assistance to present papers in national conferences.

The names of various Merit-cum-Means Scholarships is given below. For details such as number of scholarships, amounts, eligibility and selection criteria interested candidates may contact VC Office of the ICT.

I. GENERAL SCHOLARSHIPS

1. M. S. Patel Trust Merit-cum-Means Scholarship (Min six) (Value of Rs. 5,000/- each.)
2. Rushmi-Druman Merit-cum-Means Scholarship (One) (Value of Rs. 3,600/-)
3. Distinguished Alumini Merit-cum-Means Scholarship (One) (Value of Rs. 1,800/-)
4. Smt. Badamidevi Chiranjilal Murarka Charity Trust Merit-cum-Means Scholarship (One) (Value of Rs. 3,600/-)
5. Sohrab Mistry Merit-cum-Means Scholarship (Two)
(Value of Rs. 5,000/- each.)
6. Perin & Jal Khan Merit-cum-Means Scholarship (Three)
(Value of Rs. 3,600/- each)
7. Smt. Parvathy Sitaram Merit-cum-Means Scholarship (Two) (Rs. 4,500/- each).
8. Druman M. Trivedi Merit-cum-Means Scholarship (Two)(Value of Rs. 3,600/- each).
9. S.L. Venkiteswaran Merit-cum-Means Scholarship (One) (Value of Rs. 4,500/-)
10. M.C. Chhatrapati Charitable Trust Merit-cum-Means Scholarship (Two)
(Value of Rs. 3,600/- each).
11. Late Dr.(Mrs.) Mahalaxmi Bhagwat Merit-cum-Means Scholarship(One)
(Value of Rs. 3,600/-)
12. Prof. A.N. Kothare Scholarship (Three) (only for first year, HSC Mumbai Board preferred)
(Value of Rs. 7,500/- each).
13. Rukmani and Nagraj Rao Memorial Merit-Cum-Means Scholarship (One)
(Value of Rs. 7,000/-)
14. Dr. D.D. Haldavnekar Merit-Cum-Means Scholarship (Three) (Value of Rs.1800/- each.)

II. MIXED - DEPARTMENT OF OILS, FOOD, AND POLYMER

1. Fine Organic Industries Merit-cum-Means Scholarship (Three) (Rs.7500/-each) amount to be decided each year. For the dept. of oils, foods and polymers.
2. Kamani Oils Merit-Cum Means Scholarship (two) (Value of Rs. 25,000/-each).
(for students from Final Year B.Tech. (Oils) and Final Year B.Tech.(Foods)

III. DEPARTMENT OF CHEMICAL ENGINEERING

1. An Anonymous Alumnus Merit-cum-Means Scholarship (One) (Value of Rs. 3,500/-)
2. Gogri Brothers Scholarship (Four) (value of Rs. 4,000/- each).
3. Hemraj Lalji Meishry Scholarship (Two) (Value of Rs. 3,500/- each).
4. Dr. Nandkumar Kochar & Raj Kumar Kochar Trust Scholarship (Two)
(Value of Rs. 1,000/- each).(one from S.Y and one from T.Y. Chem Engg.)
5. Purbhudas Jeevandas Mint Road Wadi Trust Scholarship (Four) (Rs. 3,500/- each).
6. Y. T. Shah Merit-cum-Means Scholarship (One) (Value of Rs. 2,000/-)
7. Vaishnomal Malhotra - K.K. Malhotra Merit-cum-Means Scholarships (Two)
(Value of Rs. 20,000/- each).
8. Head Master Muthuswami Merit-cum-Means Scholarship (One) (Value of Rs. 850/-)
9. Rajendra G. Sardesai Scholarship (Four) (Value of Rs. 6,000/- each)
10. B. Chem. Engg Class of 1962 (Two) (Rs. 5,000/- each).
11. Andanallur Srinivasa Venkatesan & Ranganayaki Scholarship (One) (Rs.3,000/-)
12. Daisy Navaroze Baria Scholarship (One)(Rs. 2,500/-)
13. Dr. Surendra R. Gupta (Mukut Sah) Scholarship
14. Jitendra Mehta Scholarship (Two) of (Rs. 20,000) (Rs. 10,000/- each) year to year
15. Sarojben and Pratapray Shah Memorial Scholarship (Six) (Value of Rs.75,000/- p.a. each)

IV. LOAN SCHOLARSHIPS

1. Kusumben and Baba Sheth Kothari Charitable Trust Merit cum Means Scholarship (only for one Chem. Engg. Student) (as per our discretion to help, reimburse fees, mess bilss etc. for deserving students on a returnable basis when they graduate and start earning) (Total Bal. Rs.4, 50, 000/-) (No. of Student one) (Value of Rs. 4500/-)
2. Shri Sharad C. Patel Merit cum Means Scholarship (one) (Value of Rs. 50,000/-) (only for UG student in Dept. of Chem. Engg.)
3. B. Chem. Engg Class of 1962

V. DEPARTMENT OF OILS, OLEOCHEMICALS AND SURFACTANTS TECHNOLOGY

1. Castrol Merit-cum-Means Scholarship (Two) (Value of Rs. 4,500/- each)
2. G.M. Alias Abhyankar Merit-cum-Means Scholarship (One) (Rs.4,000/-)
3. Shri Keshao Bapurao Kulkarni Scholarship (for one UG student of Dept. of Oils) (Rs. 7500/-)

VI. DEPARTMENT OF FIBRES AND TEXTILE PROCESSING TECHNOLOGY

1. Perin & Jal Khan Merit-cum-Means Scholarship (Two) (Value of Rs. 4,000/- each).
2. Mr. Dinshah B. Katrak & Mrs. Goolcheher D. Katrak Merit-cum- Means Scholarship (One) (Value of Rs. 4,000/-)
3. Late Mrs. Asha Khemani Memorial Scholarship (Two) (Value of Rs. 2,500/- each).
One for UG and for PG

VII. DEPARTMENT OF FOOD ENGINEERING AND TECHNOLOGY

1. "Professor P.J. Dubash Memorial - AFST (I), Mumbai Chapter Endowment Scholarships" (One) (Value of Rs. 25,000/-) for UG B.Tech. student in FET (Food Engineering and Technology) Department.

VIII. DEPARTMENT OF POLYMER AND SURFACE ENGINEERING

1. Jitendra & Hemant Vakil Merit-cum-Means Scholarship (Two) (Rs. 2,800/- each)
2. Kumar R. Basu Memorial Merit-cum-Means Scholarship (Two) Rs. 3,500/- each) (only PPV)
3. Synpol Memorial Scholarship (One) (Rs. 3,500/-)
4. "Ms. Swati Balwant Bhagwat Merit-cum-means Scholarship" for ONE girl student who has passed first year B. Tech. examination in Dept. of Polymer and Surface Engineering and Technology (Rs. 4200/-)

IX. DEPARTMENT OF DYESTUFF TECHNOLOGY

1. Colour Chem.Ltd. Merit-cum-Means Scholarship (One) (Value of Rs. 3,600/-)
2. Alumni Association - UDCT Dyestuff Division Golden Jubilee Fund Merit -cum -Means Scholarship (One) (Value of Rs.3,600/-) "A/C 588"
3. Dr. Kishore Manilal Shah Endowment Merit cum Means Scholarship in Dyestuff Technology (for one UG student from First to Final Year) (Value of Rs. 4500/-)

X. DEPARTMENT OF PHARMACEUTICAL SCIENCES AND TECHNOLOGY

1. Dr. Krishna S. Manudhane Merit-Cum-Means Scholarship (Two) (Rs.1,800/- each).
2. Dr. R.K. Dhote Charitable Trust Merit-Cum-Means Scholarship (One) (Rs. 3,600/-)

XI. GENERAL SCHOLARSHIPS ON YEAR TO YEAR BASIS

1. Gunvati Jagannath Kapoor Scholarship (40) (out of forty 20 for B. Pharm. students) (Value of Rs. 45,000/- each) from I, II, III, & IV year B.Tech. (Pharma), B.Tech. (Other Branches), B. Pharm and B.Chem. Engg.
2. Mr. Rajen Mariwala Merit-Cum-Means Scholarship (One) (Value of Rs. 10,000/-)
3. Ambuja Cement Merit-Cum-Means scholarship (Fifteen) (Rs. 10,000/- each).
4. Sandra Shroff Merit-Cum-Means Scholarship (Ten) (Value of Rs.10,000/- each).
5. "Dr. Purushottam Janardan Kangle Merit-cum-means Scholarship"for TWO students from B.Tech. (Textile) and B.Tech. (Dyesstuff) (Rs. 3000/- each)

XII. SCHOLARSHIPS AWARDED DIRECTLY BY THE OUTSIDE TRUST

1. Narotam Sekhsaria Foundation Scholarships
 - i) Merit-cum-Means Scholarship for ug students
 - ii) One Excellence Award (Value of Rs. 1,00,000/-) & Two Certificates of Merit (Value of Rs. 50,000/-) each are offered to outstanding students from among the final year students of the engineering.
2. Vishwanath Dore Scholarship (C/o Asara Scholarship) (One) (Value decided by trust)
3. Arvind Memorial Scholarship (ASARA) (one) (only for F.Y. Chem. Engg. Student who have scored highest marks in chemistry at HSC examination) (Value decided by trust)
4. ISCMA Merit Cum Means Scholarship
 - i) Dyes - 1st, 2nd, 3rd and 4th year - One student each, from 1st, 2nd, 3rd and 4th year total - 4 students (Rs. 5,000/- cash + certificate)
 - ii) Oils - 1st, 2nd, 3rd and 4th year - One student each, from 1st, 2nd, 3rd and 4th year total - 4 students (Rs. 5,000/- cash + certificate)

- iii) Textile - 1st, 2nd, 3rd and 4th year - One student each, from 1st, 2nd, 3rd and 4th year total - 4 students (Rs. 5,000/- cash + certificate)
- iv) Surface coating - 1st, 2nd, 3rd and 4th year - One student each, from 1st, 2nd, 3rd and 4th year total - 4 students (Rs. 5,000/- cash + certificate)
- 5. Ratan Tata Trust Scholarship for meritorious students from II, III, & final year B.Tech. and B.Chem. Engg. (Value decided by trust)
- 6. Ratan Tata Trust Scholarship for meritorious students from Department of Pharmaceutical Sciences and Technology (Value decided by trust)
- 7. Bayer Scholarships (Value decided by trust)

19.4 Ph.D. Fellowships Endowments

- 1. Prof. M. M. Sharma Endowment
- 2. Dow-ICT Woman Chemical Engineers
- 3. Narottam Sekhsaria Foundation

20. VARIOUS GOVERNMENT CONCESSIONS IN FEES AND THEIR REQUIREMENTS

Following are the category-wise/ concession-wise requirements to be fulfilled by the students at the time of admission to the ICT.

The various types of application forms will have to be procured by the students at the time of admission and the duly completed forms along with necessary documents MUST BE SUBMITTED TO THE GENERAL OFFICE WITHIN FIFTEEN DAYS, failing which, the ICT will not be held responsible for not getting the sanction of relevant concessions from the Govt.

A. Govt. of Maharashtra Freeship/ Govt. of India Scholarship

Reserved Category students from SC/ST/VJ/DT (A)/NT-B/NT-C/ NT-D/OBC/SBC can apply for Govt. of Maharashtra Freeship / Govt. of India Scholarship.

RULES:

Govt. of India Scholarship - Annual Income limit for VJ/DT(A)/ NT-B/ NT-C/ NT-D/ OBC/ SBC students should be below Rs.1,00,000/- p.a. and for SC/ ST students below Rs.2,00,000/- p.a. to submit claim for Govt. of India Scholarship.

Govt. of Maharashtra Freeship - Annual Income limit for VJ/DT(A)/ NT-B/ NT-C/ NT-D/ OBC/ SBC students should be above Rs.1,00,000/- p.a. and for SC/ ST students above Rs.2,00,000/- p.a. to submit claim for Govt. of Maharashtra Freeship.

NOTE:- UGC/ Private fellowship holders (only applicable to PG students) can submit claim for Govt. of Maharashtra Freeship only. They cannot apply for Govt. of India Scholarship.

The Application Form should be filled up On Line by the HSSC Board students. Such students should take out print of the filled form along with attested photocopies of the following documents and submit to the Academic Office (Mrs. Asha Bhangre). Students from other than HSSC Board should fill up paper version of the application form.

1. Income Certificate of the parents for year 2013-14.
- ✓ For Freeship - Income Certificate of the parents for year 2013-14 from Tehasildar OR latest Form 16 A of the parents obtained from the employer.
AND
Non Creamy Layer Certificate for the current year (Only for VJ/DT(A)/NT-B/NT-C/ NT-D/OBC/SBC, Not for SC/ ST) - valid up to 31st March 2015.
- ✓ For Scholarship - Income Certificate of the parents for year 2013-14 from Tehasildar.
2. For Fresh ST students other than Mumbai Board - Change of District Certificate (Zilla Badal Dakhala)
3. Caste Certificate - signed by Special Executive Magistrate.
4. Caste Validity Certificate
5. Ration Card
6. Mark sheet of the last annual examination passed.
7. Admission Fee receipt of 2014-15.
8. In case of **GAP** period in education **GAP CERTIFICATE** must be submitted.
9. Hosteller claiming Govt. of India Scholarship should submit Hostel Certificate for the academic year 2014-15.

B. Hostel Allowance

Reserved Category candidates of SC/ ST/ VJ-NT/ SBC categories, staying in Hostel and applying for Govt. of India Scholarship can apply for Hostel allowance.

After admission to hostel, students should obtain the form from the General Office.

The attested copies of the following documents should be attached with the Application Form.

1. Income Certificate of the parents for year 2013-14 from Tehasildar.
2. Caste Certificate - signed by Special Executive Magistrate.
3. Caste Validity Certificate.
4. Mark sheet of the last annual examination passed.
5. Admission Fee receipt of 2014-15.
6. Hostel Certificate and Hostel fee receipt for the academic year 2014-15.

C. Govt. of Maharashtra Freeship to Sons & Daughters of Primary and Secondary School Teacher

The Application Form, should be obtained from the Academic Office at the time of candidate's admission and attested photocopies of the following documents must be attached while submitting the claim form.

1. Service Certificate of parent should be countersigned by Education Inspector with Date of Retirement mentioned therein.
2. Ration Card.
3. Mark sheet of the last annual examination passed.
4. Admission Fee receipt for the academic year 2014-15.

D. Freeship to Economically Backward Class (EBC) Students

Income Limit for the EBC Students to claim this freeship is Rs. 1,00,000/- p.a.

The Application Form, should be obtained from the Academic Office at the time of candidate's admission and attested photocopies of the following documents must be attached while submitting the claim form.

1. Income Certificate of the parents for year 2013-14 from Tehasildar.
2. Ration Card.
3. Mark sheet of the last annual examination passed.
4. Admission Fee receipt for the academic year 2014-15.

E. Freeship to Sons & Daughters of Ex-Servicemen

The Application Form, should be obtained from the Academic Office at the time of candidate's admission and attested photocopies of the following documents must be attached while submitting the claim form.

1. Ex-Serviceman Certificate.
2. Ration Card.
3. Mark sheet of the last annual examination passed.
4. Admission Fee receipt for the academic year 2014-15.

F. Merit cum Means Based Scholarship of Government of India

(Muslim, Sikh, Buddhist, Christian, Zoroastrians (Parsi))

For application form, eligibility criteria and documents to be submitted please see www.dte.org.in. After completing the form along with required documents, it should be submitted to the ICT Academic office (Mrs. Asha Bhangre).

G. Government of Maharashtra Scholarship for the Minority Communities Students Pursuing Technical and Professional Education

(Muslim, Sikh, Buddhist, Christian, Zoroastrians (Parsi) and Jain minority communities)

For application form, eligibility criteria and documents to be submitted, please see www.dte.org.in. After completing the form along with required documents, it should be submitted to the ICT Academic office (Mrs. Asha Bhangre).

21. ANTI-RAGGING LAWS AND NOTIFICATIONS OF UGC

REGULATIONS ON CURBING THE MENACE OF RAGGING IN HIGHER EDUCATIONAL INSTITUTIONS, 2009

NO. F 1-16/2007 (CPP-II)

April, 2009

In exercise of the powers conferred by Clause (g) of Sub-Section (1) of Section 26 of the University Grants Commission Act, 1956, the University Grants Commission hereby makes the following Regulations, namely-

1. Title, commencement and applicability:-

- 1.1. These regulations shall be called the "UGC Regulations on Curbing the Menace of Ragging in Higher Educational Institutions, 2009".
- 1.2. They shall come into force with immediate effect.
- 1.3. They shall apply to all the universities established or incorporated by or under a Central Act, a Provincial Act or a State Act, to all institutions deemed to be university under Section 3 of the UGC Act, 1956, to all other higher educational institutions, including the departments, constituent units and all the premises (academic, residential, sports, canteen, etc) of such universities, deemed universities and other higher educational institutions, whether located within the campus or outside, and to all means of transportation of students whether public or private.

2. Objective:-

To root out ragging in all its forms from universities, colleges and other educational institutions in the country by prohibiting it by law, preventing its occurrence by following the provisions of these Regulations and punishing those who indulge in ragging as provided for in these Regulations and the appropriate law in force.

3. Definitions: - For the purposes of these Regulations:-

- 3.1 "college" means any institution, whether known as such or by any other name, which provides for a programme of study beyond 12 years of schooling for obtaining qualification from a university and which, in accordance with the rules and regulations of such university, is recognized as competent to provide for such programme of study and present students undergoing such programme of study for the examination for the award of such qualification.
- 3.2 "Head of the institution" means the 'Vice-Chancellor' in case of a university/deemed to be university, 'Principal' in case of a college, 'Director' in case of an institute.
- 3.3 "institution" means a higher educational institution (HEI), like a university, a college, an institute, etc. imparting higher education beyond 12 years of schooling leading to a degree (graduate, postgraduate and/or higher level) and/or to a university diploma.
- 3.4 "Ragging" means the following:
Any conduct whether by words spoken or written or by an act which has the effect of teasing, treating or handling with rudeness any other student, indulging in rowdy or undisciplined activities which causes or is likely to cause annoyance, hardship or psychological harm or to raise fear or apprehension thereof in a fresher or a junior student or asking the students to do any act or perform something which such student will not in the ordinary course and which has the effect of causing or generating a sense of shame or embarrassment so as to adversely affect the physique or psyche of a fresher or a junior student.
- 3.5 "Statutory/Regulatory body" means a body so constituted by a Central/ State Government legislation for setting and maintaining standards in the relevant areas of higher education, such as the All India Council for Technical Education (AICTE), the Bar Council of India (BCI), the Dental

Council of India (DCI), the Distance Education Council (DEC), the Indian Council of Agricultural Research (ICAR), the Indian Nursing Council (INC), the Medical Council of India (MCI), the National Council for Teacher Education (NCTE), the Pharmacy Council of India (PCI), etc. and the State Higher Education Councils.

3.6 "University" means a university established or incorporated by or under a Central Act, a Provincial Act or a State Act, an institution deemed to be university under Section 3 of the UGC Act, 1956, or an institution specially empowered by an Act of Parliament to confer or grant degrees.

4. Punishable ingredients of Ragging:-

- Abetment to ragging;
- Criminal conspiracy to rag;
- Unlawful assembly and rioting while ragging;
- Public nuisance created during ragging;
- Violation of decency and morals through ragging;
- Injury to body, causing hurt or grievous hurt;
- Wrongful restraint;
- Wrongful confinement;
- Use of criminal force;
- Assault as well as sexual offences or unnatural offences;
- Extortion;
- Criminal trespass;
- Offences against property;
- Criminal intimidation;
- Attempts to commit any or all of the above mentioned offences against the victim(s);
- Physical or psychological humiliation;
- All other offences following from the definition of "Ragging".

5. Measures for prohibition of ragging at the institution level:-

- 5.1 The institution shall strictly observe the provisions of the Act of the Central Government and the State Governments, if any, or if enacted, considering ragging as a cognizable offence under the law on a par with rape and other atrocities against women and ill-treatment of persons belonging to the SC/ST, and prohibiting ragging in all its forms in all institutions.
- 5.2 Ragging in all its forms shall be totally banned in the entire institution, including its departments, constituent units, all its premises (academic, residential, sports, canteen, etc) whether located within the campus or outside and in all means of transportation of students whether public or private.
- 5.3 The institution shall take strict action against those found guilty of ragging and/or of abetting ragging.

6 Measures for prevention of ragging at the institution level: -

6.1 Before admissions:-

- 6.1.1 The advertisement for admissions shall clearly mention that ragging is totally banned in the institution, and anyone found guilty of ragging and/or abetting ragging is liable to be punished appropriately (for punishments, ref. section 8 below).
- 6.1.2 The brochure of admission/instruction booklet for candidates shall print in block letters these

Regulations in full (including Annexures).

- 6.1.3 The 'Prospectus' and other admission related documents shall incorporate all directions of the Supreme Court and /or the Central or State Governments as applicable, so that the candidates and their parents/ guardians are sensitized in respect of the prohibition and consequences of ragging. If the institution is an affiliating university, it shall make it mandatory for the institutions under it to compulsorily incorporate such information in their 'Prospectus'.
- 6.1.4 The application form for admission/ enrolment shall have a printed undertaking, preferably both in English/Hindi and in one of the regional languages known to the institution and the applicant (English, Hindi and Marathi versions appended), to be filled up and signed by the candidate to the effect that he/she is aware of the law regarding prohibition of ragging as well as the punishments, and to the effect that he/she has not been expelled and/or debarred from admission by any institution and that he/she, if found guilty of the offence of ragging and/or abetting ragging, is liable to be punished appropriately.
- 6.1.5 The application form shall also contain a printed undertaking, preferably both in English/Hindi and in one of the regional languages known to the institution and the parent/ guardian (English Hindi and Marathi versions appended), to be signed by the parent/ guardian of the applicant to the effect that he/ she is also aware of the law in this regard and agrees to abide by the punishment meted out to his/ her ward in case the latter is found guilty of ragging and/or abetting ragging.
- 6.1.6 The application for admission shall be accompanied by a document in the form of the School Leaving Certificate/Transfer Certificate/ Migration Certificate/ Character Certificate which shall include a report on the behavioral pattern of the applicant, so that the institution can thereafter keep intense watch upon a student who has a negative entry in this regard.
- 6.1.7 A student seeking admission to the hostel shall have to submit additional undertaking in the form of 6.1.4 (both Parts) along with his/ her application for hostel accommodation
- 6.1.8 At the commencement of the academic session the Head of the Institution shall convene and address a meeting of various functionaries/agencies, like Hostel Wardens, representatives of students, parents/ guardians, faculty, district administration including police, to discuss the measures to be taken to prevent ragging in the Institution and steps to be taken to identify the offenders and punish them suitably.
- 6.1.9 To make the community at large and the students in particular aware of the dehumanizing effect of ragging, and the approach of the institution towards those indulging in ragging, big posters (preferably multicolored with different colours for the provisions of law, punishments, etc.) shall be prominently displayed on all Notice Boards of all departments, hostels and other buildings as well as at vulnerable places. Some of such posters shall be of permanent nature in certain vulnerable places.
- 6.1.10 The institution shall request the media to give adequate publicity to the law prohibiting ragging and the negative aspects of ragging and the institution's resolve to ban ragging and punish those found guilty without fear or favour.
- 6.1.11 The institution shall identify, properly illuminate and man all vulnerable locations.
- 6.1.12 The institution shall tighten security in its premises, especially at the vulnerable places. If necessary, intense policing shall be resorted to at such points at odd hours during the early months of the academic session.

- 6.1.13 The institution shall utilize the vacation period before the start of the new academic year to launch wide publicity campaign against ragging through posters, leaflets, seminars, street plays, etc.
- 6.1.14 The faculties/ departments/ units of the institution shall have induction arrangements (including those which anticipate, identify and plan to meet any special needs of any specific section of students) in place well in advance of the beginning of the academic year with a clear sense of the main aims and objectives of the induction process.
- 6.2 On admission:-**
- 6.2.1 Every fresh student admitted to the institution shall be given a printed leaflet detailing when and to whom he/she has to turn to for help and guidance for various purposes (including Wardens, Head of the institution, members of the anti-ragging committees, relevant district and police authorities), addresses and telephone numbers of such persons/authorities, etc., so that the fresher need not look up to the seniors for help in such matters and get indebted to them and start doing things, right or wrong, at their behest. Such a step will reduce the freshers' dependence on their seniors.
- 6.2.2 The institution through the leaflet mentioned above shall explain to the new entrants the arrangements for their induction and orientation which promote efficient and effective means of integrating them fully as students.
- 6.2.3 The leaflet mentioned above shall also inform the freshers about their rights as bona fide students of the institution and clearly instructing them that they should desist from doing anything against their will even if ordered by the seniors, and that they have nothing to fear as the institution cares for them and shall not tolerate any atrocities against them.
- 6.2.4 The leaflet mentioned above shall contain a calendar of events and activities laid down by the institution to facilitate and complement familiarization of freshers with the academic environment of the institution.
- 6.2.5 The institution shall also organize joint sensitization programmes of 'freshers' and seniors.
- 6.2.6 Freshers shall be encouraged to report incidents of ragging, either as victims, or even as witnesses.
- 6.3 At the end of the academic year:-**
- 6.3.1 At the end of every academic year the Vice-Chancellor/ Dean of Students Welfare/ Director/ Principal shall send a letter to the parents/ guardians of the students who are completing the first year informing them about the law regarding ragging and the punishments, and appealing to them to impress upon their wards to desist from indulging in ragging when they come back at the beginning of the next academic session.
- 6.3.2 At the end of every academic year the institution shall form a 'Mentoring Cell' consisting of Mentors for the succeeding academic year. There shall be as many levels or tiers of Mentors as the number of batches in the institution, at the rate of 1 Mentor for 6 freshers and 1 Mentor of a higher level for 6 Mentors of the lower level.
- 6.4 Setting up of Committees and their functions:-**
- 6.4.1 The Anti-Ragging Committee:- The Anti-Ragging Committee shall be headed by the Head of the institution and shall consist of representatives of faculty members, parents, students belonging to the freshers' category as well as seniors and non-teaching staff. It shall monitor the anti-ragging activities in the institution, consider the recommendations of the Anti-Ragging Squad and take appropriate decisions, including spelling out suitable punishments to those found guilty.
- 6.4.2 The Anti-Ragging Squad:- The Anti-Ragging Squad shall be nominated by the Head of the institution with such representation as considered necessary and shall consist of members

belonging to the various sections of the campus community. The Squad shall have vigil, oversight and patrolling functions. It shall be kept mobile, alert and active at all times and shall be empowered to inspect places of potential ragging and make surprise raids on hostels and other hot spots. The Squad shall investigate incidents of ragging and make recommendations to the Anti-Ragging Committee and shall work under the overall guidance of the said Committee.

- 6.4.3 Monitoring Cell on Ragging:- If the institution is an affiliating university, it shall have a Monitoring Cell on Ragging to coordinate with the institutions affiliated to it by calling for reports from the Heads of such institutions regarding the activities of the Anti-Ragging Committees, Squads, and Mentoring Cells, regarding compliance with the instructions on conducting orientation programmes, counseling sessions, etc., and regarding the incidents of ragging, the problems faced by wardens and other officials, etc. This Cell shall also review the efforts made by such institutions to publicize anti-ragging measures, cross-verify the receipt of undertakings from candidates/students and their parents/guardians every year, and shall be the prime mover for initiating action by the university authorities to suitably amend the Statutes or Ordinances or By-laws to facilitate the implementation of anti ragging measures at the level of the institution.

6.5 Other measures:-

- 6.5.1 The Annexures mentioned in sub-clauses 6.1.4, 6.1.5 and 6.1.7 of these Regulations shall be furnished at the beginning of each academic year by every student, that is, by freshers as well as seniors.
- 6.5.2 The institution shall arrange for regular and periodic psychological counseling and orientation for students (for freshers separately, as well as jointly with seniors) by professional counselors during the first three months of the new academic year. This shall be done at the institution and department/ course levels. Parents and teachers shall also be involved in such sessions.
- 6.5.3 Apart from placing posters mentioned in sub-clause 6.1.9 above at strategic places, the institution shall undertake measures for extensive publicity against ragging by means of audio-visual aids, by holding counseling sessions, workshops, painting and design competitions among students and other methods as it deems fit.
- 6.5.4 If the institution has B.Ed, and other Teacher training programmes, these courses shall be mandated to provide for anti-ragging and the relevant human rights appreciation inputs, as well as topics on sensitization against corporal punishments and checking of bullying amongst students, so that every teacher is equipped to handle at least the rudiments of the counseling approach.
- 6.5.5 Wardens shall be appointed as per the eligibility criteria laid down for the post reflecting both the command and control aspects of maintaining discipline, as well as the softer skills of counseling and communicating with the youth outside the class-room situations. Wardens shall be accessible at all hours and shall be provided with mobile phones. The institution shall review and suitably enhance the powers and perquisites of Wardens and authorities involved in curbing the menace of ragging.
- 6.5.6 The security personnel posted in hostels shall be under the direct control of the Wardens and assessed by them.
- 6.5.7 Private commercially managed lodges and hostels shall be registered with the local police authorities, and this shall be done necessarily on the recommendation of the Head of the institution. Local police, local administration and the institutional authorities shall ensure vigil on incidents that may come within the definition of ragging and shall be responsible for action in the event of ragging in such premises, just as they would be for incidents within the campus. Managements of such private hostels shall be responsible for not reporting cases of

ragging in their premises.

- 6.5.8 The Head of the institution shall take immediate action on receipt of the recommendations of the Anti-Ragging Squad. He/ She shall also take action suo moto if the circumstances so warrant.
- 6.5.9 Freshers who do not report the incidents of ragging either as victims or as witnesses shall also be punished suitably.
- 6.5.10 Anonymous random surveys shall be conducted across the 1st year batch of freshers every fortnight during the first three months of the academic year to verify and cross-check whether the campus is indeed free of ragging or not. The institution may design its own methodology of conducting such surveys.
- 6.5.11 The burden of proof shall lie on the perpetrator of ragging and not on the victim.
- 6.5.12 The institution shall file an FIR with the police / local authorities whenever a case of ragging is reported, but continue with its own enquiry and other measures without waiting for action on the part of the police/ local authorities. Remedial action shall be initiated and completed within the one week of the incident itself.
- 6.5.13 The Migration / Transfer Certificate issued to the student by the institution shall have an entry, apart from those relating to general conduct and behaviour, whether the student has been punished for the offence of committing or abetting ragging, or not, as also whether the student has displayed persistent violent or aggressive behaviour or any inclination to harm others.
- 6.5.14 Preventing or acting against ragging shall be the collective responsibility of all levels and sections of authorities or functionaries in the institution, including faculty, and not merely that of the specific body/ committee constituted for prevention of ragging.
- 6.5.15 The Heads of institutions other than universities shall submit weekly reports to the Vice-chancellor of the university the institution is affiliated to or recognized by, during the first three months of new academic year and thereafter each month on the status of compliance with anti-ragging measures. The Vice Chancellor of each university shall submit fortnightly reports of the university, including those of the Monitoring Cell on Ragging in case of an affiliating university, to the Chancellor.
- 6.5.16 Access to mobile phones and public phones shall be unrestricted in hostels and campuses, except in class-rooms, seminar halls, library etc. where jammers shall be installed to restrict the use of mobile phones.

6.6 Measures for encouraging healthy interaction between freshers and seniors:-

- 6.6.1 The institution shall set up appropriate committees including the course-in-charge, student advisor, Warden and some senior students to actively monitor, promote and regulate healthy interaction between the freshers and senior students.
- 6.6.2 Freshers' welcome parties shall be organized in each department by the senior students and the faculty together soon after admissions, preferably within the first two weeks of the beginning of the academic session, for proper introduction to one another and where the talents of the freshers are brought out properly in the presence of the faculty, thus helping them to shed their inferiority complex, if any, and remove their inhibitions.
- 6.6.3 The institution shall enhance the student-faculty interaction by involving the students in all matters of the institution, except those relating to the actual processes of evaluation and of faculty appointments, so that the students shall feel that they are responsible partners in managing the affairs of the institution and consequently the credit due to the institution for good work/ performance is due to them as well.

7. Measures at the UGC/ Statutory/ Regulatory body level:-

7.1 Regulatory measures:-

- 7.1.1 The UGC and other Statutory /Regulatory bodies shall make it mandatory for the institutions to compulsorily incorporate in their 'Prospectus' the directions of the Supreme Court and/or the Central or State Governments with regard to prohibition and consequences of ragging, and that non-compliance with the directives against ragging in any manner whatsoever shall be considered as lowering of academic standards by the erring institution making it liable for appropriate action.
- 7.1.2 The UGC (including NAAC and UGC Expert Committees visiting institutions for various purposes) and similar Committees of other Statutory/Regulatory bodies shall cross-verify that the institutions strictly comply with the requirement of getting the undertakings from the students and their parents/ guardians as envisaged under these Regulations.
- 7.1.3 The UGC and other funding bodies shall make it one of the conditions in the Utilization Certificate for sanctioning any financial assistance or aid to the institution under any of the general or special schemes that the institution has strictly complied with the anti-ragging measures and has a blemish-less record in terms of there being no incidents of ragging during the period pertaining to the Utilization Certificate.
- 7.1.4 The NAAC and other accrediting bodies shall factor in any incident of ragging in the institution while assessing the institution in different grades.

7.2 Incentives for curbing ragging:-

- 7.2.1 The UGC shall consider providing special/ additional annual financial grants-in-aid to those eligible institutions which report a blemish-less record in terms of there being no incidents of ragging.
- 7.2.2 The UGC shall also consider instituting another category of financial awards or incentives for those eligible institutions which take stringent action against those responsible for incidents of ragging.
- 7.2.3 The UGC shall lay down the necessary incentive for the post of Warden in order to attract the right type of eligible candidates, and motivate the incumbents.

7.3 Monitoring mechanism to ensure compliance:-

Apart from the monitoring mechanism built in under different sub-clauses of these Regulations, there shall also be the following monitoring mechanism:

- 7.3.1 The UGC shall constitute an Inter-Council Committee for prevention of Ragging consisting of representatives of the AICTE, the IITs, the NITs, the IIMs, the MCI, the DCI, the NCI, the ICAR and such other bodies which have to deal with higher education to coordinate and monitor the anti-ragging movement across the country and to make certain policy decisions. The said Committee shall meet at least twice a year in the normal course.
- 7.3.2 The UGC shall also have an Anti-Ragging Cell within the Commission as an institutional mechanism to provide secretarial support for collection of information and monitoring, and to coordinate with the State level and university level Committees for effective implementation of anti-ragging measures.

8 Punishments:-

8.1 At the institution level:-

Depending upon the nature and gravity of the offence as established by the Anti-Ragging Committee of the institution, the possible punishments for those found guilty of ragging at the institution level shall be any one or any combination of the following:

- 8.1.1 Suspension from attending classes and academic privileges

- 8.1.2 Withholding/ withdrawing scholarship/ fellowship and other benefits.
- 8.1.3 Debarring from appearing in any test/ examination or other evaluation process.
- 8.1.4 Withholding results
- 8.1.5 Debarring from representing the institution in any regional, national or international meet, tournament, youth festival, etc. .
- 8.1.6 Suspension/ expulsion from the hostel.
- 8.1.7 Cancellation of admission
- 8.1.8 Rustication from the institution for period ranging from 1 to 4 semesters
- 8.1.9 Expulsion from the institution and consequent debarring from admission to any other institution for a specified period ,
- 8.1.10 Fine ranging between Rupees 25,000/- and Rupees 1 lakh .
- 8.1.11 Collective punishment: When the persons committing or abetting the crime of ragging are not identified, the institution shall resort to collective punishment.

8.2 At the university level in respect of institutions under it:-

If an institution under a university (being constituent of, affiliated to or recognized by it) fails to comply with any of the provisions of these Regulations and fails to curb ragging effectively, the university may impose any one or any combination of the following penalties on it:

- 8.2.1 Withdrawal of affiliation/ recognition or other privileges conferred on it
- 8.2.2 Prohibiting such institution from presenting any students then undergoing any programme of study therein for the award of any degree/diploma of the university
- 8.2.3 Withholding grants allocated to it by the university, if any
- 8.2.4 Withholding any grants chanelled through the university to the institution
- 8.2.5 Any other appropriate penalty within the powers of the university.

8.3 At the appointing authority level-

The authorities of the institution, particularly the Head of the institution, shall be responsible to ensure that no incident of ragging takes place in the institution. In case any incident of ragging takes place, the Head shall take prompt and appropriate action against the person(s) whose dereliction of duty lead to the incident. The authority designated to appoint the Head shall, in its turn, take prompt and appropriate action against the Head.

8.4 At the UGC/Statutory/Regulatory body level: -

If an institution fails to curb ragging, the UGC/Statutory/Regulatory body concerned may impose any one or any combination of the following penalties on it:

- 8.4.1 Delisting the institution from section 12B of the UGC Act or any similar provision in the Act of the Statutory/Regulatory body concerned
- 8.4.2 Withholding any grants allocated to it
- 8.4.3 Declaring the institution ineligible for consideration for any assistance under any of the general or special assistance programmes of the UGC/Statutory/ Regulatory body concerned
- 8.4.4 Declaring that the institution does not have the minimum academic standards and warning the potential candidates for admission accordingly through public notice and posting on the UGC Website/ Website of the Statutory/Regulatory body concerned.
- 8.4.5 Taking such other action within its powers as it may deem fit and impose such other penalties as provided till such time as the institution achieves the objective of curbing ragging.
- 8.4.6 Collaborating with one another to work out other possible deterrents.

UNDERTAKING TO BE GIVEN BY ALL STUDENTS

I have read all the Rules of Admission and after understanding these rules thoroughly, I have filled in the application form for admission for the current year. The information given by me in my application is true to the best of my knowledge and belief. I understand that if any of the statements made by me in the application form or any information supplied by me in connection with my admission is later on at any time, found to be false or incorrect, my admission will be cancelled, fees forfeited and I may be expelled from the ICT by the Vice Chancellor.

- a) I have not been debarred from appearing at any examination held by any Government constituted or statutory examination authority in India.
- b) I fully understand that the allotment of a course will be made to me depending on my inter se merit, order of preferences given by me and the number of seats available at that point of counseling.
- c) I understand that no document after the last date of submission will be entertained for the purpose of claims or concessions, etc. in connection with my admission unless otherwise mentioned in the rules.
- d) I am fully aware that the Vice Chancellor, ICT or his representative will not make any correspondence with me regarding admission. I am also aware that it is entirely my responsibility to see the notifications in the newspaper(s) and notices on the notice board and website of the ICT.
- e) I am aware that any rule imposed by the Institute such as 'imposing limits on the number of attempts permissible to pass any examination shall be binding on me.
- f) I hereby agree to conform to any Rules, Acts and Laws enforced by Government and I hereby undertake that, I will do nothing either inside or outside the Institute which may result in disciplinary action against me under these rules, acts and laws referred to.
- g) I fully understand that the Vice Chancellor, ICT has a right to expel me from the institute for any infringement of the rules of conduct and discipline prescribed by the Institute or Government and the undertaking given above.
- h) I am fully aware that, I will not be allowed to appear for the examination if I do not attend minimum 75 per cent classes of theory, practical, drawing etc. separately. I am also aware that I will not be allowed to appear for the examination, if I fail to submit satisfactorily all the assignments, jobs, journals, drawings, reports as required within the stipulated period.

Course

Date:

Name & Signature of the Student

INSTITUTE OF CHEMICAL TECHNOLOGY

(UNIVERSITY UNDER SECTION 3 OF UGC ACT 1956)

MATUNGA, MUMBAI - 400 019

UNDERTAKING TO BE GIVEN BY POSTGRADUATE STUDENTS (MASTER'S AND DOCTORAL)

1. I, the undersigned, understand that confirmation of my admission is subject to passing the qualifying examination i.e. _____ with at least ___% (___ CGPA) of the aggregate marks and hence my admission will be effective only when I submit the proof to that effect. If I fail to produce the result of the qualifying examination before the end of first semester for any reasons, I shall be declared ineligible for the said admission and all the fees which I have paid shall be forfeited.
2. After declaration of the result of the qualifying examination, I shall obtain the Eligibility Certificate of the ICT as per the Rules. For M.Chem.Engg. M.Pharm. and M.Tech. Courses, the last date for applying for Eligibility is 31st August (every year). (For other than ICT students only)
3. **Attendance:**
 - (a) I am required to attend the research related activities from the first day of joining the institute and if I fail to do so my admission will stand cancelled.
 - (b) I shall sign regularly the muster kept in the office of respective Department / Research Supervisor.
 - (c) I shall take prior permission of my Research Supervisor for any leave in writing.
4. **Fellowship:**
 - (i) I am aware that fellowship is available only for the GATE/GPAT/NET/CSIR/DBT qualified students for master's programmes and for all Doctoral programmes.
 - (ii) I am aware that my fellowship commences from the date of confirmation of my admission or date of joining the course, whichever is later.
 - (iii) I am also aware that institute shall not be held responsible for non-receipt of the respective fellowship amount from the funding agency in time. I undertake that I shall pay all the Institute's fees, charges and deposits by the due date declared and in no case I shall give any excuse of non-receipt of the fellowship for non-payment of the same.
 - (iv) I am given to understand that the institute does not have any budgetary provision for the payment of either part of full fellowships. The Institute will disburse the fellowship when the Institute receives the same.
5. As a doctorate student, I am aware that I am required to contribute to the academic / administrative activities of the Institute as per the prescribed norms without expecting any remuneration and the continuation of my fellowship will depend on my satisfactory participation and performance in such activities. Also, I shall abide by the Safety Rules of the Institute and shall undergo required training for the purpose.

Course & Branch: _____

Mobile No.: _____

Email: _____

Date:

Name & Signature of the Student

Proforma - B

(For P1/ P2/ P3 Candidates)
(For Physically Handicapped Candidates)

CERTIFICATE

Photograph of
the candidate
showing the
Physical
disability

This is to certify that I have examined Mr./Ms _____

_____ on date _____ . He/She has

(Name of the Physical Disability)

which comes under the sub category

Blindness (P1)/ Speech & Hearing impaired (P2)/ Orthopaedic disorder(P3)

Certified that :

1. The percentage of handicap is not less than 40% and is equal to%.
2. The disability is permanent in nature.
3. The candidate is capable of carrying out all activities related to theory and practical works as applicable to degree course in Engineering/ Technology without any special concessions and exemptions.
4. This certificate is issued as per the provisions given in the Person with Disability Act, 1995 and its amendments.

This certificate is issued for the purpose of his/ her admission to first year of four years degree course in Technical education for the academic year 2014-2015.

Outward No. and Date :

Place :

(Name and Signature)
Director,
All India Institute of
Physically Handicapped, Mumbai
(Or) Dean/ Civil Surgeon of Government Hospital
(Name of the issuing Authority)

Seal of the office

Proforma - B-1

(To be issued on the printed letterhead of the concerned office)
(For Physically Handicapped Candidates)
P3 (Learning Disability) Candidates
LEARNING DISABILITY CLINIC
L.T.M.G, HOSPITAL, SION, MUMBAI 400 022

CERTIFICATE

Photograph
of the
candidate

Name : Date:
Age :
Date of Birth :
Date of Registration : L.D. No.
Father's Name :
Std. : School/ College Name:
Physical & Neurologic Assessment (Date) :
Psychological Assessment (Date) :
WISC (R) Verbal IQ :
Performance IQ :
Global IQ :
Interpretation :
Educational Assessment (Date) : WRAT: R
S
A

Certified that :

1. The percentage of handicap is not less than 40% and is equal to%.
2. The disability is permanent in nature.
3. The candidate is capable of carrying out all activities related to theory and practical works as applicable to degree course in Engineering/ Technology without any special concessions and exemptions.
4. This certificate is issued as per the provisions given in the Person with Disability Act, 1995 and its amendments.

This certificate is issued for the purpose of his/ her admission to first year of four years degree course in Technical education for the academic year 2014-2015.

Recommendations

Outward No. and Date :
Place :

(Name and Signature of Issuing authority)

Proforma- E

(Specimen Application form for Cancellation of Admission)

(To be submitted in duplicate)

Date:.....

To
The Vice Chancellor,
ICT, Mumbai

Respected Sir,

Full name of candidate:.....

Course :.....Branch:.....Date of Admission

ICT Merit Number :.....

Amount of fees paid: Rs.

Fee Receipt Number and Date:..... (Attach Photocopy)

I request you to kindly return my original documents and refund the fees paid as per the rules.

.....
Signature of candidate

For Office use only:

Full address of the candidate :

Tel./Mobile No. : _____
E mail: _____

Amount Paid, Rs.	
Amount Deducted, Rs.	
Amount Refunded, Rs.	
Cheque No. & date	
Bank particulars	

Signature of Accounts Officer

Received the following original documents from the Admission Authority, along with the cheque towards refund of fees after deductions.

1	
2	
3	
	Signature of the candidate



विद्यापीठ गीत
श्री रसायन देवीका

उद्घोष तुझा जयघोष तुझा
उत्कर्ष तुझा जल्लोष तुझा
संघर्ष नको संहार नको
संदेश तुझा उपदेश असे
रसायन देवीके श्री रसायन देवीके ॥ १ ॥

विज्ञानाची एकच भाषा
विज्ञानाच्या दाही दिशा
नकोत सीमा विज्ञानाच्या
जैव रसायन मिलना
दे ध्यास हा मतीवर्धिने
रसायन देवीके श्री रसायन देवीके ॥ २ ॥

नको प्रदुषीत भूजलवायु
विपुल अन्न अन् उदंड आयु
रोग नको अन् नको त्रुटीही
अखंड ऊर्जा निर्मळ पाणी
अक्षर हरीते जगन्नमाते
रसायन देवीके श्री रसायन देवीके ॥ ३ ॥

मूर्तीवंत तू कीर्तीरक्षिके
जगन्मान्य तू महन्मंगले
अभियंती अन् रत्नपारीखे
शतप्रणाम हो तुज नायीके
नवक्षितीजे तव चेतनाही
रसायन देवीके श्री रसायन देवीके ॥ ४ ॥

गणगणश्री तणतणश्री
जैवशिवश्री सृष्टीधारीके
रसायन देवीके श्री रसायन देवीके
वंदू गणनायीके श्री रसायन देवीके ॥ ५ ॥

कवी : प्राध्यापक डॉ. जी. डी. यादव

दिनांक २७ फेब्रुवारी २०१२ कुलगुरू, रसायन तंत्रज्ञान संस्था
(प्रथम दीक्षांत समारंभ दिनी प्रकाशित. दिनांक ६ मार्च, २०१२)

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प्रतिज्ञा

मी रसायन तंत्रज्ञान संस्थेचा पाईक आहे. तिच्या कर्तृत्वाचा आणि प्रतिष्ठेचा मला गर्व नसून यथार्थ अभिमान आहे. या संस्थेच्या दायित्वाचे ऋण फेडण्यास मी उत्सुक आहे. या ज्ञानपीठाच्या पायऱ्या चढताना मला जाणीव होते की अनेक थोर व्यक्तींच्या निःस्वार्थ सेवेतून निर्मिलेल्या परंपरेचा आणि अभिव्यक्तीचा मी एक अविभाज्य भाग आहे. इथे मी ज्ञानशोधक, ज्ञानदानी आणि ज्ञानसेवकांच्या सहवासात असेन. मी फक्त सत्य कार्यतच सहभागी राहिन आणि संस्थेची प्रतिष्ठा आणि वारसा जपण्यास सदैव जागरूक असेन. मी पूर्वग्रहदोषांचा त्याग करून नैतिक, व्यावसायिक व कायदेशीररित्या योग्य असेच कार्य करेन. मी माझ्या सहकाऱ्यांना वचन देतो आणि त्यांच्याकडूनही प्रतिज्ञा घेतो की ते सर्वजण एकात्मता, सौजन्य, सहनशीलता, आदरभाव यांचे प्रतिक राहतील आणि आपल्या संस्थेच्या ख्याती आणि प्रतिष्ठेच्या पालनासाठी सुसज्ज राहतील. आम्ही वचनबद्ध आहोत की या संस्थेची, भारत देशाची आणि मानवतेची सेवा प्रामाणिकपणे करीत राहू.

PLEDGE

I AM AN ICTian. In this, my institute, I take deep pride, but without vainglory; to it I owe solemn obligations that I am eager to fulfill. I climb these steps into a grand shrine of knowledge and portal of excellence. I am privileged to be part of a great tradition, rich culture and ethos built by selfless services of great many individuals. I take great pride in its achievements and eminence. I will be in a company of knowledge seekers, givers and servers. It will be my endeavor to protect its reputation and legacy. I will participate in none but honest enterprise. I shall shun prejudice of all kinds and perform actions that are deemed righteous morally, ethically, professionally and legally. To my fellows I pledge, in the same full measure. I ask of them, integrity and fair dealing, tolerance and respect, and devotion to the repute and the dignity of our institute; with the consciousness, always, that our special expertness carries with the obligation TO SERVE ICT, INDIA AND MANKIND WITH COMPLETE SINCERITY.

VISION



We shall perennially strive to be a vibrant institute with continuously evolving curricula to brighten the future of the chemical, biological, materials and energy industries of the nation, and rank amongst the very best in the world through active participation and scholarship of our faculty, students and alumni. We shall be creators of sprouting knowledge and design cutting-edge technologies that will have the greatest impact on society and benefit mankind at large

MISSION

We shall generate and sustain an atmosphere conducive to germinating new knowledge at every available opportunity. The education we shall impart will enable our students to devise new solutions to meet the needs of all segments of society with regard to material and energy, while protecting the environment and conserving the natural resources. Our endeavours, while extending well beyond the confines of the classroom, will aim to enhance public welfare and our attempts to dissipate knowledge will spread to a greater multi- and cross-disciplinary platform to conduct research, discovery, technology development, service to industry and entrepreneurship, in consonance with India's aspirations to be a welfare state. We will team scientists and engineers with professionals in other disciplines to arrive at better solutions. We will provide all our students with a strong foundation to encourage them to be our ambassadors in the professional activities that they choose to undertake in service of society at national and international levels. Through our vision, we will serve the profession and society and strive to reach the summit as a team, and ultimately serve as role models to the younger generation.