BARC Training School, Mumbai

DIAMOND JUBILEE

1957-2017

भाभा परमाणु अनुसंधान केंद्र

Bhabha Atomic Research Centre

मानव संसाधन विकास प्रभाग

Human Resource Development Division

March 3, 2018

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Dr. Homi Jehangir Bhabha
(30 October 1909 - 24 January 1966)

It is imperative to build up highly skilled human resources in the area of Nuclear Science and Technology to achieve self reliance in this sector. With this objective in mind, Dr. Homi Jehangir Bhabha set up the first BARC Training School in Mumbai in 1957, as a centre for in house training of professionals. It has now grown into an internationally acclaimed school of excellence with more than 9000 Scientists and Engineers graduating from its portals in 6 decades of its existence.

Mission Statement

To generate human resources in the field of nuclear science and technology by following a holistic approach of providing quality training and education using best practices prevailing in the educational sector and striving to continuously upgrade and improve the curriculum, infrastructure and training facilities.

Human Resource Development Division

Our Leaders

Dr. K.K. Damodaran
1957-1981

Dr. M.P. Navalkar
1981-1989

Dr. U.C. Mishra
1989-1993

Dr. R. Subramanian
1993-1996

Dr. H.R. Siddiqui
1996-1999

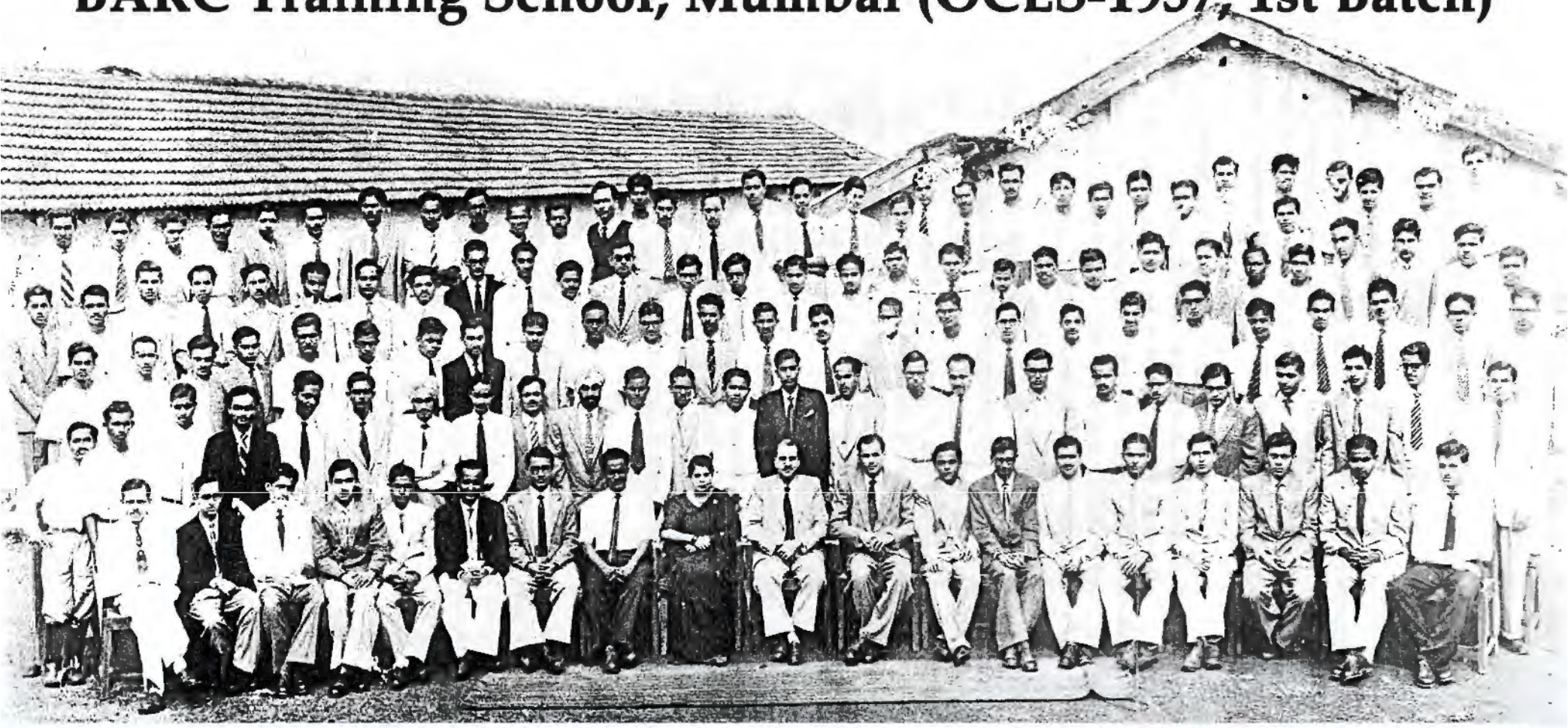
Dr. S.P. Garg
1999-2005

Dr. R. R. Puri
2005-2012

Dr. B.K. Dutta
2012-2015

Dr. A.P. Tiwari
2016 till present

BARC Training School, Mumbai (OCES-1957, 1st Batch)



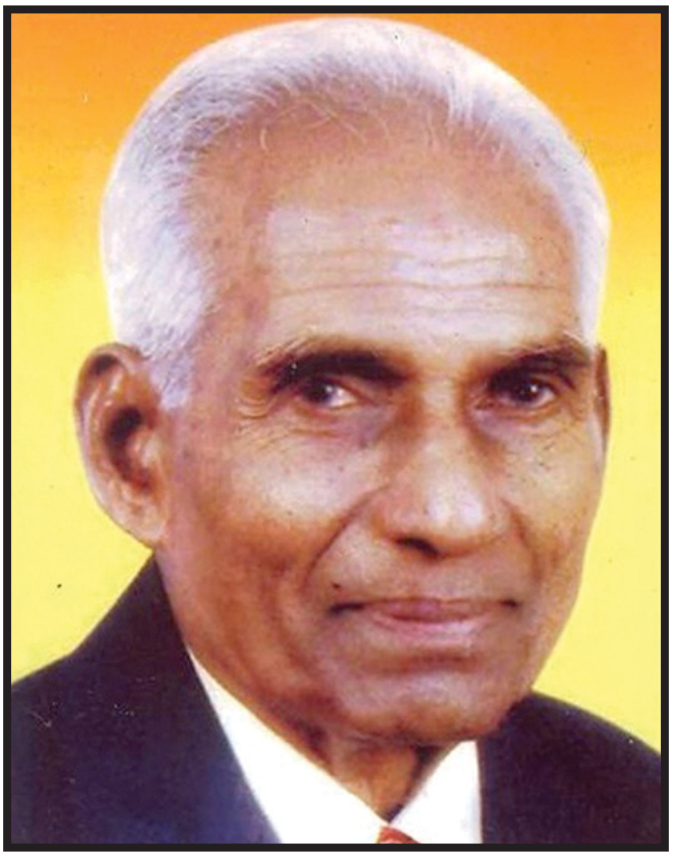
1st Row (on Chairs) from left to right: R.N. Singh, R. Krishnan, R.N. Sharma, R. Chaudhry, V.S. Gopinathan, J. N.Ray, S.D. Verma, P.K. Bhattacharya, Mrs. Ottley, Lt.Col. Ottley (Administrator), Dr.M.K. Mantri (Medical Officer), V.V.S.Mani, J.S.Dahiya, S.K. Mehta, K. Jambunathan, S. Sampat Kumar, P.D. Grover, V.V.K.Rama Rao, S.S. Murthy.

2nd Row from left to right: M.P.Paramaswaran, S.K. Das, K.S. Vishwanathan, B.N. Satyan, K.V.L. Sarma, C. Narsimhan, D.B. Singh, R.C. Bhatt, R.M. Sathe, D.S. Ahluwalia, G.R. Padmanabhan, G. Venkatraman, P. Abraham, K.S. Kameswaran, Victor Amalraj, E.V.R. Rao, S.S. Betrabet, V. Sethuraman, C.K.Kumar, L.H. Prabhu, K.K. Gupta, N. Subramanium, Y.S.R. Prasad, V.S. Srinivasan, M.C. Naik

3rd Row from left to right: P.S. Nagarajan, N. Swaminathan, N.S. Satya Murthy, V. Sundara Raman, S.K. Kandaswami, T.S.. Krishnaoorthy, P.R. Natarajan, B.A. Dasannacharya, R.S. Kumar, V.V. Rao, R.C. Desai, A.N Prasad, N. Kameshwar Rao, P.P.V.J. Nambiar, S.N. Agarwal, M.V. Srinivasa Rao, P.V. Gokhale, P. Subramanian, S.S. Jha, R. Jambunathan, M.A. Prasad, K.P. Gopinathan, A.V. Hariharan, A.D. Damodaran, Y. Subramaniyam

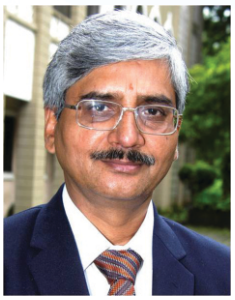
4th Row from left to right: K.R. Rao, C.V.K. Baba, D.V. Singh, K.B. Shah, R. Gopalakrishnan, N. Lingappa, S. Srikantan, R.P. Mirpuri, S. Vishwanathan, S.C. Srinivasan, T.P. Ramachandran, U.C. Mishra, J.M. Luthra, A.D. Sharma, R.K. Hukku, S.K.Roy, G. Rajasekaran, C.V. Krishnan, A.N. Singhal, Y.S. Subramanyam, V. Sitaraman, Eashwardas, S.H. Diwedar, R. Rajendran, S. Sachidanandam, R. Raghavan, R.B. Subramanium, V.V. Ratnam, M. Balakrishnan

5th Row from left to right: S.J ayabharatan, S.S. Krishnan, P. Kotrappa, S.V. Lawande, S.G. Joshi. M.R. Kurup, K.K. Sinha, K.V. Vannan, C.K. Patel, K.V. Lingam, R. Subramanian, T. Singh, Hanif (Marker), T.P. Radhakrishnan, S. Jayaraman, A. Nagarajan, R.K. Iyer, M. Srinivasan, B.K.S. Nair, M.N.N. Namboodri, K.B. Pillai, V.B. Kartha, V.K. Sunderam, C.K. Gandhi, S.R. Laxmipathi, B.V. Somayaji, R.P. Batra, K,G, Nair, G.M. Nair, K.S. Rengen, P.C. Jose, N.R. Sharma, S.V. Rangaswami



Dr. K. K. Damodaran

Dr. K. K. Damodaran, Head, BARC Training School (1957-1981), left for his heavenly abode on August 17, 2014. He is not with us anymore but his contribution towards the growth of BARC Training School as a leading institute of higher learning in the field of Nuclear Science and Technology has left a permanent legacy.



FOREWORD

India has achieved preeminence in the field of Nuclear Science, Engineering and Technology, having mastered the intricacies of reactor design, fuel fabrication, construction, commissioning, operations and maintenance of nuclear reactors, fuel recycling and management of radioactive waste. This has been largely possible due to sustained efforts of scientists and engineers who received nuclear knowledge and training through the Orientation Course for Engineering Graduates and Science Postgraduates of the Bhabha Atomic Research Centre Training School. The BARC Training School, Mumbai established by Dr. Homi Jehangir Bhabha in 1957 has completed a journey of sixty eventful and prolific years. I feel immensely happy and proud to be a graduate of this Training School. Being at the helm in this important milestone year is a privilege, which I shall remember and cherish forever.

Six decades ago, the great visionary Dr. Bhabha established the training school with the primary objective; “India will not have to depend on foreign countries for human resources in the area of nuclear energy.” The AEET (Atomic Energy Establishment Trombay) Training School started its operation at Colaba, Mumbai in 1957 and shifted to a picturesque location at South Site, Trombay in 1970,when it was renamed as the BARC Training School. Subsequently, in 2008, for the logistical conveniences required to carry out activities of an academic institution, the BARC TS was moved to Anushakti Nagar. Over the years, as the need for training in areas of accelerators, lasers, fuel fabrication, uranium exploration and mining, etc. emerged and the manpower requirements grew, it has expanded its wings and spawned new centres at Kalpakkam, Indore and Hyderabad. With the establishment of HBNI, the BARC training schools now also function as Centres of Graduate Studies in the areas of Nuclear Science and Engineering with a variety of specializations.

During training, the trainees are provided access to the state-of-the art research facilities, equipment, machinery, design and analysis tools, knowledge resources and computational facilities available at BARC, IGCAR, RRCAT, VECC and other DAE centres. While these facilities undergo continuous upgradation to keep pace with the scientific and technological advances, the class rooms and laboratories at the Training Schools are also equipped with modern amenities to provide the best opportunities for learning. Keeping pace with the current trends, e-learning opportunities have been initiated on a dedicated server at training school for the benefit of the trainees.

Graduates of the BARC Training Schools have been the most significant scientific manpower resource of the Department of Atomic Energy. They have successfully driven numerous important activities and projects and several of them have earned national and international honours. A glorious legacy has been created by them, which not only makes us feel proud, but also motivates us to put our best foot forward and match the best in the world.

Like the patit-pavani and tariniriver 'Ganga,'which flows tirelessly through the ages and has been witness to ever-changing civilizations, the BARC Training School will continue to fulfill its mandate of providing brilliant and trained scientific manpower to the Department, who shall serve the nation and humanity with devotion and dedication.

Jai Hind!

(A.P.Tiwari)

Head, Human Resource Development Division

शेखर बसु
Sekhar Basu

भारत सरकार
Government of India

अध्यक्ष, परमाणु ऊर्जा आयोग
व
सचिव, परमाणु ऊर्जा विभाग
Chairman, Atomic Energy Commission
&
Secretary, Department of Atomic Energy

MESSAGE

Nuclear technology is regarded as one of the most intricate, complex and challenging sectors to undertake and master. India has been one of the few countries in the world which has ventured into this field and achieved success, largely due the foresight and vision of the father of the Indian nuclear program, Dr. Homi Jehangir Bhabha, the brilliance, innovative zeal, and creativity of its scientists and technologists and above all, the unrelenting industriousness of the nuclear fraternity in overcoming difficulties and fulfilling objectives.

One of the singular and overwhelming reasons for this success can be undeniably ascribed to the BARC Training School and its graduates. Dr. Homi Bhabha realized at the very outset that generating trained and skillful manpower for taking forward the nuclear programme is a prime imperative. He therefore established the BARC Training School in 1957 for in house training of scientists and engineers and hired as many as 140 scientists and engineers for training in the very first batch. The method of using working scientists and engineers of BARC as adjunct faculty was another master stroke, as it facilitated a seamless transfer of knowledge from the experts to the eager learners, year after year. A chain reaction, which started in 1957, has sustained and delivered some of the most brilliant nuclear engineers and scientists to the Department over the six decades of its existence

I take this opportunity to congratulate all those involved- trainees, faculty, administrators and policy makers for this success story. With staunch governmental support, we have today embarked on an accelerated programme with a broad based vision, and this is the time for all of us to pull together as a team and thrust ahead in manner befitting our stature and commensurate with the requirements and expectations of the nation. I am confident that the Training School will continue its yeoman service, much beyond the Diamond Jubilee year, in providing trained and dedicated human resources for meeting the objectives of the Department.

Jai Hind.

Sekhar Basu

(Sekhar Basu)

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के.एन. व्यास
K.N. Vyas

सत्यमेव जयते
भारत सरकार
Government of India

निदेशक, भाभा परमाणु अनुसंधान केंद्र
Director, Bhabha Atomic Research Centre
सदस्य, परमाणु ऊर्जा आयोग
Member, Atomic Energy Commission

MESSAGE

The sixtieth anniversary is indeed an important milestone for any organisation, as it symbolises the strength, stability and endurance of an organisation to sustain and grow through cycles of changes and transitions in the associated ecosystems. In this age of rapidly changing technologies and the transformation of the world into a global village, it is important for an organisation to assimilate, adapt and reinvent itself in order to maintain excellence and remain relevant on the national and international arenas.

The BARC Training School has managed to realise these objectives and gain recognition as a leading school of nuclear science and technology. This has been achieved with a combination of hard work, dedication and commitment to excellence at every stage of its activities- ranging across all facets of recruitment and training. The completion of sixty years of continuous operation should be treated not merely as a milestone but as a celebration of the success of the model for in house training created by our visionary founder Dr. Homi Jehangir Bhabha, which has proven to be one of the strengths of this organisation. In the face of numerous challenges facing the country in the energy, health and food sectors, there is no time to pause or rest upon our laurels. We should forge ahead with renewed vigour to tackle these problems and find speedy solutions. I am sure that the alumni of this institution will continue to provide the energy, enterprise and leadership to strive and deliver their best for the organisation and the country.

I am extremely happy to note that the first batch trainees have been extended a special invitation to be amongst us to participate in the Diamond Jubilee celebrations. I extend my greetings and salutations to them and seek their blessings. Their presence and guidance will serve as an inspiration for us to scale greater heights of success and achievements. I compliment the organisers for organising this event in a manner befitting the momentous occasion and wish them all success. Congratulations and best wishes to all those associated with the activities of the BARC Training

Jai Hind!

(K.N. Vyas)

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होमी भाभा राष्ट्रीय संस्थान
HOMI BHABHA NATIONAL INSTITUTE

प्रो. पी.आर. वासुदेव राव
कुलपति
Prof. P.R. Vasudeva Rao
Vice-Chancellor

होमी भाभा राष्ट्रीय संस्थान
प्रशिक्षण विद्यालय परिसर, अणुशक्तिनगर, मुंबई-400 094, भारत

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Tel. No. 91-22-25503385 ● Fax : 91-22-25503384
● Email : vasudeva@hbni.ac.in

February 21, 2018

Message

I am very glad and proud to learn that BARC Training school has completed 60 years of continuous functioning. It is indeed a momentous milestone, indicative of the sustained emphasis which the Department has placed on development of human resources so vital for the development of nuclear science and technology, which no other country can perhaps boast of. Successive leaders of the Department have nurtured the Training School program and expanded its scope. I can vouchsafe the fact that the wholesome education and training provided to the new entrants to DAE through the Training School are key elements that provide a solid foundation for the excellent performance of the officers in their subsequent career. The bond formed between batch mates during the training period also facilitates their subsequent interactions and collaborations. I joined DAE through the 16th batch of the Training school, and I still have fond memories of the period of training. Over 60 years, a large number of colleagues in DAE have put in committed efforts to keep the school going, and this is a time to convey our gratitude to them for their efforts.

(P.R. Vasudeva Rao)

प्रो. बिजन कु. दत्ता
डीन
Prof. Bijan K. Dutta
Dean

होमी भाभा राष्ट्रीय संस्थान
प्रशिक्षण विद्यालय परिसर, अणुशक्तिनगर, मुंबई-400 094, भारत

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Training School Complex, Anushaktinagar, Mumbai – 400 094, India
Tel. No. 91-22-25597640 ● Fax : 91-22-25503384 ● Mob. : 9757000363
Email : bkdutta@hbni.ac.in ● bkdutta@barc.gov.in

MESSAGE

Diamonds are forever! That is an adage we are all familiar with. Diamonds may be forever but a Diamond Jubilee year comes only once in the lifetime of an Institute. It is heartening to note that BARC Training School has completed sixty years of continuous functioning and is celebrating its Diamond Jubilee year. The BARC Training School has been at the hub of all training and academic activities of the Department of Atomic Energy for the last six decades. It is recognised as one of the most successful training programs in independent India and this is a matter of honour and pride for more than 9000 alumni who have graduated from this prestigious institute. With the establishment of the Homi Bhabha National Institute (HBNI), these activities have received a further fillip and visibility not only in the Department but also in the wider academic community. Graduates of the BARC Training School become eligible to obtain a higher degree from HBNI on completion of Project/Thesis work and this mechanism has already been in operation over last twelve years, generating a large number of post- graduates and doctorate students. This linkage of the training programme and academic activities has been paying rich dividends in terms of generating research output directly relevant to ongoing developmental activities of the Department. This unique model of higher education involving the blending of training and academic activities conceptualised and successfully implemented by the DAE management has received high praise amongst the academic fraternity. Congratulations to the BARC Training School in its Diamond Jubilee year. May it continue to shine brightly for the next generation and beyond. Congratulations also to all those who have been instrumental in sustaining the activity and propelling it to the heights of achievements.

BKDutta

(B.K.Dutta)
Dean, HBNI& Former Head, HRDD

Government of India
Bhabha Atomic Research Centre
Reactor Design and Development Group (RDDG)

Dr. D. N. Badodkar,
Director, RDDG
Chairman, BARC Training School Apex Committee

MESSAGE

The specialized training and knowledge transmission in the field of Nuclear Science and Engineering to the sixty consecutive generations of a selected group of people is a remarkable milestone. The learning in the training school has stimulated the youth of the country in taking up highly challenging areas of research and development. The intellectual capital that the BARC training school has created is one of the most valuable national asset and pride of the country. I am proud to have been a part of this school as a trainee and still cherish the one year long training period.

Congratulations to the faculty and the staff on the occasion of diamond jubilee celebrations of the BARC training school.

I wish BARC training school continued success in the years ahead.

(D. N. Badodkar)

Profile of Chief Guest- Dr. R. Chidambaram

Dr. Rajagopala Chidambaram became the Director of The Bhabha Atomic Research Centre (BARC) in 1990. He was Chairman, Atomic Energy Commission, from 1993 to 2000. He is currently the Principal Scientific Adviser to the Govt. Of India and the Chairman of the Scientific Advisory Committee to the Cabinet. Dr. Chidambaram is one of India's distinguished experimental physicists. Dr. Chidambaram played a leading role in the design and execution of the Peaceful Nuclear Explosion experiment at Pokhran in 1974 and also led the DAE team which designed the nuclear devices and carried out the Pokhran tests in May 1998 in cooperation with the DRDO. He has made important contributions to many aspects of our nuclear technology. He has D.Sc Degrees from more than twenty five Universities from India and abroad. He has more than 200 research publications in refereed journals and all his research work has been in India.

He was Chairman of the Board of Governors of the IAEA during 1994-95. During 1990-99, he was a member of the Executive Committee of the International Union of Crystallography, the last three years as its Vice-President. He is Chairman of the High-Level Committee for the National Knowledge Network. Dr. Chidambaram is a Fellow of all the major Science Academies in India and also of the 'National Academy of Engineering' and 'The World Academy of Sciences Trieste (Italy)'.

He has received many awards and honours, notable among them are the C.V. Raman Birth Centenary Award of the Indian Science Congress Association in 1995, the Distinguished Materials Scientists of the Year Award of the Material Research Society of India (MRSI) in 1996, R.D. Birla Award of the Indian Physics Association in 1996, Homi Bhabha Lifetime Achievement Award of the Indian Nuclear Society(2006), The Lifetime Achievement Award of the Indian National Academy of Engineering (2009) and the C.V. Raman Medal of the Indian National Science Academy (2013). Lifetime Achievement Award of A.P. Akademi of Sciences (2014), Lifetime Achievement Award of the Council of Power Utilites(2014). Dr. Chidambaram was awarded the Padma Vibhushan, the second highest civilian award in India, in 1999.

His initiatives as Principal Scientific Adviser to Government of India, include the setting up of the Core Advisory Groups for R&D in various technology sectors(Automotive Machine Tools and Electronics Hardware), the creation of RUTAGS (Rural Technology Action Groups) centered in 7 IITs, the establishment of SETS (Society for Electronic Transactions and Security), helping nucleate the Centres of Excellence in Nanoelectronics, the National Knowledge Network and initiating recently an R&D programme on the design of the Advanced Ultra Supercritical Thermal Plant, through a consortium of IGCAR, BHEL and NTPC.

भापअ केंद्र प्रशिक्षण विद्यालय

राष्ट्र का गौरव, देश का मान, परमाणु शक्ति सज्जित अभिमान,
बार्क प्रशिक्षण विद्यालय है, स्रोत विपुल नाभिकीय ज्ञान.

गिरि पयोधि मध्य सुशोभित, प्रकृति छटा कण–कण अभिराम,
सन सत्तावन जन्म लिया, सिरमौर बना चल कर अविराम.
विस्तार हुआ गतिविधियों का, विश्वविद्यालय है नयी पहचान
परमाणु शोध की सभी विधाएं, उन्नत हुआ नाभिक विज्ञान,

राष्ट्र का गौरव, देश का मान, परमाणु शक्ति सज्जित अभिमान,
बार्क प्रशिक्षण विद्यालय है, स्रोत विपुल नाभिकीय ज्ञान.

परमाणु विज्ञान के हर क्षेत्र में, अविरल बहती ज्ञान की धारा,
नाभिकीय प्रौद्योगिकी क्षमता में, सानी नही है कोई हमारा.
कृषि, चिकित्सा, उद्योग, ऊर्जा, विकिरण का अमूल्य योगदान,
है सर्वोपरि मानव कल्याण, विश्व गा रहा गौरव गान.

राष्ट्र का गौरव, देश का मान, परमाणु शक्ति सज्जित अभिमान,
बार्क प्रशिक्षण विद्यालय है, स्रोत विपुल नाभिकीय ज्ञान.

अदृश किरणों से नित काम, साधें विविध विज्ञान–आयाम,
खाद्य सुरक्षा, उत्परिवर्तन, अणु - मार्कर का तीर्थ धाम,
वृहत विज्ञान, त्वरक, टोकामक, लेजर, प्लाज्मा, जैव विज्ञान,
नैनो पदार्थ, खगोल भौतिकी, उपलब्ध सभी में अनुसंधान.

राष्ट्र का गौरव, देश का मान, परमाणु शक्ति सज्जित अभिमान,
बार्क प्रशिक्षण विद्यालय है, स्रोत विपुल नाभिकीय ज्ञान.

बार्क प्रशिक्षण विद्यालय का, हीरक जयंती वर्ष है आया,
परमाणु विज्ञान के हर क्षेत्र में, परचम ऊँचा फहराया.
विशेषज्ञों की भरमार यहां, बहु-विषयक पर अनुसंधान,
सदा रहें आगे प्रगति पथ, स्थापित करें नवीन प्रतिमान.

राष्ट्र का गौरव, देश का मान, परमाणु शक्ति सज्जित अभिमान,
बार्क प्रशिक्षण विद्यालय है, स्रोत विपुल नाभिकीय ज्ञान.

कुलवंत सिंह
पदार्थ विज्ञान प्रभाग, भा.प.अ.केंद्र

Reminiscences & Impressions

My Years in Training School – Some Reminiscences

U.C.Mishra (1st Batch) Head, BARC Training School (1989-1993)

I am fortunate to have joined the of Atomic Energy Establishment Trombay Training School (now called BARC Training School)at the very inception as a first batch Physics Trainee along with 53 other Physics, 38 Chemistry, 10 Electrical, 23 Chemical and 16 Mechanical Engineering trainees on August 17, 1957. These were the heady days of the nuclear and reactor physics era, when breaking of the atom and harnessing its power for energy production was considered as a frontier areas of science and technology endeavours worldwide. Appropriately so, the Physics trainees were trained at TIFR, an institute established about a decade ago with a galaxy of physicists working at some cutting-edge research areas. This was an ideal ground to learn and imbibe from some learned and accomplished scientists and it served as a hugely influential experience for all of us. The trainees were scattered at different venues, with the chemistry trainees receiving training at Bombay Dyeing compound at Prabhadevi (where Chemistry Division existed), whilst the engineering trainees were sent to I.I.Sc. Bangalore for a period of 6 months- 2 years, as there was no facility for their training at Mumbai. This meant that we did not stay and learn under one roof and therefore we could not get the opportunity to build camaraderie to the same extent as it happened with the subsequent batches.

We were put up at Bandstand, Bandra and commuted to TIFR, Colaba daily. We had joined in the middle of the monsoon season and travelling in heavy monsoon rains on a daily basis was a nightmarish, experience-taking a bus from Band Stand for Bandra Station, a train from Bandra station to Churchgate and then walking down to Flora Fountain to catch TIFR bus, very often in pouring rain. And then the same reverse journey in the evening. However, as the TIFR building was still under construction, lectures were few and even more importantly - there were no examinations! When not engaged, a visit to the nearby the Eros cinema at Churchgate for the 1 p.m. show with Rs. 1/- student concession ticket was an attractive option. We had no experiments, no project work in any Division, no trips to other DAE centres and no exams till December end. We did not have any book allowance either. It was fun.

But staying in the dilapidated leaking Navy sheds at Band Stand in August-September was no fun, in fact another nightmare. When it rained at night, we had to remain awake shifting the cot all over the shed looking for a place where the water dripping from the roof was minimal. This was probably offset by the many pleasant evenings which were spent on the beach watching young couples on the rocks. However, at nights, with no entertainment and far away from homes, it did often get lonesome. In fact, two of my Physics batch-mates from Lucknow University found the going so tough that they resigned and left for their homes within a month. A retired Navy Commander served as our Administrator and was rather particular about how we eat with knives and forks and how we were dressed when going to Dining Hall. Aspects concerning our training were anyway outside his purview.

We had a somewhat peculiar situation in the batch. There were two types of Physics and Chemistry Trainees, with the trainees with B. Sc. Degrees being paid a stipend of Rs. 250 p.m. and those with M. Sc. Degree being paid Rs. 300 p.m. for the same work. There were five disciplines viz. Physics, Chemistry, Mechanical Engineers, Electrical Engineers and Chemical Engineers. Some Chemical Engineers were trained to become Metallurgists!

Though our teachers were very senior scientists from BARC and TIFR including their Directors, not all were good teachers. There was no predefined syllabus and therefore the lectures were rather freewheeling. We had no idea as to what should be taught and whether it was adequately covered by the lecturers. I can say that along with the trainees, it was also a learning exercise for faculty and administrators as well. In any case, it really did not matter as there were no tests till December.

The problems started when we were told in January 1958 that we would have to take tests every week and our placement would depend upon marks secured in these tests. We initially got the impression that qualifying marks would suffice. However, it turned out that grades and salary was decided on the basis of marks. For example, in Physics, those securing > 60% marks were appointed as JSOs, those securing marks between 50-60% were appointed as RAs and those securing<50% were given the option to being absorbed as JSA or opt out completely. The criteria set for engineers were different. Many of these decisions were taken subsequent to our joining and left us with some feeling of unhappiness. However, a job in Atomic Energy Department and the opportunity of working in this exciting new field was too great a prospect and most of us stoically accepted the situation without a murmur. Much of the procedures were streamlined by virtue of the experiences of the first batch and things were pretty smooth from the second batch onwards. it was certainly a very tough time and a huge learning experience for many of us coming from small and remote places. Many were not fluent speakers of English or the local language which added to the woes. However, at the end of the period, everyone got busy with their jobs after completion of the training and these difficulties were soon forgotten, leaving us with the pleasant memories of the good times we had.

I was assigned to the Air Monitoring Division on completion of the training. This was a part of Electronics Group (comprising of Air Monitoring Division, Health Physics Instrumentation Division and Electronics Division) and was doing fairly well as a professional, having learnt the intricacies and being able to contribute constructively to the programme. In 1989, while I was the Head, Environmental Assessment Section in Health, Safety and Environment Group, Director, BARC offered me the responsibility of Head, Training Division in order to carry out reforms and modifications to the TS Programme and for improving the grooming of the trainees.

Having been quite successful and well settled in my current assignment, I was initially reluctant to make this change as I wished to continue my R&D work in aspects relating to environmental monitoring and assessment, which was an important field of work in the national as well as global arena. However, Director BARC convinced me to take up this assignment as a short-term measure and assured me that I would be able to get back to my core competency and area of research interest once the Training Division assignments were satisfactorily completed. Of course, it was also an honour to head the very institute from which I had graduated from the inaugural batch. As an Environmental Scientist, I soon realised that this kind of human recycling as a management technique has intrinsic value since it adds a new dimension and perspective to one's experiences. I was successful in initiating various measures to further streamline the recruitment and administrative

mechanism and adapt the curriculum to the current scenario in the nuclear sector. I served as Head Training Division from 1989-93 and some of the measures implemented during my tenure are mentioned in the following paragraphs.

As a first step, it was decided to shorten and streamline the selection process. The selection of candidates was carried out by a technical interview of all those who applied for the job. However, this was rather tedious and time consuming and a lot of valuable time was wasted in carrying out the exercise as thousands of candidates had to be interviewed. It was then decided to conduct a written test as a pre-screening mechanism and interview only shortlisted candidates. A question bank was created and random selection of question paper was done on the day of test. This was tried at Mumbai for2 year and was extended to many Centres in the country thereafter.

It was also felt that engineering post graduates with more specialised expertise inducted into BARC would serve the department better if a short orientation course was undertaken by them on completion of the post graduation. The course known as OCEP (Orientation Course for Post Graduates) was designed and commenced during my tenure.

In view of the increasing requirement of Civil Engineers in various projects, the OCES course for civil engineers was re-started and expert faculty was invited from various other institutes such as VJTI as well to provide a holistic training.

Major renovations were carried out on the Multi Purpose Hall during my tenure, to bring it up to the mark and fit for use for important conferences and events held throughout the year. I was personally involved in acoustic design as well as the selection, procurement and installation of the audio-visual systems, air-conditioning and new furniture to improve the aesthetics, functionality and décor of MPH. It was converted into a prime facility widely used to this day.

In order to cater to the large number of foreign scientists, flat-lets were upgraded with modern amenities such as a kitchen, refrigerator, television, sofa sets etc. This ensured that the expenses incurred of accommodating these scientists in expensive hotels was curtailed and they could also comfortably stay close to the campus without undergoing the hassle of commuting everyday.

I would like to end by stating that it was a very busy and exciting period for me. I gave my best and also learnt a lot about conducting academic activities and managing students. As promised, I was relocated in 1993 as Director, Health, Safety & Environment Group after carrying out most of the mandates assigned to me. On reflection, I realise that it was a unique honour for me of being the first instance of a graduate of the Training School going on to head the Training Division. Subsequently of course, this trend continued with all subsequent Heads being graduates of the BARC training School. I shall always cherish this association as an important chapter in the story of my life.

From Training School to Homi Bhabha National Institute

R B Grover (14th Batch)
DAE Homi Bhabha Chair, and Member, Atomic Energy Commission

Prologue

I joined Training School in August 1970 after graduating from Delhi College of Engineering, Delhi University. Now in 2018, I still have my office in the Training School Complex. My relationship with the Training School has been long as well as very pleasant. I studied and taught in the School, I interviewed candidates for admission to the School, and as Director, Knowledge Management Group, BARC, I oversaw the activities of the School. And in the present century, I was involved insetting up Homi Bhabha National Institute (HBNI), which has converted the non-formal programme[1] at the Training School into an accredited academic programme.

Setting up HBNI[2]

All DAE institutions have been running academic programmes, particularly doctoral programmes, since their inception. For the award of academic degrees, they were affiliated to various universities in the country, an arrangement not considered satisfactory. Doctoral research has twin objectives: training a student in doing research, and doing research. Doctoral thesis documents four man-years of research by a bright young graduate student. Thus, by dividing the problems related to the mission of the Department into topics for doctoral research, the Department can benefit a lot. This motivated the Department to set up a university that can help in the growth of doctoral research, provide for joint guidance of students from within and across DAE institutions, and improve training of the student and the quality of doctoral research. In addition, Tata Memorial Centre (TMC) was running post-graduate programmes in medicine, but the scope (spread in terms of specialization, as well as number of students admitted) of the programme was much narrower than the potential of TMC and its expansion was overdue.

Based on an application by the Department, a notification declaring HBNI as a deemed to be university along with ten constituent units was issued by the Ministry of Human Resource Development (MHRD) on June 3, 2005.The following ten institutions were originally included as Constituent Units of HBNI.

Research and Development Centres

a. Bhabha Atomic Research Centre (BARC), Mumbai;

b. Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam;

c. Raja Ramanna Centre for Advanced Technology (RRCAT), Indore;

d. Variable Energy Cyclotron Centre (VECC), Kolkata;

Grant-in Aid Institutions

e. Saha Institute of Nuclear Physics (SINP), Kolkata;

f. Institute for Plasma Research (IPR), Gandhinagar;

g. Institute of Physics (IoP), Bhubaneswar;

h. Harish-Chandra Research Institute (HRI), Allahabad;

i. Tata Memorial Centre (TMC), Mumbai; and

j. The Institute of Mathematical Science (IMSc.), Chennai

National Institute of Science Education and Research (NISER), Bhubaneswar was set up later and the MHRD notified NISER as an off-campus centre of HBNI in February 2016. HBNI now has 11 Constituent[3] Institutions (CIs): ten constituent units and one off-campus centre.

Over the years, the academic rigour of the programme at the Training School at BARC and similar Training Schools at IGCAR and RRCAT has been strengthened and the programme is now equivalent to the course work for a M.Tech., or M.Phil. Essentially, the Training School is now functioning like a Graduate School of any university and in addition to trainee officers, doctoral students also pursue course work in the School.

Assessment of HBNI by various agencies

In India, the National Assessment and Accreditation Council (NAAC) is the agency for quantitative assessment of universities and institutes. The process of accreditation by NAAC involves submitting a letter of intent, preparing a self-study report in a prescribed format, visit by a peer team for personal interaction and accreditation by the NAAC after the report of the peer team is accepted by the NAAC. The preparation of the self-study report for HBNI was an enriching experience and helped our understanding of running a university. NAAC accredited HBNI with a CGPA of 3.53 on a four-point scale valid until 10 May 2020.

Based on criteria to be satisfied by any university, the MHRD has categorized deemed universities as 'A', 'B' or 'C'. HBNI was placed in the category 'A' in October 2012, which meant that HBNI satisfies 'most of the criteria for the deemed university status'.

The National Institutional Ranking Framework (NIRF) was launched by the MHRD in September 2015. The framework ranks institutions based on a set of parameters covering "Teaching, Learning and Resources," "Research and Professional Practices," "Graduation Outcomes," "Outreach and Inclusivity," and "Perception". HBNI was ranked 21 in the India Rankings – 2017 in the category of universities. Ranking could have been better, but for the fact that only those publications were considered as that of HBNI, where authors explicitly indicated that their Institution is a part of the HBNI.

Ideas about universities and an examination of HBNI

Evolution of ideas

Human civilization has come to the present stage of sophistication because of wisdom that has accumulated over centuries and has been transferred to us through successive generations. The mechanisms of inter generational knowledge transfer include transfer within a family unit, a community, a trade guild, internship in a workplace, and institutes of education. Universities and other institutions of higher education have been the centres for inter generational knowledge transfer for the past several centuries and have been accomplishing their task efficiently. The idea of a university has, however, been continuously evolving.

John Henry Newman[4] opined that an ideal university is a community of thinkers, engaging in intellectual pursuits not for any external purpose, but as an end in itself. He envisaged an ideal university to be a place which imparts a broad, liberal education and teaches students to think, to reason, to compare, to discriminate, and to analyse. Problem with ideas that stress only on intrinsic value is their sheer anti-utilitarianism. These ideas are now going through evolution as can be seen by the Bologna Process[5], which has resulted in specifying outcomes of a learning programme in three categories: knowledge (facts, principles, theories and practices); skills (cognitive and practical); and competence (ability to use knowledge, skills, and personal, social and/ or methodological abilities) in terms of responsibility and autonomy.

Japanese Society for Historical Studies on Higher Education organised a conference in 2005 and the main theme of the conference was "The Idea of a University in Historical Perspective." Educationists from Germany, Britain, USA and Japan participated in the conference. In the concluding remarks[6], Karoru Narisada writes that throughout the long history of the university, the process of adopting to the circumstances of each country, and fulfilling various functions has led to the co-existence of several "ideas of a university." There can be several ideas of a university in a single institution, and this difference needs to be celebrated.

Importance must be given to all three outcomes of learning that is knowledge, skills and competence, and relative importance to the three outcomes can vary from discipline to discipline and from student to student. Concentration on intrinsic values to the exclusion of extrinsic values is not conducive to further development of the modern society, where technology rules every aspect of life. While majority of beneficiaries of higher education will contribute to society based on the skills and competence they acquire at the university, some individuals will develop strong intrinsic insights into knowledge and will address higher needs of the society. One should, therefore, have a variety of institutions of higher learning with varying emphasis on intrinsic and extrinsic values. In short, we must celebrate the co-existence of several ideas of a university.

An examination of HBNI

We may examine the concept behind HBNI in the light of several ideas of a university that have been in existence. Many workplaces including large corporations, research centres, other organizations, both national and international have come on the scene comparatively recently, and have emerged as users of knowledge and skills as well as contributors to knowledge generation and skill development. Workplaces are store-houses of knowledge that needs to be preserved and transferred. The classical approach separates workplaces, making use of knowledge and skills, from universities, which transfer knowledge and impart skills, to students. This separation is, however, not universal. In the field of medicine, schools and hospitals are integrated into a single institution or are co-located. Medical professionals teach students as well as practice their profession. The author has always wondered as to why this model has not been extended to other disciplines. Educationists always refer to the unity of "education and research" and the author feels that this should be changed to "unity of education, practice and research" and in view of squeeze on funding, a research university or institute must prioritize research leading to deployment in foreseeable future or immediate problem solving.

Nuclear science and engineering is a multi-disciplinary subject and requires a large faculty resource. Challenged by this requirement, programmes in nuclear science and engineering in institutions in India are at sub-critical level. This situation has persisted for a long time. Squeeze in public funding for higher education has led to concepts like cooperation and partnership between universities and workplaces. The model of HBNI takes this forward by integrating a 'workplace' and a 'university' in a single entity. It is a step in the process of further evolution of the 'idea of a university'.

Research centres of the DAE are organized in divisions to accomplish assigned tasks and a division has individuals specializing in different disciplines to work towards a mission. A university in India invariably has discipline-specific Boards of Studies. Discipline-specific boards are perhaps desirable for under-graduate studies, but their usefulness for doctoral research is questionable particularly for a multi-disciplinary field like nuclear science and engineering. To meet the requirements of regulations, discipline-specific Boards of Studies have been constituted in HBNI, but the existing concept of divisions at the R&D centres has not been disturbed. This ensures continuation of the DAE culture of working in inter-disciplinary teams. It also fits with the

viewpoint that "we should have deep and sustained communication between scientists and engineers, between theorists and practitioners".[7]

Integrative research culture that is emerging to respond to present day global challenges (energy, environment and water) makes the author a believer in inter linkage between the "creation of new knowledge" and the "accumulation and creation of knowledge that results in a new tool". Department of Atomic Energy is a mission oriented agency and is engaged in research on topics related to its mandate. Therefore, faculty in HBNI encourages students to work on multi-disciplinary problems that are related to its mandate such that results of research can provide inputs for the projects being pursued or to be taken up by the Department. This approach echoes the inter linkage being highlighted in science policy debates.

Consolidation

Integration of constituent institutions

Bringing synergy between various DAE institutions was one of the goals of setting up of HBNI. After due reflection, we came up with the idea of having one or more deans in a CI to manage academic affairs of the CI. This helped in distributing responsibility of running academic programmes and involved CIs in decision making. A Standing Committee of Deans was constituted which has been meeting about four times a year. Several responsibilities are delegated to Deans and this has given them a say in governance and resulted in a feeling of ownership of the university. This facilitated the running of the university and brought all CIs together.

More than one thousand students have completed doctoral research, and so is the number of students who have completed M.Tech. Annual output of doctoral students is now around 200. Number of students admitted to post-graduate and super-specialty programmes in Tata Memorial Centre has increased from about ten per year prior to the setting up of HBNI to 112 now. Diploma in Nuclear Medicine at BARC has been converted to an MD programme. New academic programmes have been started at TMC and in about a decade, NISER has come up as an institute par excellence.

Establishing a university culture

During more than twelve years of its existence, following an approach based on prudent gradualism, the HBNI has established itself as a leading research university. Prudent gradualism had to be followed on two fronts. In interaction with outside academics and officials from accrediting agencies, one had to explain the unique architecture of HBNI as a further evolution of the idea of a university. In dealing with stakeholders inside the HBNI, one had to work to superimpose a 'university culture' over the existing culture and this involved several facets: one was to explain to practicing professionals their role and responsibilities as faculty towards students; the other was to explain the difference between doctoral research that has to be completed by a student in a certain time frame versus working on large research problems which may be done by individuals or team of researchers over a longer time period. Now we have reached a situation where the university culture is understood and integrated with the existing culture.

Epilogue

In the beginning, running of HBNI was like conducting an 'orchestra of soloists'. Normally in an orchestra, all musicians practice together and are well integrated in every way. Once in a while, a conductor is called upon to conduct an orchestra of soloists, who are accomplished musicians in their own right. This becomes very

challenging for the conductor. Deliberations by the Standing Committee of Deans moderated the challenge as it became a forum for free exchange of ideas and helped in building synergy.

HBNI is functioning well and is nurturing an integrative research culture. In coming years, one can expect it to be recognized as one of the top research universities at the global level.

References:

[1]Learning can be formal, non-formal or informal. Learning provided by an accredited educational institution and leading to certification is formal. Formal learning is intentional from the perspective of a learner and is structured. Learning from daily life activities related to work, family or leisure of an individual is informal. Non-formal learning is not provided by an accredited institution and doesn't lead to certification. It is, however, structured and from learner's perspective, it is also intentional.

[2]This article is based on an article written by me for the Indian National Academy of Engineering and available at https://www.dropbox.com/sh/3uwqetea7xuwzd0/1dEIsyXF9_?preview=Nov+2017+Setting+up+of+Homi+Bhabha+National+Institute+by+Dr+RB+grover.pdf.

[3]Being a constituent of a university implies being a part or a department of the university. It is different from being an affiliated institution.

[4]John Henry Newman delivered a series of lectures in 1852 in Dublin reflecting on the university's purpose. The lectures were published as a book titled 'The Idea of a University' in the same year.

[5]The Bologna Process is a series of ministerial meetings and agreements between European countries designed to ensure comparability in the standards and quality of higher education qualifications.

[6]N. Kaoru, "The Co-existence of Several Ideas of a University", in The Idea of a University in Historical Perspective: Germany, Britain and Japan, edited by K. Sneba, Y. Yasuhara and T. Hata, (Reviews in Higher Education 84), Research Institute for Higher Education, Hiroshima University, 2005, pp 79-84.

[7]Venkatesh Narayanamurti, Talu Odumosu and Lee Vinsel, "RIP: The Basic/ Applied Research Dichotomy," Issues in Science and Technology, 29, no. 2, (Winter, 2013). Authors have expanded their ideas in a book titled

My Training School Years- Some Reminiscences and Observations

Dr. S.P.Garg (10th Batch)

Former Head, BARC Training School (1999-2005)

I am happy to note that the BARC Training School is celebrating its Diamond Jubilee. I was associated with the BARC TS from my first day in DAE till my retirement as a trainee, a lecturer and as Head Master of TS. I welcome this opportunity to share some of my experiences.

BARC TS selection interview (10th Batch) was a wonderful experience. The interview aimed at testing the basics in the subject and I enjoyed it thoroughly. Perhaps I was lucky, as I was already a recipient of the DAE scholarship during my post graduation at Allahabad University and perhaps this helped to some extent in my selection.

I hailed from a poor family in UP and was suddenly transported to the glitz and glamour of Bandstand, Bandra. First view of lovers' dens at the beach left me and most of my batch mates goggling with wonder and amazement. While the stay was heavenly, the daily commute was tiresome, from Bandstand to Bandra to Marine Lines to Cadell Road and back to Bandra with numerous stops and waits in long queues. The course work was tough. My favourite subject was thermodynamics. Fortunately, most of my batch mates were not comfortable with the subject. I somehow managed to top the class. I could exercise preference as a topper and got placement at the Metallurgy Division under Shri C V Sndaram (our thermodynamic lecturer) who asked me to lead a group to initiate basic research in the field of High Temperature thermodynamics. I recall that when my first paper was accepted for publication in Metallurgical Transactions, Shri Sundaram was extremely happy and introduced me to many seniors and Dr Braham Prakash.

I was especially fortunate to get an opportunity to work on a challenging problem on FBTR mixed carbide fuel to establish its fuel worthiness with the help of Dr. Sood of Radiochemistry Division. The work led to the unequivocal conclusion that the fuel was of excellent quality in terms of various parameters. The subsequent performance of the fuel has vindicated our position and it has in fact achieved unprecedented records over the years in terms of burn up. This work earned me considerable accolades and recognition from the highest quarters.

I was also a regular lecturer at Training School for almost 33 years and equally enjoyed teaching, as it added a new dimension to the learning process. I did not believe in learning by rote and all my examinations used to be open book examinations, where I tried to test the basic understanding and its application to problem solving.

In 1999, I was asked to take up the responsibility as Head, Training School. I was rather reluctant, in fact dismayed, for my heart lay in carrying out research work. I was also being advised by many of my well-wishers to decline the assignment in the long-term interest of my career. However, the then Director, Dr. Anil Kakodkar convinced me that this was an important assignment as he wanted to bring changes necessary to give the training school courses an academic flavour. He also offered to provide whole hearted support to any initiatives, changes and improvements I might decide to undertake over the period of my tenure.

Dr. Rajan Patel (20th Batch; from Chemistry Division) had also joined Training School to work with me. We both observed the happenings for one year without making any changes to understand the system. I soon discovered that the selection schedules were rather improperly timed, probably leading to a considerably lower number of applicants. Picking a good crop of science and engineering students was central to improving standards further. With the active support of Dr Kakodkar and Shri A K Anand, we decided to reschedule the selection calendar, moving the Advertisement from March to December and the Written Test from April to February. This removed two bottlenecks- clash of the written exam with the college examinations and availability of sufficient time for shortlisted candidates to make travel reservations to appear for the interview in May at Mumbai. This resulted in an eight-fold jump in the number of applications and after that there was no looking back. Subsequently, GATE was also introduced as an alternative route for screening of applicants, which further swelled the numbers.

During my tenure, I was pleased to note that that the trainees selected were of uniformly high standards. They came from all parts of the country, a large number being from the less developed states. However, they were as good as the best, firmly convincing me that there is a vast talent pool in the country, not only in IITs but from various other universities dotted round the country. This talent if tapped and properly trained can yield a goldmine of human resources to the country. For example, the top 20% of GATE scorers hailed from such universities and can be a match for the best of the lot. I particularly remember a case where a simpleton from one such university answered a question so brilliantly with some out of the box thinking that a person of no less a stature than Dr. R.K.Sinha told me that the student should be awarded bonus marks for his superb thinking skills. Of course there were also trainees who tried to play the system and take undue advantage at times. We had our methods of sorting out such trainees. I particularly remember a case where a trainee falsely announced illness in the family and vanished for a week. A quick call to his home town and the truth was out much to his embarrassment. There were numerous such experiences and episodes to keep us on our toes and every day was a new day.

The syllabus was completely revamped during my tenure and documented under the guidance of various engineering and science committees. In my view, this syllabus is one of the best for post-graduate studies. A scheme for the induction of MTech's from various IITs, known as the DAE Graduate Fellowship Scheme (DGFS), was launched to provide linkage between BARC and IITs'. Acronyms such as OCES, DGFS, TSO etc. were coined to ensure uniformity in documentation. Several other steps such as dis-incentivising absence from lectures, promoting extra curricular activities and improvement in infrastructure and facilities were also undertaken during this period.

People have often asked me about the reasons for the strength and sustenance of this institution and its continuing success story. To my mind, the quality of faculty, the high student to teacher ratio and a very robust and fool proof selection process are the cornerstones of its success. Much of the training and teaching is imparted by practicing scientists and technologists, who act as adjunct faculty. The seamless method of knowledge transfer ensures continuity, preservation of the knowledge pool and its consolidation year after year. This model of a training centre within a research institute has few parallels and has been one of the greatest strengths of the organisation.

Contributions of the Training School graduates have been the main factor in DAE's excellent performance till date. However, I also believe that we should continue to excel in research work with equal vigour, as it contributes immensely in enhancing the reputation of an organisation and putting it on the world stage as an institution of higher learning and research acumen.

I take this opportunity to complement and thank all those associated with this activity specially thousands of TS lecturers during the last 60 years.

Reminiscences of my Golden Days

R.R.Puri (17th Batch)

Former Head, BARC Training School (2005-2012)

I can still see myself climbing up the steep slope next to the south gate of BARC on a cloudy day in July 1973. That walk to the Training School to appear for the interview for admission turned out to be the beginning of an everlasting romance with the place I was visiting.Its idea, and its ideals placed it on the high pedestal-aptly symbolized by its elevated location on a hillock. After receiving the letter informing me of my selection, on August 15, 1973, I moved into Vrindavan building, one of the two-bedroom flats in Anushaktinagar then serving as the hostel. I was allotted the kitchen serving as a room. I became proud bearer of the tag of the Trainee of the 17th batch, a batch-tag which becomes the identity of every Trainee. All through one's career, this identity in fact remains the primary label, with the others arising from working in a particular Unit, Group, Division, and Section bearing only secondary importance in the mind of the trainees. I was born and brought up in Mumbai (then Bombay) and lived in the part of the city not far from Anushaktinagar. However, my knowledge of BARC till then was limited to the sight of grey BARC staff buses which I used to see on the roads of King's Circle, the area near which I resided at that time.

After graduation, I joined the erstwhile Theoretical Reactor Physics Section (TRPS) which later became Theoretical Physics Division (ThPD). Though the mandate of the section was to carry out nuclear reactors related research, fundamental theoretical studies were also being carried out by seniors like Dr. S.V. Lawande and Dr. D.C.Khandekarin the area of Feynman Path Integrals. I too was fortunate to have been given an opportunity to work in basic theoretical physics. I initiated and pursued Theoretical Quantum Optics as my research area.Some colleagues from other Divisions such as B.N.Jagtap, Richard D'Souza and Amitabh Joshi collaborated with me. My most fruitful collaboration though was with Prof. Girish Agarwal then in the University of Hyderabad, later the Director of National Physical Laboratory, Ahmedabad. He was my PhD thesis examiner to begin with and was already an international icon in the area of quantum optics. I not only learnt a lot from him but also owe him all that I achieved. While carrying out my research work, I discovered that there were very few books in quantum optics and sensed that there was a real need for a book in this subject, detailing systematically the relevant mathematical methods for the benefit of the research scholars. I took up the challenge and wrote the book- 'Mathematical Methods of Quantum Optics' - which was published in 2001 by Springer, Germany. It has been a matter of great satisfaction and happiness that the book received, and continues to receive, good response in the Quantum Optics community.

Though engaged in research, I have always been passionate about teaching. I believe that teaching and research go hand in hand. Teaching adds a new dimension to learning and provides novel insights which not only benefits the students but also the teacher even more. In fact, I have no hesistation in stating that some of my best work has emerged while teaching a topic or the other. It is therefore sometimes surprising that some researchers shun teaching, claiming that it eats into their research time! I recall the example when Feynman was offered the Einstein Chair which entailed him to do only research and no teaching. He said- 'How will I justify my salary if I do not get research ideas to publish'. I gladly took up the teaching opportunity offered at the

training school and started teaching from my early years and continued till close to my superannuation in November 2012. This was in fact the passion that drove me to seek transfer to the training school when the opportunity arose, which was by then a wing of Human Resource Development Division (HRDD). I was transferred to HRDD in 2004 , which was then headed by Dr. S.P. Garg. I took over as Head of HRDD in 2005 when Dr. Garg was elevated as the Associate Director of the Knowledge Management Group and relinquished the Head's position. I shall remain ever grateful to Dr. Garg for nurturing and mentoring me. Despite being a chemist, he had a penchant for understanding theoretical aspects of physics which we often used to discuss over lunch, and while taking a walk alongside the green training school lawns after lunch.

Soon after transfer to HRDD, I was also assigned the responsibility of Dean, Homi Bhabha National Institute (HBNI) with Dr. R.B.Grover as its Director. This was new task and a new challenge, as I was a novice in administration and management. I have no words to express my gratitude for the manner in which he guided and moulded me into shouldering the twin responsibilities. It was due to this strong support that I could sail smoothly through those formative years of HBNI.

During my initial days as the head HRDD, it was Shri K.R.Marballi whose wisdom and support helped in it's smooth functioning. Dr. R.P.Patel's unmatched flare for meticulous planning was a short lived asset as he had to soon take up the assignment as the DAE counsellor in Vienna. Nevertheless, on his return, his expertise proved extremely useful to various HBNI initaitives and programmes. I was later very fortunate to have the efficient troika of Dr. M.R.Ramanamurthi, Dr. D.M. Gaitonde and Shri S.K.Singh, who made appear simple the uphill task of administering and managing the training school. On the HBNI front, gaps in my awareness of academic administration were ably filled by Dr. Avichal Kapoor, who had joined as the Assistant Dean of HBNI, after completing a stint at AICTE where he was sent on deputation from BARC. His timely return to BARC after gaining wide experience at AICTE was of immense help towards building HBNI during its formative years. The memories of the joyful days working with this quartet till fills my heart with sentimental longings for those days.

Above all, I could not have succeeded without the support and good wishes of Dr. Anil Kakodkar and Dr. Srikumar Banerjee.

Many memorable events were organized by HRDD during my tenure - the address by the then President of India Honourable Dr. Abdul Kalam to young scientists, celebration of the Golden Jubilee of the training school graced by the then Prime Minister Dr. Manmohan Singh,who launched HBNI and later in 2008 also inaugurated the new training school premises, being at the top of my mind.

Many new initiatives were taken by HRDD during my tenure. Improvements in the conduct of the OCES courses would perhaps bebetter described by Dr. Ramanamurthi in his reminiscences. Under Dr. Grover's initiative, HRDD became part of the Nuclear Education Programme of IAEA, known as ANENT (Asian Network for Education in Nuclear Technology). We were invited to participate in the deliberations on promoting and improving education in nuclear science and technology. A meeting at Goa under my Chairmanship was especially memorable. At my behest, the guest house administration was divorced from HRDD and handed over to Personnel Division, to allow us to devote our efforts to academic activities.

Though the work of HRDD and HBNI required considerable attention, I continued my linkage with academics by teaching in the Training School, Centre for Basic Sciences and at IIT Bombay as a Guest Professor. During this period, though I commenced work on a book on Quantum Mechanics, the efforts bore fruit only recently, and the book 'Non-Relativistic Quantum Mechanics' was finally published last year.

The Training School was born out of the need to prepare skilled man power for the programmes of DAE, but metamorphosed into creating a blend of training and academics over the years. With the formation of HBNI, this aspect was further strengthened and I was fortunate to be involved actively in this seamless transition. The BARC Training School is a brand by itself and therfore the academic programme is still conducted under this banner, notwithstanding the linkage with HBNI for all practical purposes.

At the end, I would like to emphasise that the BARC Training School has been an institute of higher learning in many ways, encouraging a culture of openness and debate, a commitment to excellence in education and a cast iron integrity across all aspects of selection and evaluations. This has been one of the strengths of the institute and the organisation, for exposure to the organisational culture lays the seeds for the future performance and conduct of the young graduating scientists and engineers. The administration of the training school and the commitment of its personnel has been exceptional and I shall remain ever grateful for the strong support lent to me by all those who worked with me during my tenure. The stellar role played by all TS Committees in guiding our programmes also needs to be acknowledged and placed on record, for it is they who have laid the guidelines and set the standards.

I was fortunate to be associated with the Training School in a variety of roles- as a trainee, a teacher, a course coordinator, a member of its selection committees and as its Head. The ethos, culture and memories of Training School will continue to remain with me forever. The Training School is no longer situated at the picturesque location on a hillock which I climbed umpteen times over the years, but it continues to occupy a high pedestal, grooming the trainees for the service of the nation and humanity by inculcating in them the lofty ideals that it stands for.

My Tenure as Head, Human Resource Development Division (November 2012-December 2015)

B.K. Dutta (12th Batch) Dean, HBNI and Former Head, HRDD

I joined BARC Training School in the year 1976 as a 20th batch trainee. After successful completion of training program, I joined the Reactor Engineering Division, BARC. Over a period of the next 35 years, I was actively involved in carrying out research in the area of structural integrity and material mechanics. I had the opportunity to upgrade my academic credentials as well by acquiring MTech and PhD degrees.

During my training school days as a trainee, I barely realized the administrative efforts one needs to put in to run BARC Training School till I was given the charge of Head, Human Research Development Division in addition to my other assignments as Dean/Registrar of HBNI and Head, Structural and Material Mechanics Section of Reactor Safety Division in November 2012.

I served as Head, HRDD till December 2015. The primary administrative responsibilities on HRDD includes:Conduct of written examination of around one lakh applicants; Conducting interview of around 4000 screened-in candidates to select around 300 trainees; Organizing academic teaching and evaluation of around 150 courses by 600 experts; Placement of successful trainees; Interaction with HBNI to run PG diploma and M.Tech. programs. During my tenure of three years, the graduation functions were specially memorable as I had the pleasure of hosting three eminent chief guests, viz., Shri Pranab Mukherjee, then President of India (2013), Dr. Srikumar Banerjee, Former Chairman, AEC (2014) and Shri N.R.Narayana Murthy, Founder INFOSYS (2015). HRDD received two DAE Group Awards and two Meritorious Service Awards during this period.

Some important changes in the scientific and administrative functioning were also carried out. To name a few;Intense outreach programmes were carried out to attract prospective candidates to the BARC TS programme, leading to an increase in the number of applications received from 60,000 to 150,000; Revision of the curriculum was implemented to include several new courses relevant to the future thrust areas of the Department; Access Control System to Training School Complex and CCTV in the Hostel were installed to enhance the security at these premises.

The most challenging task was to align training school program to conform to the requirements of PGD/M.Tech. academic programs of HBNI. The training school syllabi were substantially restructured and modified and credits were appropriately assigned to each course to meet these requirements. The evaluation system was also suitably improved. The subsequent accreditation of HBNI to 'A' grade by NAAC team and excellent comments from the UGC review team affirmed the transformation of BARC Training School to a Graduate School for pursuing PG level programs.

I thank Dr. Sekhar Basu, former Director, BARC and Dr. R.B. Grover, former Director, HBNI for providing valuable guidance during my tenure. I also thank all HRDD personnel,especially my senior colleagues, Dr. M. Ramanamurthi, Dr. D.M. Gaitonde and Shri S.K. Singh., for working tirelessly to implement all the programmes in a timely and efficient manner.

Reminiscences

J. C. Mohanakrishna (5th Batch)

I joined the BARC Training School after graduating from the 5th Batch and it is heartening to note that the Institute has completed 60 years of continuous operations and celebrating its Diamond Jubilee. It has been a long journey which began with a few baby steps in 1957. I have been fortunate to be part of this journey for almost 40 years till the year 2000 and have been continuing my association with the activities and persons at the BARC Training School, albeit at a personal level.

Having been asked to pen down my reminiscences of my period at TS, I find it difficult to decide upon what should be cited and what should be left out. Too many memories jostle for space and many of them are in fact clouded with the passage of time. However, the initial phases are always the most memorable and I shall dwell upon them. I completed M.Sc. in Nuclear Physics from Andhra University and was fortunate to be immediately selected for the AEET Training School, as it was then known, as a physics trainee of the 5th batch. The training was completed and I got a placement at the BARC Training School itself. I was given the assignment to upgrade and run the Nuclear Physics Laboratory for the trainees. Experimental setup in place was used to design experiments to be conducted by the trainees. This included hands on experiments as well as demonstration experiments in electronics and nuclear physics. The activities of Training School were under the overall supervision of Dr. K.K. Damodaran, who was the Secretary of the Training School Coordination Committee and I was reporting to him. He was a tough task master and an able administrator and I was kept continuously on my toes due to his attention to detail and desire for perfection. I learnt a lot about maintaining systems and schedules efficiently with clockwork precision. This initial grind proved to be of great benefit in the long run, when I was myself put in charge of the conduct of the programmes and a could manage comfortably despite the heavier work load.

The Training School at the time of joining was situated at Express buildings near Churchgate station. It was subsequently shifted to Harchandrai House, opposite Marine Lines station and then to Modular Laboratories at Trombay. This periodic movement every two or three years due to the lack of permanent premises put us into some difficulty, as it involved moving all material and equipment and setting them up at the new location from scratch. Eventually, it was decided to construct a permanent building at South Site near the South Gate. The new premises named as Training School Complex became operational from the 14th batch onwards and until my retirement in 2000, the activities continued at location. It was situated on a hillock and approached from two sides by a gentle climb. Surrounded by trees and lawns and endowed with unique architectural elements, it was an isolated, calm, serene and picturesque location and ideal for studies and lectures conducted here from early morning to late evening.

The Training School Hostel was located at Bandra Bandstand, along the sea shore and for me it was really an enjoyable period of stay during the training. I was doubly fortunate that subsequent to the completion of training and joining Training School as a regular employee, I got accommodated in the bungalow of the Administrative Officer, Shri K S Narayanaswamy's , who kindly agreed to put me up at his premises. This meant that coordination activities in the Training School plus the stay in the hostel facilitated intimate contact with the trainees of various batches year after year.

One of the facts I recall was that during our training period, we were encouraged to use fork and spoon for our breakfast and dinner, thus in a way grooming us for long periods of stay in foreign countries for advanced training. This has continued for a long period thereafter when spoons and forks were always part of the regular cutlery maintained at TSH. It was also grilled into us that we would be the future leaders of the important DAE programmes. Of course, it did turn out to be true as officers graduated from Training School such as Dr.Anil Kakodkar,Dr. Bhattacharjee,Dr. S Banerjee, Dr.R.K Sinha, Dr. Sekhar Basu and Shri K N Vyas etc. have gone on to occupy the highest offices over the years.

Eventually, the Training School Hostel was also shifted from Bandstand to Brindavan building in Anushaktinagar to reduce the burden of daily commute. As was the practice, I was given accommodation here as well where I continued to stay until the hostel was finally moved to the present location in Anushaktinagar.

My interactions with trainees has been on many fronts and these moments always gave me great joy and pleasure. This included the regular academic activities in classrooms and laboratories, accompanying them on the study tours, participating in annual cultural activities etc. I could sing well and often participated whole heartedly in singing sessions on numerous occasions. The faculty itself was mostly drawn from the previously graduated batches, whom I knew well in any case since their TS days. This was of great help as the rapport I had established helped in smooth conduct of the lecture schedules. They were always willing to make adjustments whenever required from time to time. Many of the trainees of course went on to occupy high offices and this too helped me in conducting all the activities with their fullest cooperation, largely due to the excellent relationships built up during the training. I can say with some satisfaction that I could earn the genuine love, respect and affection of the trainees. I feel happy at the warmth and hospitality at display when I meet many of these persons from time to time. This to me is a lasting reward which I shall forever remember and cherish as a recognition of my contributions to this great institution. I feel proud to have been associated with it and wish the event all success.

BARC Training School....My Memoirs

R. P. Patel (12th Batch)

The Bhabha Atomic Research Centre Training School (BARC TS) is a unique and highly successful programme for in-house training of professionals in Engineering and Science disciplines which ensures a sustained input of highly skilled officers for sustainable development of the nuclear power programme of the Department of Atomic Energy (DAE).

My association with the BARC TS was in three distinctly different capacities, at different points in time during my career with the Bhabha Atomic Research Centre (BARC).

The first was in my capacity as a Chemistry discipline Trainee Scientific Officer (TSO) of the Twentieth Batch in the year 1976. The day, 15th of August (Independence day) is vividly etched in memory. The information letter from BARC stated that a grey colored bus would be waiting outside Dadar station opposite the Swaminarayan Mandir at 7.00 am. I arrived from Bangalore and found a few others from other disciplines also waiting anxiously to board the grey bus which would take them to the BARC TS Hostel. All fresh Engineering graduates and Science graduates/post-graduates, after due introductions, were looking forward enthusiastically to an exciting but hitherto unknown career ahead. On reaching BARC TS new hostel, a recently opened magnificent building, I was asked to fill and sign a folder full of forms and declarations after verification of our academic qualifications…an extremely tiring task. In the light drizzle of Mumbai rain and a gentle wind blowing, I was asked to join the others at the Flag hoisting ceremony being performed by Dr. KK Damodaran, the then Head of the BARC TS. In the afternoon, again a mind-boggling psychiatry form was filled at the BARC Hospital within the colony. Formalities over, the classes were to begin from 9 am to 5 pm all through the year with examinations every Monday..phew talk of grilling and that too in subjects to be totally unrelated to our discipline(we felt at that point in time) only to realize later how complete the curriculum was for our effective understanding and subsequent contribution to the programme of the DAE. Like me, almost all of my batch mates later on realized that despite this hard grind of one year, it was the best period which enabled us to form a strong bond among ourselves which would facilitate any task/project assistance requirement from one-another in our careers ahead. The concept of learning from officers directly involved in the research/power programme of the DAE was a unique experience viv-a-vis the text book teaching one. There were fun moments too at the BARC TS hostel with sports, cultural activities, holi, deepawali celebrations, graduation and hostel day functions in the presence of senior dignitaries which complemented the academic side thereby making the year long BARC TS experience a wholesome and an unforgettable one.

The second was in my capacity as a lecturer/course coordinator/chief coordinator at the BARC TS for the Chemistry programme while with the Chemistry Division. The lecturer stint made me self confident in facing students and vastly improved my communication skills. The one as course and chief coordinator was very rewarding in terms of developing and augmenting organizing, implementing and feed-back based restructuring of the chemistry programme.

In this context, I recall the unstinting guidance and support of Dr. D. D. Sood , Director, Radio-Chemistry Group in implementing concepts such as the Utility hour in the time table which put the onus of clarifying class room doubts on the TSOs themselves in consultation with the concerned lecturer rather than complain against a teacher for not clarifying doubts at the year end feed-back session.. The concept of course coordinators to compulsorily conduct a feed-back while a course was being offered and, in private pass on this information to the concerned lecturer for fine tuning and addressing the issues pointed out by the TSOs in the subsequent lectures was another such initiative. I recall Dr. Sood's enthusiam for implementing new ideas and his help in getting the Apex and Trombay Council approvals where necessary. One remark clearly etched in memory is that of Dr. DD Sood conveying to me the comment made by Shri Siddiqui, the then Head, BARC TS that the "Chemistry programme is functioning like a smooth well oiled

machine".

The third was in my capacity as Head, OCES PI section after shifting over to the Human Resource Division (HRD). This was by far my most close and thoroughly satisfying involvement with almost all aspects of the entire BARC TS programme. Here, I had the privilege to work under Dr. SP Garg, Head, BARC TS. I vividly recall the daily discussions we had during our way back after evening tea via the extended route around the water tank. It was here that academic/administrative issues facing effective programme implementation were identified, feasible solutions found and introducing innovative concepts discussed. Dr Garg, once convinced, was always ready to put up the proposals to the Apex and Trombay Council for their necessary approval. Several new initiatives such as the advanced courses under the continuing education programme, on-line advertisement for inviting applications to the BARC TS for a wider student outreach, TSO Registration on first day of joining complete with Bag, Year planner, first semester time table, previous years graduation brochure etc., briefing by respective discipline chief coordinators/lecturers giving an overview of programme, and in the afternoon briefing by Head, BARC TS and Section Heads on the overall trimester training programme its associated issues and the introduction of the Homi Bhabha Gold Medal for the respective discipline toppers besides the usual books and merit certificates, a transparent computer based marks viewing system for all TSOs and graded increments based on individual and across disciplines performance were undertaken and introduced.

Two instances during this phase are deeply etched in mind. The first one is concerned with the allotment of Internal Assessment Marks (100 Max.) based on attendance, general discipline in BARS TS, Hostel etc. to all TSOs. These were earlier not clearly spelt out, but were now been given on the first day to all TSOs. with indicated deductions for indiscipline etc. They could hence work out their score at the end of the year themselves. Now, it so happened that a TSO in Instrumentation discipline who was topping till the last examination lost his place to the second TSO by a few marks on adding the Internal Assessment Marks. I felt very sorry for him and told him so. His reply made me feel very proud of the quality of the TSOs and the spirit in which he took this set back. He said, "Sir, it is OK. Someone has to be first. This is not the end. My career is just beginning and the real challenge begins now with my career ahead." His mature and spirited words reverberate in my ears even today.

The second instance is of Director, Dr. Anil Kakodkar. Dr.SP Garg in Trombay Council had requested senior group directors to spare some time and come to BARC TS to deliver lectures to the TSOs and motivate them. Dr. Kakodkar was the first to put up his hand and volunteer towards this proposal. When the year planner was sent to his office he readily indicated a few dates for his lectures on Reactor Engineering for the Engineering disciplines. His other team members were: Course coordinator Shri SF Vohra, current Director, Shri KN Vyas and Shri AJ Gaikwad. In view of the non-availability of a big class room which could accommodate all engineering TSOs at the BARC TS, south site, the usual practice for the lecturers was to give a lecture from 9-10am to the Mechanical/Chemical/Metallurgy/Civil group of TSOs and repeat the same lecture to the Electrical/Electronics/Instrumentation/Computer group at 10-11 am…a very tiring task. So, for Dr. Kakodkar we suggested that we could arrange his lectures in D-Block Auditorium at 11-12 noon so that it would be most convenient for him to address all the TSOs at one time and near to his office as well. The TSOs could thereafter go for lunch and come back to south site for the afternoon lectures. His reply: "No special treatment for Director. D-Block does not have the same atmosphere as the BARC TS. I will come to south site and deliver the lectures as the other lecturers do." We were deeply humbled and appreciative of this gesture from Dr. Kakodkar. This also sent a clear message to all of the importance and commitment that he attached to the training programme. He continued this exercise for a couple of years. For, the TSOs and the HRD office staff this gesture will always be engraved in their minds and hearts.

On this Diamond jubilee occasion of the BARC TS, I wish the current Head of Division, Officers and Administrative staff the very best in the years ahead. I am sure BARC TS will continue to progress and provide skilled human resources increasingly required to successfully implement the growing Nuclear Power Programme of the DAE and thereby contribute its might in Nation Building. In conclusion, it will be appropriate to say that the BARC TS is the "Lifeline of the DAE".

Golden Jubilee to Diamond Jubilee- A Memorable Journey

M.Ramanamurthi (25th Batch)

I joined the BARC TS as a trainee of the Silver Jubilee Batch, returned to it in the Golden Jubilee Year in 2006 as the head of the OCES programme implementation and continued for 11 years upto the graduation of the Diamond Jubilee Batch in 2017. This was quite a happy coincidence, being associated with the Jubilee Years in this fashion. The years as a trainee were of course memorable, as they are for all trainees. A kaleidoscope of academics, fun, laughter, friendships and camaraderie which shall remain permanently etched into our memories and which has defined our lifes for all the future years in this organisation in many ways. Incidentally, we were lucky to also interact with Damodaran as his tenure ended mid way through our batch. Thereafter Dr Navalkar took over as the Head, Training School.

Returning to Training School in 2006 for the implementation of OCES programme as an administrator revived mixed memories of the trainee days. I soon came to realise that the TS administrators carried out a difficult task with care and compassion - Dr. Navalkar, Shri Mohanakrishna, Shri Asnani, Shri Subramanian and many others. Trainees do indulge in acts of omission and commission but these gentlemen always balanced their actions without being either overbearing or over-liberal, thus gaining the confidence of the trainees as their well-wishers and benefactors. My perspective on TS administrators as well as TS trainees changed very quickly on this role reversal. I tried to emulate this model by addressing some of the issues of concern to the trainees, within the constraints placed by rules, norms and procedures put in place primarily to create a level playing field for all trainees.

My very first year saw a flurry of activities. Commencing with the visit of President Abdul Kalam and culminating with the visit of Prime Minister Manmohan Singh. Dr Garg superannuated during this period and HBNI came into existence with this batch. The entire curriculum had to be revamped and reprogrammed to fit into the revised structure of a formal MTech course. Re-examinations had to be conducted, MTech proposals had to be invited and choice based elective courses had to be offered. There was no breathing or resting time as we had to learn on the go to adhere to the new guidelines. Special thanks are due to Dr Puri and Shri Marballi for hand holding and guiding- and the year went through without any major hitch.

The visits of Dr. Abdul Kalam and Dr. Manmohan Singh were of course memorable events. The Kalam visit was informal and only involved the trainees and some high officials. He talked, he joked, he interacted and simply mesmerised the trainees with his simplicity and wisdom. The visit of Dr.Manmohan Singh, Prime Minister of India was a different affair altogether, both in scale and details of arrangements. Myself, Dr. Avichal Kapur, Dr. Gaitonde and Dr. Puri used to sit till late evening at the TS, working out plans, finalising arrangements, preparing lists, making presentations and sending invitations. The visit of a VIP with a highest level of security clearance meant a host of protocols and procedures to be followed. There were thunderstorms at Mumbai on the previous day as well as the day of the event, which made things doubly difficult. In fact, when myself and

Dr Grover reached a bit late on account of looking after various arrangements, we were not allowed to enter the auditorium and could do only on the intervention of a high ranking police official who came to our rescue. With hundreds of invitees and a day long programme, we were on tenterhooks all through the day and pulled through without any glitch, much to our relief. The event ended with a memorable cultural programme by the trainees late in the evening. The Chairman, Dr Kakodkar and Director, Dr Banerjee patiently stayed till the end and won the hearts of the trainees.

The subsequent years were relatively calmer and peaceful. Having set into motion the new processes, there remained only the fine tuning and incremental improvements over the years. The curriculums were once more revised to fit into the UGC guidelines for the number of contact hours. Trimester system was introduced uniformly for all disciplines. Placements were advanced and took place prior to the commencement of mini-projects and electives, to provide linkage between the mini projects, main projects and job profiles. New courses and electives were added as per prevailing requirements of the organisation.

During 2008, the activities were shifted to the new premises at Anushakti Nagar and this provided a golden opportunity to entirely revamp the infrastructure. Within a year or so, all facilities were modernised, with swanky new classrooms and fixtures, projection and audio systems and IT based information services put into place for ease and convenience of operations. The new premises of TS is today recognised as one of the model facilities of BARC, with clean and green surroundings, clear signages, electronic notice boards and a modernistic architecture and infrastructure. All academic records were digitised and made available online and servers were added to host lectures notes, simulators and e-lectures for the benefit of the trainees.

The greatest takeaway from my tenure at Training School days is the strong sense of team spirit which pervaded amongst the personnel and which was nurtured by the leaders. People were always ready to back up for each other and filled in multiple roles whenever required. I joined the TS when Dr Puri was at the helm and his deep sense of commitment for his team and their welfare has left deep and lasting impressions on me regarding the manner in which any activity should be conducted. It is gratifying that the subsequent leaders, Dr. Dutta and Dr. Tiwari, have tried to maintain this tradition. My heart felt gratitude all the personnel for the whole hearted support which maid the conduct of OCES courses a pleasurable experience. I shall always cherish the memories of my days at the Training School as one of the most productive and happy periods of my life. I wish the personnel all success and happiness in the years to come.

Impressions

Diamond Jubilee Celebration of the BARC Training School, having completed sixty years in August 2017, is a happy and significant occasion not only in its own history but also in the life of the Department of Atomic Energy of India. Starting of the BARC TS was a milestone in the field of preparing personnel for advanced science and technology in India at a time when such persons were not available in adequate numbers and quality. It was a master stroke of the brightest gem among modern India's scientists cum technologists, Homi Jehangir Bhabha, who firmly believed that Indians are as good as any one and given the right education and conditions, will achieve whatever they set out to do. Training School, nurtured initially by Raja Ramanna, has completely justified the faith reposed in it. It has played a major role in making the country self-dependent in all aspects of Atomic Energy and allied fields of S&T and, in addition, to some other national efforts. BARC-TS has made DAE proud, it has made India proud. I, as a trainee of the first batch of trainees in 1957-58, consider myself fortunate, honoured and proud of having been associated with this endeavour in many ways.

Sixty years is not a long time for an institution and, in years to come, I am sure TS will innovate and rejuvenate itself continually to the task of adapting to changing circumstances and needs of educational requirements of its students as they prepare themselves to join the Department of Atomic Energy in serving India. My best wishes are with everyone working towards making this a success.

B. A. Dasannacharya, 1st Batch

I am delighted to learn that a celebratory event is being held on March 3rd, 2018 on the occasion of the Diamond Jubilee of BARC Training School which has now completed 60 years of running the training programme with exemplary excellence. Realizing that the quality of the manpower engaged in its R&D programme is the most important single factor for its success,DAE had the foresight to start the training school 60 years back when it was in the early stages of its scientific activities. Looking back at these sixty years, one can be justly proud of the Training School which has been playing the most pivotal and crucial role in the success of the R&D programme of the DAE. I am sure the BARC training school will continue to function with excellence in the years to come.

Dr. S.S. Kapoor, 2nd Batch

Impressions

It is a great feeling to learn that BARC training school has graduated 60 batches and is celebrating it's Diamond Jubilee. If one must cite one primary reason for the success of our atomic energy programme, it has to be undoubtedly the BARC Training School. I myself feel proud of being an alumnus of the BARC Training School. BARC training school conceived by Dr. Bhabha has been based on 'hire and train' model where the selection is made by testing the inherent conceptual clarity of young graduates and the selected candidates are trained comprehensively on aspects of Nuclear Science & Technology for one year. Training school graduates today form the core of DAE's core competence that has made the country proud. Apart from serving at DAE, training school graduates have provided very able leadership to several other scientific and technical programmes in the country.

Thanks to one year in the training school, we have a large cadre with shared vision in the arena of atomic energy for the country and the passion to implement and carry it forward. Induction through training school and career progression through merit promotion scheme are the key elements of excellence in the organisation including leadership development. It is for us to ensure that the healthy traditions set up by our founder are preserved and enriched further. With the establishment of HBNI, a unique blend of training, research and academics has been created to provide a high quality lifelong learning environment for our scientists to continue to excel in research, reorientation to newer areas and capacity building in domains of importance to DAE programmes, even as our scientists work to deliver on the expected programme implementation. My gratitude and compliments to all those who have contributed to training school activities.

Dr Anil Kakodkar, 7th Batch

Having completed 60 years, the Training School has now emerged as a Graduate School where students pursuing a M.Tech., M.Phil., ora Ph.D. pursue their course work. I am proud to have studied in this prestigious School and have continued my professional association with it in subsequent years. I wish it continued success in imparting to students a sound knowledge base in nuclear science and engineering with necessary academic rigour. One year in the School went like a dream, but reflecting on life in the School after graduation, we realised the hard work we had to put in because of almost continuous examinations.End-semester viva voce conducted in the School examines the capability of a student in integrating the knowledge of various subjects, and pursuit of an integrative approach is very important for a professional.

R B Grover, 14th Batch

Impressions

I am extremely happy and equally delighted to know that the Diamond Jubilee of BARC Training School is being celebrated on 3rd March,2018. Through sustained efforts of the members of DAE in general and those of the faculty members, as well as the commitment of the administrative staff, this institute has attained a formidable reputation amongst theS & T community in the country. Looking back to the role played by the BARC Training School over the decades, I feel indeed proud to recognise the fact that it has been the backbone of our success in establishing the complex Nuclear Science and Technology ecosystem in the country to improve the quality of life in our society. In the same breath, I must also recognise that this success has been not only due to the necessary background in Nuclear Science & Technology being developed by the faculty members of the training school through their professional expertise but also to their ability to imbibe a sense of national pride in the trainees so that the trainees remain committed to give back to the society during the entire tenure of their professional career with the department.

In fact it is this sense of serving the community which drives a significant part of DAE family to extend their professional expertise for the exploitation of Nuclear Science and Technology even after the completion of their normal tenure with DAE, towards progressively wider sections of the society.I take this opportunity to send my best wishes for all success to this Diamond Jubilee celebrations of BARC Training School.

Shri B.Bhattacharjee, 9th Batch

Atomic Energy Trombay (BARC) Training School started in 1957 was the brain child of Dr Homi J Bhahba.The major aim was to provide multi-disciplinary cadre of Scientists and Engineers essential for carrying out research and development work to harness the benefits of nuclear energy and radioactivity for peaceful purposes.During those times, there were perhaps only a handful of such formal training institutes in the this field in US, UK and France. Over the years, the training programme has proved to be the melting pot for moulding scientists and engineers with technical capability comparable to International standards. The credit for this goes to the well-structured programme of training which remained alive to the dynamic needs of the rapid developments in this sector, the rigourous selection process of the trainees, the commitment of the adjunct teaching faculty and the continued involvement and support from the top management.

I had the privilege of being member of the First batch of TS. During my technical assignments in the subsequent years, I received ready guidance from the faculty members who taught us and support from by fellow trainees and this was of great help in solving the problems encountered. It has been an honour and I consider myself blessed to be a part of the DAE family through the Training School programme.I am happy to know that on the achievement of the milestone of the Diamond Jubilee of BARC TS,a function is being organized and I wish the organisers all success. I look forward to continuous active and positive contribution by the BARC TS in the years to come.

Shri S.K. Mehta, 1st Batch

Impressions

Diamond Jubilee of an Institution is an important milestone and we must take this opportunity to look back on the distance travelled and think forward about the journey that lies ahead and has to be planned. Casting a glance over the years that have gone by, we cannot but thank the visionary Dr. Homi Jahangir Bhabha who conceptualized and established a Training School way back in 1957 for making available knowledgeable and skilled manpower to carry out the various challenging tasks of DAE. During the last sixty years, thousands of Engineers and Scientists have been trained in nuclear science and engineering by theTraining School. The institute has also continuously upgraded the training programme to meet the current requirements. Expert faculty is drawn from various units of DAE to provide a holistic training across a wide spectrum of domains.

The trained engineers and scientists have contributed immensely in phenomenal growth of DAE and making the country attain self-reliance in the fields of nuclear science and technology. I am proud to be from 17th batch of this training school and later had opportunity to be associated with the school in various capacities. I extend my Congratulations for all that has been achieved in 60 years and Best Wishes for the future.

Shri Chandrakant Pithawa, 17th Batch

It is with a happy sense of pride and privilege that I add this note on the occasion of the Diamond Jubilee of the BARC Training School. Sixty years ago we, the alumni of the first batch, were uniquely initiated to the realm of Science and Technology in the Training School. I am proud to say that it was also the beginning of an eternal connection to Nuclear Science and Engineering and significant contributions by these very first graduates. Our deepest gratitude for this goes to Dr. Bhabha and Dr. Ramanna.

This occasion vividly brings back memories of our very first days of coming together as AEET Training School students at Bandra hostel near the Lands End, picking our rooms and roommates, and then the various classes in Jai Hind College near Churchgate, Old Yacht Club, TIFR, Cadell Road, etc. It was a fantastic journey from then on.I convey my sincere appreciation to BARC for commemorating this nostalgic occasion. My best wishes to the BARC Training School for its continued success.

Dr. A. V. Hariharan, 1st Batch

Impressions

I was in the Physics batch of the training School. At the end of the TS Course I was posted to Nuclear Physics Division. Before I could join NPD, Dr. Ramanna asked me to meet Dr. Brahm Prakash, Head, Metallurgy Division, saying that Metallurgy wants a physics trainee with crystallography background.Thus, I became the first physicist to join theMetallurgy Division. I was happy that I could participate in CIRUS fuel development and later on to find a solution, when the fuel elements started contracting. Even now I am thrilled to recollect my attendance in the meetings that Dr. Homi Bhabha used to take every week to learn about the progress in CIRUS fuel development.I established a 'Structural Metallurgy' group and carried out structure-property correlations in a wide variety of Zr alloys. This research enabled solving some of the production problems faced by NFC in Zircaloy-2 as well as Zr-Nb alloys. I was happy when I was made Head of the Metallurgy Division in 1982.I went on deputation to DRDO and GTRE in 1985 and could carry out good work. Thanks to the training and foundation laid by BARC TS, I won several awards and accolades, which I cherish

Dr. Rangachari Krishnan, 1st Batch

I remember my days of happy stay at Band Stand, Bandra in army sheds, listening to the roaring waves of the sea during the night and attending the college at Jai Hind College, Churchgate during the day, travelling by bus and local train. After one year of hectic learning of many subjects we graduated and were appointed as JSO's with a basic salary of Rs 250/- per month. Those who stood first in each engineering faculty were appointed as SO's with a basic salary of Rs 350/-! Life was economical, with barely Rs. 100/- going for accommodation and food and we had enough to spare for Pictures, Books, Clothing and home town travel. After joining AEET now (BARC), I had the opportunity to work in the construction & commissioning and operation of Canada India Reactor (CIRUS) and then with PPED (now NPCIL). It gave us immense pride and satisfaction to work with my colleagues in contributing to the successful implementation of the Nuclear Power Program in our country.

Y.S.R. Prasad, 1st Batch

On the completion of 60 years of continuous operations of BARC Training School, please accept my heartfelt congratulations and my best wishes for the grand success of the Diamond Jubilee Function. Training school was conceived by Dr. Homi Bhabha to prepare a Scientific and Research Cadre to undertake all the challenging jobs to realise the dream of harnessing the benefits of Atomic Energy for India. Indian Scientists were trained in various Atomic Energy related subjects at the BARC TS, which were usually not included in the then existing syllabi of Indian Universities. The effort has paid off very rich dividends as can be seen from the fact that at later stages, Training School has provided top class leaders for most of the responsibilities of the entire spectrum of activities of the Department of Atomic Energy in all facets of the Nuclear Cycle.

Jai Pal Mittal, 3rd Batch

Impressions

It is indeed most appropriate that BARC has organized a commemorative event to mark the diamond Jubilee of the post graduate Training School which was started in 1957, when the activities of DAE were at a nascent stage. As I recollect my days as a FBT (First Batch Trainee), nostalgic memories of the unique experiences our batch went through and the fun we had during the start up come to my mind, particularly as fresh young graduates in different disciplines from different Universities from different parts of the country coming together for the first time! Starting of the Training School has been a path- breaking event in the history of DAE, to meet trained professional manpower needs for a comprehensive stupendous development. In a way, it has been the backbone of DAE. The very fact that it has completed uninterrupted 60 years, at the same time widening the base to cover various new disciplines and facilitating other units of the DAE to start their own training schemes is a testimony to it's phenomenal contribution!

On a personal note, it has been my proud privilege that I was given the responsibility to be the first Director of BARC graduating from the Training School. I succeeded Dr. R. Chidambaram, whose predecessors were Dr. Homi Bhabha, Dr. Homi Sethna, Dr. Raja Ramanna and Dr. P.K. Iyengar. In a way, I was a trend setter as all my succeeding BARC Directors have been Training School graduates, some of whom have gone on to become Chairmen. In fact, most of the heads of units of DAE are also Training School graduates. I must congratulate and thank Dr Vyas, Director BARC and his team for organizing this event and creating an opportunity for a get-together of FBT and meeting old friends and colleagues. I wish the event all success.

A.N. Prasad (1st Batch)

Panoramic view of New Training School Complex, Anushaktinagar

"Role of Training School *in* Harnessing the Wealth of India's Scientific Manpower *to* achieve goals of DAE"

Training School Corner

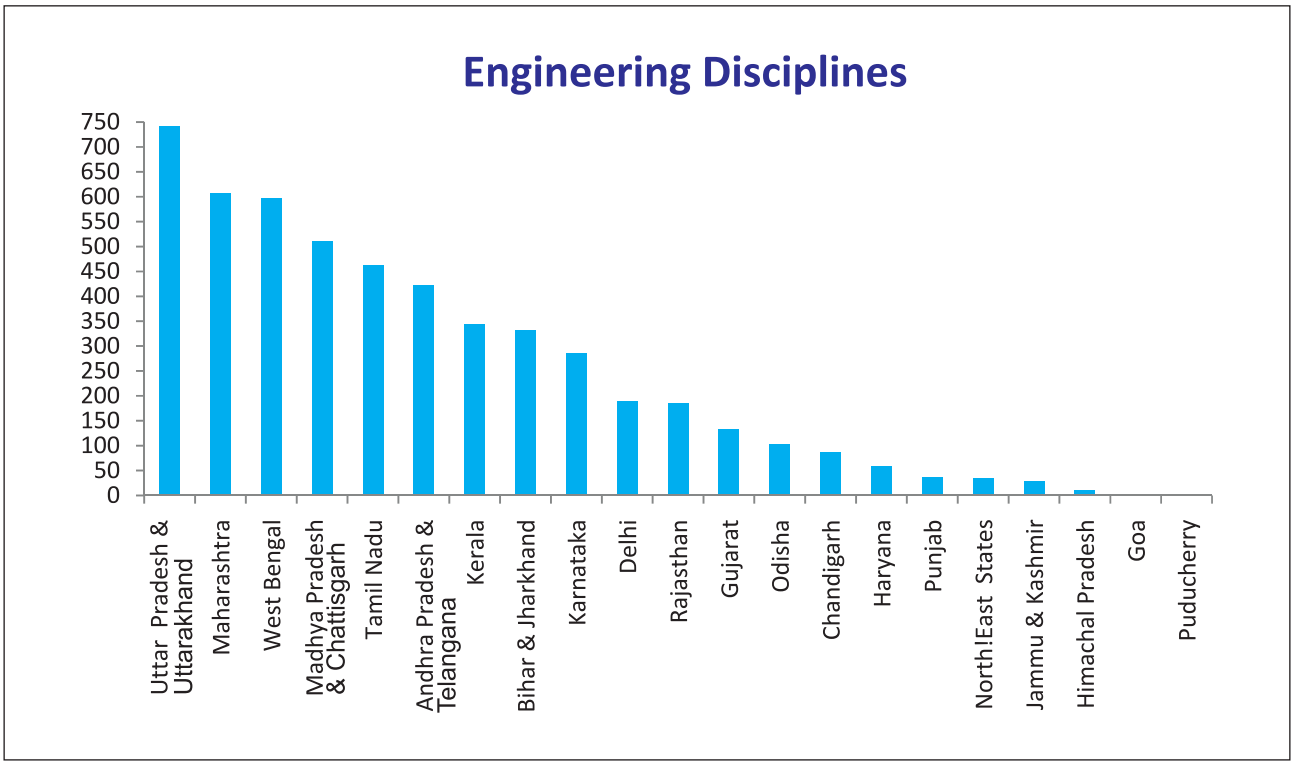
BARC Training School, Mumbai

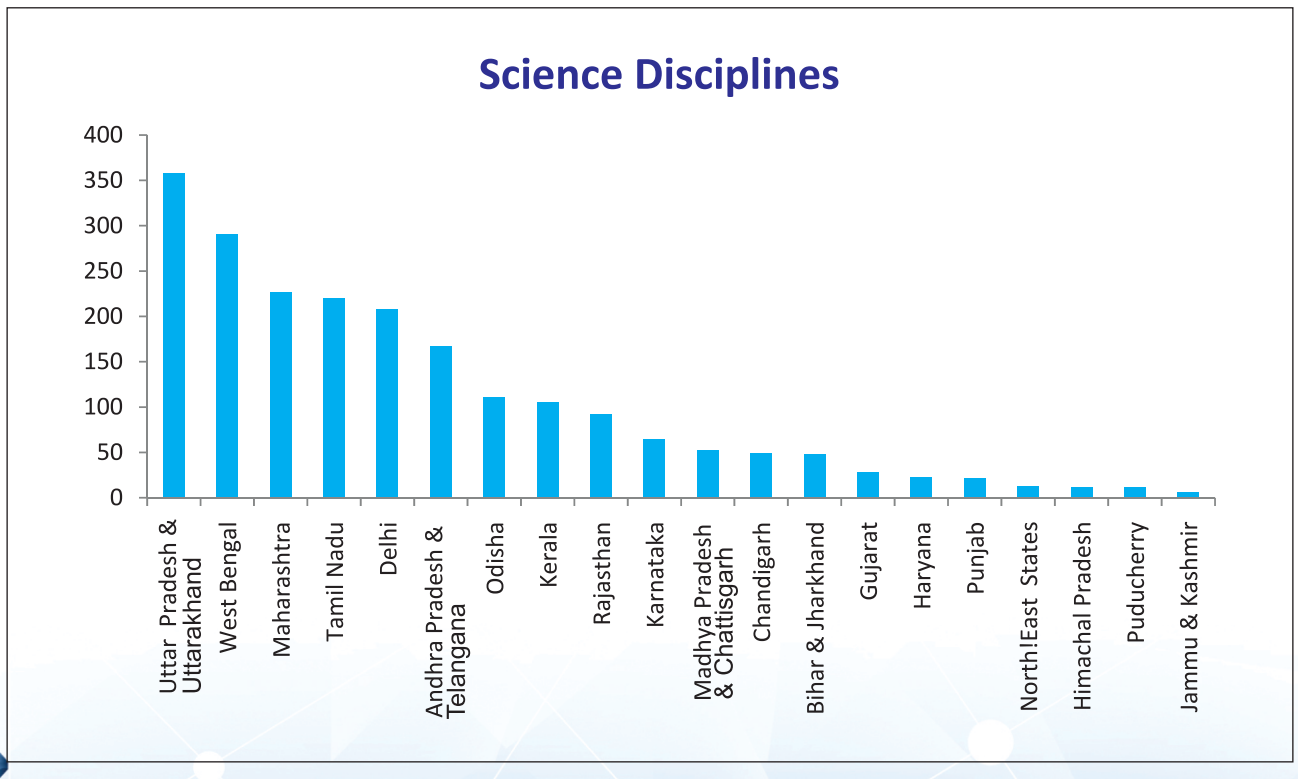
Statistical Summary of Trainee Scientific Officers (TSOs) Graduated during 1957-2016 from BARC Training School, Mumbai

Eligible Qualification		Number of TSOs	
B.E. / B.Tech.	**Up to OCES-2015**	**OCES-2016 Current Batch**	**To Date Since 1957**
Mechanical Engineering	1627	16	1643
Chemical Engineering	702	7	709
Metallurgy	351	7	358
Civil Engineering	126	10	136
Electrical Engineering	720	18	738
Electronics Engineering	707	5	712
Computer Engineering	192	8	200
Instrumentation Engineering	292	4	296
Total B.E./ B.Tech. TSOs	**4717**	**75**	**4792**
M. Sc.	**Up to OCES-2015**	**OCES-2016 Current Batch**	**To Date Since 1957**
Physics	1373	15	1388
Chemistry	1111	9	1120
Bio-Science	201	10	211
Radiological Safety Engineering	162	17	179
Total M. Sc. TSOs	**2847**	**51**	**2898**
Total (B.E./ B.Tech. & M. Sc.)	**7564**	**126**	**7690**
In-Plant Training	760	**Nil**	760
OCEP/ DGFS/ OCDF	394	7	401
Non-Departmental such as Defence etc.	229	11	240
Grand Total	**8947**	**144**	**9091**

BARC Training School, Mumbai

State wise distribution of number of OCES/ OCEP and OCDF TSOs Graduated from BARC Training School, Mumbai from 1957 to 2016 (as per available data)





Outstation BARC Training Schools

Statistical Summary of Trainee Scientific Officers (TSOs) Graduated from Outstation BARC Training School

School	DISCPLINE	Up to OCES-2015 (59th Batch)	OCES-2016 (60th Batch)	Total
NFC, Hyderabad (2001-2016)	Chemical Engineering	80	2	82
	Mechanical Engineering	123	6	129
	Electrical Engineering	57	5	62
	Electronics /Instrumentation Engg	51	-	51
	Grand Total	**311**	**13**	**324**
AMD, Hyderabad (2010-2016)	Geology	62	9	71
	Geophysics	39	3	42
	Total M.Sc./M.Tech TSOs	**101**	**12**	**113**
RRCAT, Indore (2002-2016)	Physics	116	3	119
	Electronics Engg.	68	2	70
	Electrical Engg	27	0	27
	Total TSOs	**211**	**11**	**222**
IGCAR, Kalpakkam (2006-2016)	Mechanical Engineering	111	10	121
	Chemical Engg.	61	3	64
	Electronics & Instrumentation Engg.	45	-	45
	Total B.E./B.Tech TSOs	**217**	**13**	**230**
	Physics	60	9	69
	Chemistry	96	11	107
	Materials Science	41	-	41
	Total M.Sc. TSOs	**197**	**20**	**217**
	Grand Total (B.E. /B.Tech &M.Sc)	**414**	**33**	**447**

Roll of Honours

Homi Bhabha Awardees

OCES OVERALL TOPPERS							
Year	Batch	Discipline	Name	Year	Batch	Discipline	Name
1957	1	Physics	G. Rajasekaran	1987	31	Electronics	T. Puntambekar
1958	2	Physics	N.I. Mukunda	1988	32	Mechanical	S. M. Deshpande
1959	3	Mech/ Met	D.S .Chhabra / V. Gopinathan	1989	33	Metallurgy	A. Veeramani
1960	4	Physics	Ms. Pakaja Jayasimha	1990	34	Instrument'on	T. V. Venkatesan
1961	5	Physics	S.C. Tonwar	1991	35	Computer	N. Choudhury
1962	6	Physics	K. Sivaprasad	1992	36	Chemical	A. Prakash Narayanan
1963	7	Mechanical	Anil Kakodkar	1993	37	Chemical	Chandrasekaran K.
1964	8	Physics	V.C. Sahni	1994	38	Computer	Dinesh M. Sarode
1965	9	Physics	S. K. Kataria	1995	39	Chemistry	Sukhendu Nath
1966	10	Mechanical	S. Ramakrishnan	1996	40	Metallurgy	Ms. Tapatee Kundu
1967	11	Electronics	B. N. Agarwal	1997	41	Metallurgy	S. Roychowdhury
1968	12	Electrical	Pradip Kumar	1998	42	Civil	Apurba Mondal
1969	13	Mechanical	V. K. Mehra	1999	43	Instrument'on	Partha Das
1970	14	Mechanical	R. B. Grover	2000	44	Metallurgy	Suman Neogy
1971	15	Mechanical	T. Devananth	2001	45	Electronics	Ms. Saritha G. S.
1972	16	Physics	P .D. Gupta	2002	46	Mechanical	Santosh K. Pradhan
1973	17	Physics	Praveen Chaddah	2003	47	Electrical	S. Sundar Rajan
1974	18	Chemical	S. C. Sekar	2004	48	Chemistry	Sandeep Verma
1975	19	Mechanical	N. Saibaba	2005	49	Electronics	Akshat Kakkar
1976	20	Physics	S. K. Deb	2006	50	Physics	V. K. Sharma
1977	21	Physics	A. K. Jain	2007	51	RSE	Manish Chopra
1978	22	Chemical	V. V. Pande	2008	52	RSE	Basu Hirakendu
1979	23	CH/ EE	R.R. Sonde/A. Chandra Sekhar	2009	53	Electronics	Ankit Pilania
1980	24	Chemical	A. K. Dudhane	2010	54	Mechanical	Deepak Kanse
1981	25	Physics	P. A. Naik	2011	55	Electronics	Remya Haridasan
1982	26	Chemical	V. Sundararaman	2012	56	Chemical	Govind S. Rajan
1983	27	Metallurgy	A. K. Bhaduri	2013	57	Mechanical	Keshav Mohta
1984	28	Electronics	S. Vasudevan	2014	58	Chemistry	Ms K.Sandeep Rao
1985	29	Mechanical	Falgun B. Shah	2015	59	Mechanical	Nadella Saikrishna
1986	30	Electronics	Khare Aniruddha N.	2016	60	Physics	N. Chaudhuri

Roll of Honours

Homi Bhabha Awardees

Year	Batch	Mechanical	Chemical	Metallurgy	Civil
1957-58	1	D. Easwardas	K. K. Sinha		
1958-59	2	G. V. Ramanathan	M. K. Rao / M. K. T. Nair	S. Ananthakrishnan	
1959-60	3	D. S. Chabbra	A. D'souza	V. Gopinathan	
1960-61	4	H. O. Arora	S. P. Singh	P. Rodrigues	
1961-62	5	K. P. Bhat	T. B. Nandwani	P. Dasgupta	
1962-63	6	A. Sanatkumar	Mahinder Prakash	P. G. Kulkarni	
1963-64	7	Anil Kakodkar	P. C. Kulkarni	V. G. Date	
1964-65	8	K. S. P. Rao	K. K. Panjwani	L. V. P. Raman	
1965-66	9	S. A. Bohra	B. Bhattacharjee	T. K. Sinha	
1966-67	10	S. Ramakrishnan	S. K. Agarwal	M. K. Malik	
1967-68	11	R. Kalidas	S. Mallikarjuna Rao	V. K. Mahajan	
1968-69	12	M. K. G. Nair	M. K. Sinha Ray	B. P. Sharma	
1969-70	13	V. K. Mehra	D. S. Shukla	S. S. Vagarali	
1970-71	14	R. B. Grover	G. A. Habib	V. Venkataraman	
1971-72	15	T. Devanath	L. M. Gantayet	V. Seetharaman	
1972-73	16	R. Ramani	Sudershan Lal	V.S. Verma	
1973-74	17	K. K. Vaze	J. K. Namboodiri	Karthikeyan	
1974-75	18	P. K. Dolas	S. Chandrasekhar	E. S. S. Menon	
1975-76	19	N. Saibaba	G. K. Chotani	Sudhir Nanda	
1976-77	20	J. B. Gupta	P. R. Mohanty	S.K. Das	
1977-78	21	K. P. Dwivedi	A. Bhowmick	S.K. Datta	
1978-79	22	P. Chellapandi	V. V. Pande	D. Ghosh	
1979-80	23	A. K. De	R. R. Sonde	G. K. Dey	
1980-81	24	T. K. Mitra	A. K. Dudhane	T. Suresh Sarma	
1981-82	25	S. F. Vhora	A. Sanyal	Ms. R. Manjula	
1982-83	26	P. Selvaraj	V. Sundararaman	Dilip Kumar	
1983-84	27	R. Ravi	A. Bhoumik	A. K. Bhaduri	
1984-85	28	V. Balasubramaniyan	N. Kasinathan	K. Madangopal	
1985-86	29	Falgun B. Shah	Ashok K. Kar	G. R. Krishnan	
1986-87	30	Ms. M. Vijayashree	Ms. A. Rama Devi	S. Raju	

Roll of Honours

Homi Bhabha Awardees

Year	Batch	Mechanical	Chemical	Metallurgy	Civil
1988-89	32	S. M. Deshpande	R. U. Parmar	R. Tewari	S. K. Rustogi
1989-90	33	P. Swami Prasad	M. R. S. Prasad	A. Veeramani	Abhinav Gupta
1990-91	34	N. K. Mukhopadhyay	Ms. M Rajasri	J. B. Singh	Kapilesh Bhargava
1991-92	35	Dinesh Babu	M.V.N. Sudhakar	P.P. Nanekar	Manoj Kumar Garg
1992-93	36	P. V. L. Narsimha Rao	A. Prakash Narayanan	Tarashankar Mahata	
1993-94	37	R. G. Srinivas Sastry	K. Chandrasekaran	J. S. Dubey	
1994-95	38	S. Ravindra Mohite	Rama Swaminathan	Sanjay Kumar Gupta	
1995-96	39	S. Venkatesan	K. P. Bhattacharya	Sandeep K. Devangan	
1996-97	40	Mahendra K. Samal	Subham Banerjee	Ms. Tapatee Kundu	
1997-98	41	P. V. Durgaprasad	Naveen Kumar	S. Roychowdhury	
1998-99	42	Suneel Kumar Gupta	Ms. Neetu I. Chhabra	Prashant Kumar	Apurba Mondal
1999-00	43	Imran Ali Khan	Krishna Kumar Singh	Arijit Laik	Dauji Saha
2000-01	44	Abhishek Chakravarty	Anil Kumar Tiwari	Suman Neogy	
2001-02	45	Abhishek Basak	Anil Gordhanbhai Patel	Kamlesh Chandra	Pavan Kumar Emani
2002-03	46	Santosh Kumar Pradhan	Kotak Vimal Kanaiyalal	Sudipta Mukherjee	
2003-04	47	Pranab Bhattacharya	Gaurav Varshney	Abhishek Mukherjee	
2004-05	48	Santosh Khandave	Pavanjeetsingh Oberoi	Gopal Sanyal	
2005-06	49	Punit Arora	Ms. Deepa Thomas	Ms. Amrita Kundu	
2006-07	50	Sumit Goyal	V.Nafees Ahmed		
2007-08	51	Rajeev Kumar Verma	Sandip Bhowmick	Umesh Kumar	
2008-09	52	S. Arun	Ms. Gaddam Samyuktha	Ms. Poulami Chakraborty	
2009-10	53	Arun Pooleery	Nirvik Sen	Uttam Jain	
2010-11	54	Deepak Kanse	Sujeesh S	Saurav Sunil	Pankaj Arora
2011-12	55	Alok Prakash	Vijaya Kumar Veluri	Naisheel Verdhan	Abhishek Kumar
2012-13	56	Ganesh V	Govind S Rajan	T.S. Nikhilesh Iyer	Srijan Kumar
2013-14	57	Keshav Mohta	Uday Kumar Vootla	Voona Srikanth	Robin Bhola
2014-15	58	Ather Syed	S. Phani Krishna	Harish Donthula	T Naga Srinivas
2015-16	59	Nadella Saikrishna	Nitin Malik	Srikakulapu Haribabu	Shashank Agarwal
2016-17	60	Vikram Roy	Niranjan S. Shenoy	Mohammad Yunus	Soubhagya Karmakar

Roll of Honours

Homi Bhabha Awardees

Year	Batch	Electrical	Instrumentation	Electronics	Computer Science
1957-58	1	S. N. Agrawal			
1958-59	2	A. Gopalakrishnan			
1959-60	3	S. Mukherji			
1960-61	4	C. G. Gururaja Rao		A. N. Joshi	
1961-62	5	R. Sudarsana Rao		P. H. Ron	
1962-63	6	Mathew Chiramal		M. Sridhar	
1963-64	7	K. K. Sundareswaran		R.P. Baheti	
1964-65	8	S. Krishnan		S. N. Verma	
1965-66	9	B. R. Bairi		A. K. Kaul	
1966-67	10	S. S. Bhatia		R. C. Gupta	
1967-68	11	A. R. Gore		B. N. Agarwal	
1968-69	12	Pradeep Kumar		M. B. Lal	
1969-70	13	P. Govinda Rao		Umesh Chandra	
1970-71	14	S.Mandowara		Anoop Swarup	
1971-72	15	S. Thangaswamy		Harjit Singh	
1972-73	16	Manjit Singh		V. A. Tripathi	
1973-74	17	U. Mahapatra		D. Bramhachari	
1974-75	18	B. Krishnakumar		D. G. Joshi	
1975-76	19	M. V. Ranganath		P. V. Samant	
1976-77	20	S. K. Kaw	A. K. Choudhury	P. B. Nair	
1977-78	21	S.A.V. Satyamurthy	B. Ghoshal	K. S. Chaudhari	
1978-79	22	A. Bandhopadhyay	M. D. Mehta	D. Sarkar	
1979-80	23	P. M. Vijayakumaran	D. S. Kikani	A. Chandrasekhar	
1980-81	24	Ms. S Chandrasekaran	Tapas Ray	R. K. Talwar	
1981-82	25	T. Shome	S. N. Murthy	A. Roy	
1982-83	26	S. K. Bose	Tapankumar Routray	Debashis Das	
1983-84	27	Ms. S. D. Indane	H. Verma	S. V. Deshpande	
1984-85	28	Ms. M. Y. M. Geeta	Neeraj Agrawal	S. Vasudevan	
1985-86	29	Rajesh Taneja	Ms. Gopa Roy	Soumitra Kar	
1986-87	30	S. Kothari / S. Mukhopadhyay	Ms. R. Geetha Kumari	A. N. Khare	

Roll of Honours

Homi Bhabha Awardees

Year	Batch	Electrical	Instrumentation	Electronics	Computer Science
1987-88	31	Amit Joshi	A. K. Bhattacharjee	T. Puntambekar	
1988-89	32	G. V. D. Arun Kumar	Vitul Kumar	Shankar Velayudhan	
1989-90	33	D. A. Roy	K. Rajiv	V. Siva Kumar	
1990-91	34	Navin Rohatgi	T. V. Venkatesan	A. Seby	
1991-92	35	M.K. Tunga	Ms. Neetu Agrawal	M.N. Porecha	P.G. Shyam
1992-93	36	Una Rajkishore	Joseph Kanagaraj	S. Ramnath	Vivek M. Prabhu
1993-94	37	K. S. Ramprasath	Sandip Pal	K. Meenakshisundaram	Gaurav Makkar
1994-95	38	Mangesh B. Borage	S. Padmanabhan	D. Pradeep Lal	Dinesh M. Sarode
1995-96	39	Shilpi Mukherjee	A. Ukil	M. B. Patil	Anindya Saha
1996-97	40	Kum. A. Lasitha	Tamal K. Bhattacharya	Prashant R. Khanzode	Kislay Bhatt
1997-98	41	S.R. Shimjith	Ms. B. Lakshminarayanan	C. C. Anantha Krishnan	Prashant Varshney
1998-99	42	Sandeep V. Kulkarni	Rajesh T. Keshwani	Ms. Raka Paul	Digamber D. Sonvane
1999-00	43	Ms. Yachika Verma	Partha Das	Amit Chauhan	Pankaj Saksena
2000-01	44	Suresh Kumar	Vincent M. Shagaya	Hari Balakrishna	Ms. Shalaka A Damle
2001-02	45	Kalyan C. Madala	Dipak D. Patel	Ms. Saritha G.S.	Amar Deep Kumar
2002-03	46	Anirban De	Vivek Sheel Mittal	Asif Iqbal	Kumar Vaibhav
2003-04	47	S. Sundar Rajan	Nagare Vinod Bhagirath	Ms. Menka Tewani	Vikash K. Sriwastava
2004-05	48	Brihaspati Shukla		Gokulkrishnan Thulasingam	Pritam Prakash Shete
2005-06	49	Anil Upreti	Ms. Kumud Singh	Akshat Kakkar	Ms. Vibhuti Duggal
2006-07	50	Tarun Mohan Joshi		Shiv Kumar	Vineet Sharma
2007-08	51	Rahul Krishna Bhat	Kaushik Dutta	Sourav Mukhopadhyay	Ms. Urvashi N. Karnani
2008-09	52	Amit Kumar Mishra	Santanu Roy	Kolla Hari Prasad	Ms. Deepika Dutta
2009-10	53	Soumya Prakash Nayak	Arka Pratap Mitra	Ankit Pilania	Anirban Roy Choudhury
2010-11	54	Naga Venkata Sairam K	Saikat Saha	Shantonu Sahoo	M Vineet
2011-12	55	CH Santosh Subudhi	Abhimanyu Chowdhury	Ms. Remya Haridasan	Ms. Surabhi Singhal
2012-13	56	Ms. Bimmi Upadhyay	Jithu P G	Prashant Serai	Ajay Kumar
2013-14	57	Tarun Chugh	Ms. Elina Mishra	Tushar Anil Kesarkar	Rahul Jain
2014-15	58	Sushovan Bhowmik	Afash Mohammad	Deepak N Mathad	Ms. Wahadat Safia
2015-16	59	J. M. V. V. Satyaaravind	Shankari S	Shivam Tripathi	Bharti Hariramani
2016-17	60	Abhishek Gupta	Swetha M	Nibandh Kumar	Parth Samrat Goyal

Roll of Honours

Homi Bhabha Awardees

Year	Batch	Physics	Chemistry	Biosciences	Environmental Science/RSE
1957-58	1	G. Rajasekaran	P. R. Natarajan		
1958-59	2	N. I. Mukunda	Girjesh Govil		
1959-60	3	T. K. Bhattacharya	P. Narasimha Murthy		
1960-61	4	Ms. P. Jayasimha	P. S. Ramanathan		
1961-62	5	S. C. Tonwar	G. Ramanan		
1962-63	6	K. Sivaprasad	S. Vaidyanathan		
1963-64	7	V. S. Ramamurthy	P. C. Hariharan		
1964-65	8	V. C. Sahni	Omprakash Chawla		
1965-66	9	S. K. Kataria	Ms. R. Martis		
1966-67	10	S. M. Lee	S. P. Garg		
1967-68	11	C. Amuba Singh	B. Venkataramani		
1968-69	12	A. S. Vengurlekar	S. S. Kumar		
1969-70	13	S. V. Deshpande	N. Periaswamy		
1970-71	14	R. Chaudhury	S. V. Narasimhan		
1971-72	15	A .C. Wagh	T. Mukherjee	K. B. Sainis	
1972-73	16	P. D. Gupta	Suresh Kumar	M. Seshadri	
1973-74	17	Praveen Chaddah	P. Sriramamurthy	J. Ramakrishna	
1974-75	18	S. K. Goel & N. K. Jaggi	M. Bhupathy	K. K. Rao	
1975-76	19	Anurag Shyam	A. Xavier Swamikannu	Ms. J. Perrera	
1976-77	20	S. K. Deb	Ms. M. Shyamala	J. R. Bandekar	
1977-78	21	A. K. Jain	B. Saha		
1978-79	22	S. Bhattacharya	N. Ravi		
1979-80	23	R. Mukhopadhyay	B. S. Valaulikar		
1980-81	24	S. B. Ota	Rasmohan Guin		
1981-82	25	P. A. Naik	B.S. Tomar		
1982-83	26	Ms. Sucharita Dutta & S. Basu	M. Joseph		
1983-84	27	Ms. Hema Sankaran	S. Majumdar		
1984-85	28	V. Selvakumar	P. K. Pujari		
1985-86	29	V. Sundar Kingsley	R. Asuvathraman		
1986-87	30	P. U. M. Sastry	S. K. Ghosh		

Roll of Honours

Homi Bhabha Awardees

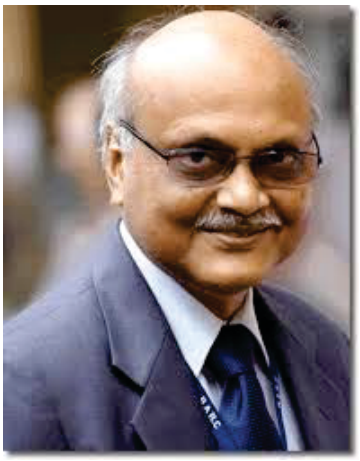
Year	Batch	Physics	Chemistry	Biosciences	Environmental Science /RSE
1987-88	31	D. Biswas	Awadesh Kumar		
1988-89	32	M. M. Kumar	Tapan Kumar Ghanty		
1989-90	33	M. P. Singh	C. N. Patra		
1990-91	34	N. Subramanian	Ms. Anju Batra		
1991-92	35	Sourav Sarkar	N. Choudhury		
1992-93	36	Vinod Kumar Aswal	P.A. Hassan		
1993-94	37	Vinit Kumar	Rajesh Ganesan		
1994-95	38	Tarun Kumar Sharma	Mukesh Kumar	Ms. Hema Badran	
1995-96	39	S. Anantha Ramakrishna	Sukhendu Nath	Ms. A. K. Zaidi	
1996-97	40	Ms. Gargi Choudhury	Ms. Manideepa Basu	A.D. Ballal	
1997-98	41	Ms. Taru Verma	R. Venkata Krishnan	Apratim Chakrabarti	
1998-99	42	Ashok Kumar Verma	G. Ramakrishna	Ms. J. Latha	
1999-00	43	Jayanta Debnath	Rahul Tripathi	Ms. Sheetal Uppal	Rajesh Kumar
2000-01	44	Yogesh S. Kashyap	Manoj Kumbhakar	Deepak Sharma	S. Anand
2001-02	45	Himanshu Kumar Poswal	Madhava B. Mallia	Manish Goswami	Ms. G. Kothai
2002-03	46	Shanavas K. V.	Ms. Teena Goel	Ms. Swathi Lota	Nadar Yesuraja Victor
2003-04	47	Anil Jain	Arup Kumar Pathak	Upendra K.S. Shekhawat	Ms. Aditi Chakrabarty
2004-05	48	Jhilam Sadhukhan	Sandeep Verma	Subhash Chandra Bihani	Narendra Singh Rawat
2005-06	49	Jitendra Bahadur	Prabhat Kumar Singh	Rahul Checker	Ms. Roopashree Shrivastava
2006-07	50	Virendra Kumar Sharma	Rajib Ghosh	Ms. Surbhi Wadhawan	Manish Joshi
2007-08	51	Md. Sabir Ali	Brindaban Modak	Ms. Nidhi Tewari	Manish Chopra
2008-09	52	Sugam Kumar	Deepak Tyagi	Patwardhan R. Shridharrao	Basu Hirakendu
2009-10	53	Ripandeep Singh	Aruna Kumar Mora	Vipul Kumar Pandey	Mahender Singh
2010-11	54	Arindam Kumar Sikdar	Bal Govind Vats	Ms. Neena V Jadhav	Lokesh Kumar Sharma
2011-12	55	Debasish Mondal	Mohsin Jafar	Ms. Pooja Patheja	Pratip Mitra
2012-13	56	Santu Manna	Ms. Laboni Das	Ms. Kavitha Premkumar	Ms. Pallavi Singhal
2013-14	57	Sushant Kumar Singh	Sudip Gorai	Debojyoti Pal	Ms. Mariam
2014-15	58	Harish Srinivasan	Kangala Sandeep Rao	Ms. Pooja Negi	Sudeshna Saha
2015-16	59	Sinjini Chandra	Amit Kanjilal	Ganesh Pai B	Praveen Kumar
2016-17	60	Nilanjan Chaudhuri	Rajendra Vikram Singh	Ananda Guha Majumdar	Ms. Riya Dey

SOME ILLUSTRIOUS ALUMNI OF BARC TRAINING SCHOOL

Chairmen, AEC & Directors, BARC

Dr. Anil Kakodkar, 7th Batch
Chairman, AEC: December 1, 2000-November 30, 2009
Director, BARC:April 1, 1996-April 1, 2001

Dr. S. Banerjee, 11th Batch
Chairman, AEC:December 1, 2009-April 30, 2012;
Director, BARC:May 1, 2004-May 18, 2010



Dr. R. K. Sinha, 16th Batch
Chairman, AEC: May 1, 2012- October 23, 2015;
Director, BARC:May 19, 2010- June 19, 2012

Shri Sekhar Basu, 18th Batch
Chairman, AEC: October 23, 2015 till date;
Director, BARC: June 19, 2012 - February 23, 2016

SOME ILLUSTRIOUS ALUMNI OF BARC TRAINING SCHOOL

Directors, BARC

Shri A. N. Prasad , 1st Batch
May 5, 1993-March 31, 1996

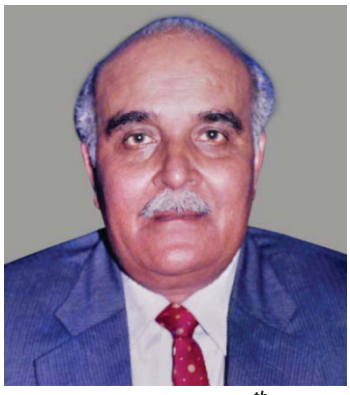
Shri B. Bhattacharjee, 9th Batch
April 3, 2001-April 30, 2004

Shri K. N. Vyas, 22nd Batch
Since February 23, 2016

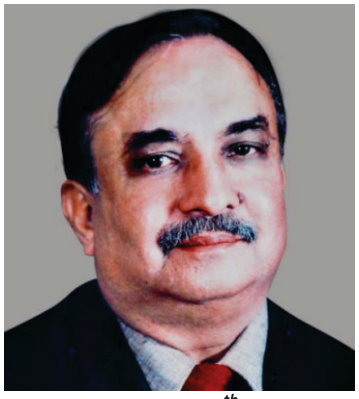
SOME ILLUSTRIOUS ALUMNI OF BARC TRAINING SCHOOL

Chairmen & Managing Directors, NPCIL & BHAVINI

Shri Y. S. R. Prasad, 1st Batch
NPCIL
September 2, 1997-April 30, 2000



Dr. V. K. Chaturvedi, 9th Batch
NPCIL
August 1, 2000-December 31, 2003



Dr. S. K. Jain, 13th Batch
NPCIL
January 3, 2004-May 31, 2012

Shri K. C. Purohit, 17th Batch
NPCIL
June 25, 2012 -May 31, 2016

Shri S. K. Sharma, 24th Batch
NPCIL
Since June 1, 2016

Shri Kallol Roy, 28th Batch
BHAVINI
Since March 31, 2016

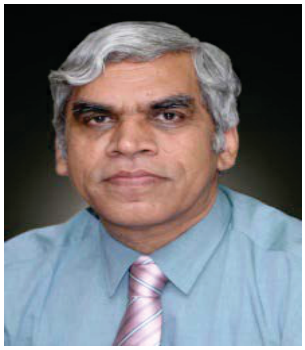
SOME ILLUSTRIOUS ALUMNI OF BARC TRAINING SCHOOL

Directors, IGCAR

Dr. Placid Rodriguez, 4th Batch
November 1, 1992-October 31, 2000

Shri S. B. Bhoje, 9th Batch
November 1, 2000-April 30, 2004

Dr. Baldev Raj, 13th Batch
May 1, 2004-April 30, 2011



Shri S. C. Chetal, 14th Batch
May 1, 2011-January 31, 2013

Dr. P. R. VasudevaRao, 16th Batch
February 1, 2013 - August 31, 2015

Dr. S. A. V. Satyamurthy, 20th Batch
September 1, 2015 - June 30, 2016

Dr. A. K. Bhaduri, 27th Batch
Since July 1, 2016

SOME ILLUSTRIOUS ALUMNI OF BARC TRAINING SCHOOL

Directors, RRCAT

Dr. V. C. Sahni, 8th Batch
November 1, 2003-July 31, 2009

Dr. P. D. Gupta, 16th Batch
August 1,2009 - July 31, 2016

***Dr. P. A. Naik*, 25th Batch**
Since August 31, 2016

Directors, VECC

Dr. R. K. Bhandari, 11th Batch
July 1, 2009-June 30, 2012

Dr. D. K. Srivastava, 14th Batch
July 1, 2012- 31st August 2016

Shri Amitava Roy, 25th Batch
Since November 30, 2017

SOME ILLUSTRIOUS ALUMNI OF BARC TRAINING SCHOOL

Chief Executives, NFC

Shri K. K. Sinha, 1st Batch

April 1, 1994-December 31, 1997

Dr. C. Ganguly , 12th Batch

February 1, 1998-August 31, 2004

Dr. R. Kalidas, 11th Batch

September 1, 2004-February 28, 2006

Shri R. N. Jayaraj, 17th Batch

March 1, 2006-March 31, 2012

Shri N. Saibaba, 19th Batch

April 1, 2012 to May 31, 2016

Shri G. Kalyanakrishnan, 24th Batch

June 8, 2016 to January 31, 2018

Dr. Dinesh Shrivastava, 28th Batch

Since February 2018

SOME ILLUSTRIOUS ALUMNI OF BARC TRAINING SCHOOL

Chief Executives, Heavy Water Board

Shri S. Sharma, 2nd Batch
April 1,1992-September 30,1995

Shri R. K. Bhargava, 4th Batch
October 1,1995-November 30,1996

Shri S. P. Mukherji, 4th Batch
December 1,1996-September 30,1998

Shri H. S. Kamath, 9th Batch
October1,1998-June 30,2002

Shri S. C. Hiremath, 11th Batch
July 1,2002-January 31,2007

Shri A. L. N. Rao, 15th Batch
February 1,2007-March 31,2011

Shri M. Bhaskaran, 23rd Batch
August, 2015 -November, 2016

Shri A. N. Verma, 24th Batch
December, 2016 - August, 2017

SOME ILLUSTRIOUS ALUMNI OF BARC TRAINING SCHOOL

Chairmen, AERB

Dr. A. Gopalakrishnan, 2nd Batch
June 7, 1993-June 16, 1996

Dr. S. S. Bajaj, 12th Batch
January 14, 2010 till date

Shri S.A. Bhardwaj, 14th Batch
Since September 1, 2015

Homi Bhabha National Institute(HBNI)

Dr. R. B. Grover, 14th Batch
Founder Director
June 3, 2005 to February 29, 2016

Dr. S. Banerjee, 11th Batch
Chancellor

Dr. P. D. Gupta,16th Batch
Vice Chancellor
September 14, 2016 to June 30, 2017

Dr. P. R. VasudevaRao,16th Batch
Vice-Chancellor
Since October 4, 2017

SOME ILLUSTRIOUS ALUMNI OF BARC TRAINING SCHOOL

Chief Executives,BRIT

Dr. S. Gangadharan, 4th Batch
April 1994-July 31, 2000

Dr. N. Ramamoorthy, 15th Batch
August 1,2000-Sept 30,2003

Shri J. K. Ghosh, 12th Batch
Oct 1, 2003-Dec 31, 2005

Dr. A. K. Kohli, 18th Batch
January 1, 2006 to July 31, 2015

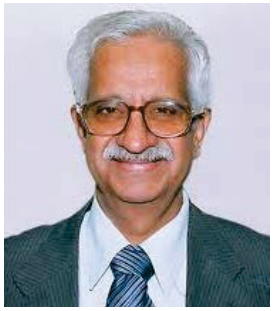
Shri G. Ganesh, 25th Batch
Since August 1, 2015

SOME ILLUSTRIOUS ALUMNI OF BARC TRAINING SCHOOL

Chairman, ISRO

ShriMadhavan Nair,10th Batch
September 2003-October 2009

Secretary, DST



Shri V.S.Ramamurthy, 7th Batch
1995-2006

BARC Training School, Mumbai
DIAMOND JUBILEE (1957-2017)

Diamond Jubilee Batch of Training School

Soft Skills Workshop






Soft Skills Workshop in Progress

Workshop on Administrative Practices & Procedures and Nuclear Security

Lecture & Demonstration

THE HRDD TEAM

Group Photo with Dr. M. P. Navalkar

Group Photo with Dr. U. C. Mishra

Group Photo with Dr. R. R. Puri

Group Photo with Dr. B. K. Dutta

Group Photo with **Dr. A. P. Tiwari**

TRAINEES CORNER

- Gaurav Singh, Electrical, 57th Batch

Starting of a Beautiful Journey

They are known to be the toughest interviews in India. They are known to be the longest lasting technical interviews in India. The panels are known as rejection panel than selection panel. Yes, I am talking about BARC interviews.

It was 15th of May when they told me that you have got called for BARC interview. Ek Berojgar ke liye isse badi khushkhabri aur kya ho sakti hai. I was happy to hear some contradictory statements from various people, "Abe tera kaise ho gaya, Pass hone me to dam nikal jata tha" and "Bhai tumhara nahi hoga to kiska hoga, man se to tumhi padhte the." Anyway, I was happy and very much confident of getting selected and started working on my favourite subjects viz. Fluid Mechanics, Thermodynamics, Heat and Mass Transfer, etc. I did not search for any interview questions or sought any help as I knew only my concepts will help me. I needed nothing else.

The interview was on 6th of June and I reached a day earlier and took rest at a friend's place. The next day, as usual, I woke up later than scheduled and found out that I have shoes but socks. I thanked the almighty for this mercy as I hate wearing shoes. So, I put on My Sandals (One with strap and the other without it!) and headed for Mankhurd local station, nearest to the BARC facility. I fell in love with Mumbai. After reaching the Multi Purpose Hall, the reporting place, they asked us to fill up loads of forms asking for a plethora of information about candidates. As usual, fir se neend aa gayi. Kisi Bhali ladki ne dhakka dekar jagaya. May god give her a very good and loving groom! After completing the formalities, we left for the interview.

Alas, why did I choose mechanical as my branch! All the other sides were having sincere, beautiful girls studying, discussing amongst the fellow interviewees. Yaha to hum sab adhiktar hawa khaate baithe the. Some were still discussing problems and were revising their subjects. Getting bored, I asked a volunteer that how many people do they select on an average per day? He answered, Yesterday they took only one, the day before that two and the day before that, none. Today they have already taken three, lagta hai aaj ka quota poora ho gaya.

Oops! With little bit analysis I found that they must be interviewing at least 70-80 aspirants a day. Now I seriously started considering to utilize my time in touring Mumbai than giving the Interview. But still I waited. Then came my turn. I checked my wristwatch and it said 03:56 PM. Andar paanch daitya baithe hue the. After welcoming and pacifying me, they started their most beloved leisure time activity. (Believe me fellas, they love interviewing. If you actually make it to BARC, you will find that the first interview was the simplest one.) They asked me my favourite subjects and as I answered, they said, "on paper". They will give you a paper and pencil even to say good morning and bye if they can.

So I answered-

- Thermodynamics.
- Heat and Mass Transfer.
- Fluid Mechanics (Now they say we know the abbreviations too, Kitni jaldi hai inhe interview lene ki bhaai).
- RAC.

TOM.

The supposedly most senior scientist asked "What about Strength of Materials" and I said, "Sir, I am not thorough with that subject" (Man mein "Bhagwan kasam kuch nahi aata SOM me")
They now started asking questions from Fluid Mechanics, very basic questions. None of them needed concepts more than Pascal's Law, Continuity Equation, Viscosity, Surface Tension etc. but definitely needed a thorough understanding which will comes if you have the love for learning. Even an Eleventh grader could have answered all the questions if well studied and even PhD fellows won't be able to answer if they do not have an in-depth knowledge. Then came Heat and Mass Transfer, not crossing the limits of basics of conduction and convection, Thermodynamics, again within the ambit of Zeroth, First Law and the understanding of various processes. Bade gurudev ko shanti nahi mil rahi thi to SOM poonch hi liya and I answered it correctly. Then came concepts of mechanics which I studied well earlier followed by RAC.

The most important thing they sought was my approach towards the problem and my analytical abilities. If I was unable to answer at first, they helped me by asking a similar question. They gave me ample time to think and answer and I needed to have a very good understanding of graphs. Oh yes, I just love graphs and prefer them over ugly equations. Generally they also have some interest in derivations and even more in the assumptions, although they didn't ask me anything as such.

By this time I was nearly sure that I was going to get selected. Snacks came, which they offered me. Mai to wahi baith kar shuru ho gaya. Then they politely asked me to sit outside while having my snacks. I came outside and checked my watch. It was already 05:20 p.m. and I was amused to know that as I thought that only 20- 25 minutes would have elapsed. This is the kind of friendly environment you get inside.

After a few minutes, they called me in and gave me the most sought after piece of paper, the white slip, ensuring that I am capable enough to join this prestigious institute (Except in the case of being medically unfit :-)).

That day, New Bachelor Hostel gave this bachelor immense pleasure and a great opportunity. Only time will tell how much I would be able to encash it.

- Deepanshu Dwivedi Mechanical, 57th Batch

Experiences In Training School

The BARC job offer letter arrived. When I received the letter, it was good news, but I was not sure whether joining the organization would be good for me. A little surfing on the internet, interaction with professors and friends convinced me to a fair degree that it is a good job and that I should choose it over the other job which I had in my hand. So I decided to join BARC as a Trainee. Come August, I would be completing this journey called BARC Training Program and would be absorbed into what we call the 'DAE family'. This sojourn here in Training School provided so many occasions of fun and frolic and made me experience so many new things that they will always remain as memories to cherish throughout my life.

Being a fresher, I had expected things to be the same in Training School as well and over and above I had a lot of expectations from the organization. For starters, I preferred a single room as I was used to the luxury of single occupancy rooms for the last four years of engineering. I also wanted a good data connection and LAN connectivity as I am very used to these facilities and still never believe I could live without them. But I had come prepared for the worst also. On arriving here, we had a small briefing where the Director, BARC addressed us. I remember him saying that while studying is very important, don't take training school all that seriously and get lost in the academia. Enjoy your stay here as well. It appears to me that I did neglect the former part and only latched on to the latter part of enjoying.

As expected, I got a single occupancy room nearly twice the size I had lived before in college, and an internet browsing center to browse and keep myself updated. That meant good accommodation, freedom to watch movies, TV series, matches, listening to music and pursue my hobbies without disturbing the others around. The other trainees soon became good friends. It was deja-vu all over again. A new hostel life was underway and I have always enjoyed it. Food and notes were not the only things we exchanged. We also physically

exchanged hard-disks, for TV series and Movies and we became the so called the 'seeders and leachers' of our network. That circumvented the need for LAN connectivit y. Personal introduction was a window to get to know other peoples interests and to participate in those activities of common interest.

During these interactions, I discovered an assortment of people. I discovered many players, cricketers being the most common. I found many liking the same TV series and some football fans. I have also found Dexter, Teen Wolf, and the all famous Sherlock fans and we regularly watch them together. I have a close knit group of football friends, a Liverpool fan with whom I enjoy watching matches and an Arsenal fan to poke fun at when his team loses. When the latter feels that I am going to poke fun at him, he beats me downby talking about the loss my team had. It is all in a very positive attitude that we discuss football and enjoy the game week in and week out. I also enjoyed practicing with the BARC football team. They have been immensely responsible in improving my style of play, my technical ability and improving my confidence. Another memorable outcome that has happened through this endeavor was that I had a chance to play in the inter-departmental football tournament. To pull on the No.9 jersey and play at that level was not something I had ever imagined to have happened. I had never quite held a Table tennis racquet before coming here. I started playing the game and now I feel I can play fairly well though I personally would like to improve a lot more.

In my childhood, I learnt to play the violin and did indulge in some jamming sessions in college. However, nothing positive really came out of it. Here in Training School also we have formed a band. Initially I was a little reluctant to join, but the support and encouragement given by the other band members has helped me in bringing out the latent talent in me and we work together for performing on the stage. I will cherish these memories always. Birthdays and festivals were just as fun and the birthday bumps were just as painful as they used to be. The surprise gifts were the consolation after the blitzkrieg attack onto our bottoms. The DJs that we used to organize in my floor were a platform for even the most reticent of individuals to open up and express themselves freely.

Though I have only spoken all along about extra- curricular activities, one may wonder if I ever studied. Yes, I did on the night before exams. I have kept the tradition of eleventh hour preparation and lived up to my expectations. I secured a modest mid table rank and I am pleased with the division I am going to join. There have been moments of large successes as well, especially those areas in which I have always had a passion to learn. The efforts of many of my friends have gone into getting that result. The group study and question solving sessions have helped us especially me. Their contribution will always be remembered.

This journey has been a revelation of my abilities and my true interests. I have been able to utilize my time here effectively in improving myself overall. It wouldn't have been possible without opportunities and the environment provided by the BARC and the Training School. Today I can undoubtedly say that I am better than before. A lot of individuals, friends and faculty have been influential in whatever little bit I have achieved here, so that they will always be remembered. This was just my story but I am sure everyone who has gone through the Training School will have a similar story to say.

My journey doesn't end here. I still have a few more months here to learn or do something new. Who knows you could find me on the perch of a tree with an SLR round my neck or in a swimsuit learning to swim!

- Vinayak Viswanathan
Chemical, 57th Batch

And finally...

I thought of writing on some heated topics in our magazine like research and development, Communism, political India, education, Nuclear India and so on. But finally I came to the conclusion that writing on such topics would end up in plagiarism which as a scientist we should not encourage ourselves. So here I want to share with you some thoughts and experiences I had in the Training School.

Thoughts;
I believe that reasonable thinking and critical questioning are the ways by which we can upgrade our knowledge and hence pave the way to the scientific development of the nation. Putting up a big dream and working for its achievement is what matters the most. There is no dream which cannot be achieved and there is no question which remains unanswered. The universe is the solution to everything. It is our duty to discover the hidden story behind the phenomenon and invent the most efficient solution. People of the country have laid in us the responsibility to serve them by fruitful scientific researches which would ultimately lead to their upliftment. We should always understand that whatever we have learned here is not only for our personal benefit but also for the nation as a whole for it is the people's money on which we live. So we must do our work with passion regardless of where we are posted.

Experiences;
The fire alarms which reminds of its presence whenever it feels, the Wi-Fi router which displays all colors, the lift for which 2 out of 3 concept always works, the photocopying machine which goes out of order exactly during exam days, 2 clocks at the ground floor which never display the Indian standard time, the sports room for which the height is such that most of the times the badminton shuttle hits the ceiling, etc. are some of the auxiliary features of Training School Hostel. Potato filled items are one of the main features of its mess. Our compound has been an active habitat for lots of monkeys. I am happy to announce that some of my friends have discovered a 'philosophical monkey' which sits at north-west corner of our building.

To me TSH is one of the destinations in India where actually the concept of unity in diversity exists. We have been here for one year knowing and respecting each other's culture, tradition and languages. We are going to miss some of them as they are posted far from us. At some point in time we will recognize that the days spent here were some of the most beautiful in our life.

Final comment;
Friends, as we are supposed to be among the intelligent section of the society and as people who earn far more than an average individual, it would be a great help if we could give a helping hand to at least one among the million people who cannot satisfy his/ her basic needs in life.

- Rahulnath PP
Mechanical, 57th Batch

OUR TRAINING SCHOOL JOURNEY

July begins: Aala re aala BARC ka call letter aala...

Mid July: Medical/NBH ke "wo 7 din" jab NBH b kabhi TSH hua karta tha..
(NBH k pedo pe kaliyan nhi khili thin tab tak) .

Last week of July: TSH me dakhila- Swagat hai apke
is no network no wifi
no washing machine
no cctv (abhi k liye)
"great grand masti" wale "combined" zone me

Semester 1 Begins: Classes shuru- "Chalk and Duster" ka ye silsila ab thi hamari zindagi..

First week of August: Joining week- "Kaagaz ke phool"

August 1st : Orientation Day- "Training School Mystery Revealed" (Nayi naveli dulhano ka swagat satkar)
Bas ek saal aur beta ..
fir aish hain..read it as jeene ke hain ye 364 din fir toh jeena yahan marna iske siwa jaana kahan.

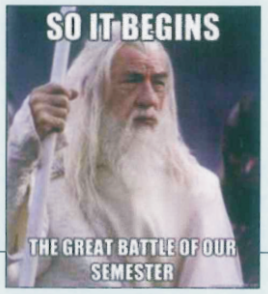
Classes ke pehle hafte ka wo pehla weekend- "Pehla nashaaaaa"...

Independence Day-Saare Jahan se Hai Hindustan Hamara.."Mother India"

10th September: 1st salary- "Malamaal Weekly"

Our Training School Journey

Mid September:
Pre-Exam Fever-



Last two weeks of Sept.:
Exams-"Bachna-e-haseeeenoooo"lomaiaagaya..

After the Exams:
Trip Time-
"Dil Chahta Hai"

Mid November:
Diwali in the
pre exam tension

Yeah that is due to us:
Installation of cctv camera-
Ab har kaam "chori chori chupke chupke"

The very next Monday:
"Wake Up Siiiiiddddddd"-
Classes Again

Last week of November:
Exams- Notes ki
"Hera-Phheri"

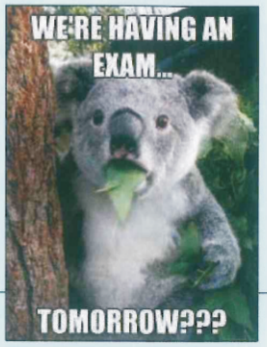
Still not done: ViVa-"Raat ka Nasha abhi ,aankh se gaya nahi" par Viva K liye "darna jaroori hai"

1-15 December:
First ever Vacations-
" 4 din ki chandani"

Our Training School Journey

16 th December:
Again Classes-
"Break k baad"

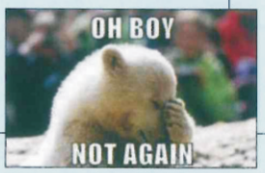
Christmas holidays, long weekend, Four days of fun and travel [Bo*mbay to Goa!!!!]*



January last:
Exams-"Gadar 'Ek Dukhad Gaaaathhaaa'"

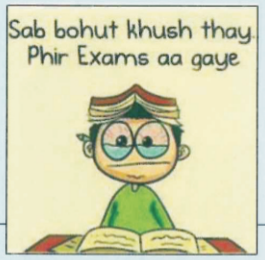
22nd Feb:
Gooooonjjjjj-"Andaz ApnaApna"

Valentines Day—
"Kis Kis ko Pyar Karun"



February begins:
Classes again

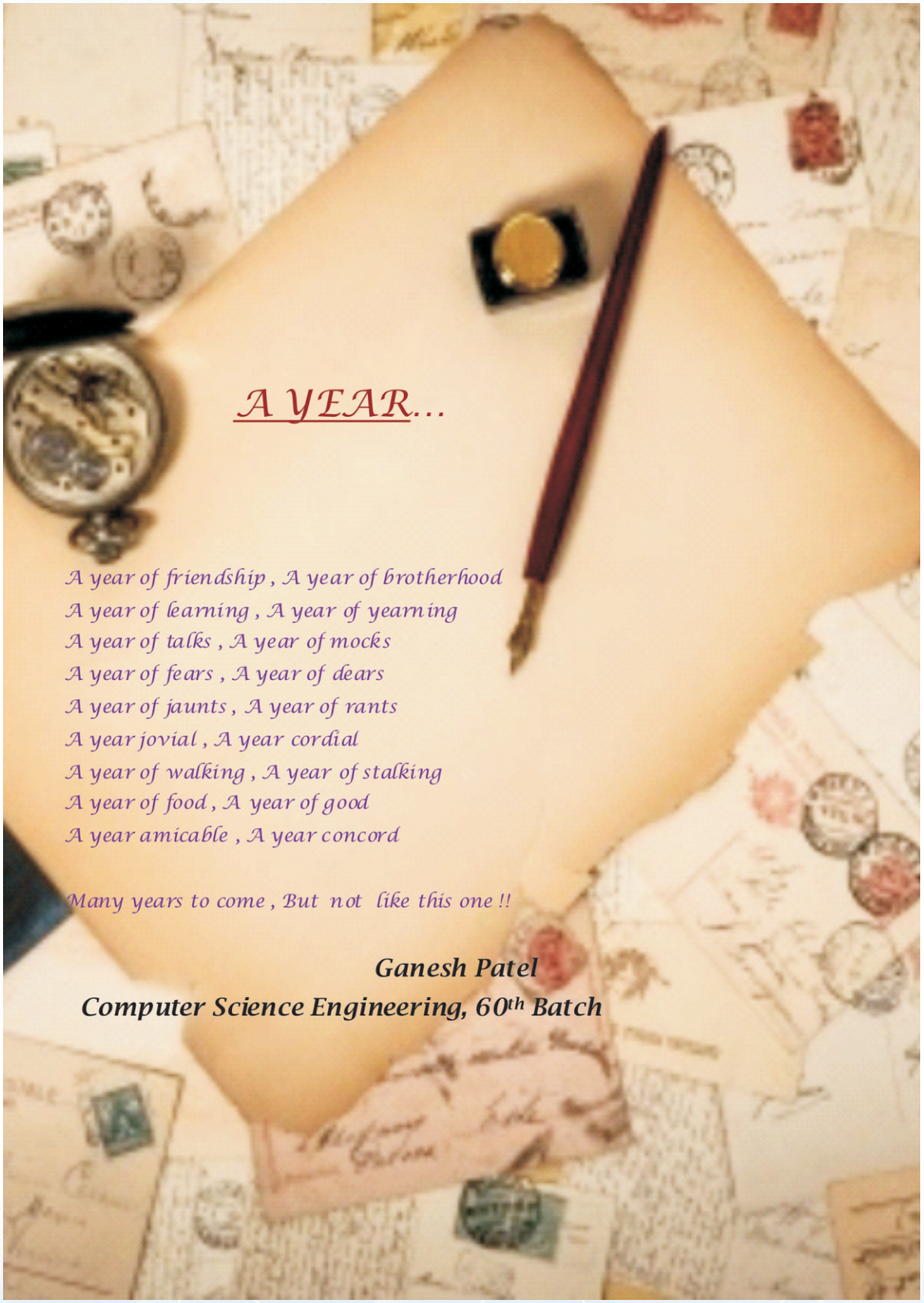
28th Feb: Tarapur trip-



March ends and here they come again: Exams-
"Atithi Tum KabJaoge"

Long weekend in exams:
Holi-"Rang De Basanti"

Our Training School Journey



A YEAR...

A year of friendship , A year of brotherhood
A year of learning , A year of yearning
A year of talks , A year of mocks
A year of fears , A year of dears
A year of jaunts , A year of rants
A year jovial , A year cordial
A year of walking , A year of stalking
A year of food , A year of good
A year amicable , A year concord

Many years to come , But not like this one !!

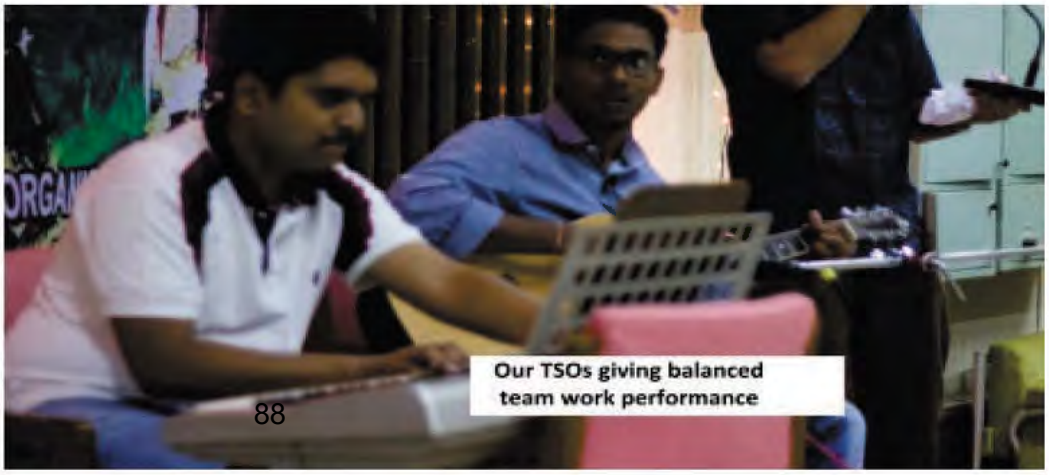
Ganesh Patel
Computer Science Engineering, 60th Batch


अतिथिगृह एवं प्रशिक्षु

FESTIVALS @ TSH


Our engineers : Talented perf


Off-beat performers!!


Our TSOs giving balanced team work performance


59th batch
OCES Presents
Goonj
INSTRUMENTATION RADIATION
BIOSCIENCE CHEMICAL CIVIL PHYSICS
CHEMISTRY COMPUTER SC. ELECTRICALS
METALLURGY
MECHANICAL

BARC Training School: First Batch Alumini Meet

A meeting of the first batch of Alumini of DAE training School, now renamed as the BARC Training School, was held from December 27-29, 2007, at the Multipurpose Hall of the Training School Hostel, BARC.

At the inaugural meet from L to R :Dr.V. B. Kartha, Former Head, Spectroscopy Division, Dr. U. C. Mishra, Former Head, HRDD, Dr. R. R. Puri, Head, HRDD and Dr. K. K. Damodaran, Former Head, HRDD.

Group Photograph of the alumini of the first batch trainees and other invitees

Photo Gallery

Eminent Chief Guests at Graduation Function

2007: Honurable Prime Minister of India,
Dr Manmohan Singh

2009: Honurable Vice President of India,
Shri Mohammad Hamid Ansari

2010: Prof. Goverdhan Mehta, NRP,
University of Hyderabad

2011: Dr. T. Ramasami, Secretary, DST

Eminent Chief Guests at Graduation Function

2012: Honurable Governor of West Bengal
Shri M. K. Narayanan

2013: Honurable President of India,
Shri Pranab Mukherjee

2015: Shri N. R. Narayana Murthy,
Founder, Infosys Limited

2017: Prof. Devang V. Khakhar,
Director, IIT Bombay

Glimpses of the Inauguration Function of 60th Batch

Introductory Remarks-Dr. M Ramanamurthi, Head, OCES

Welcome Adress by Dr A.P. Tiwari, Head, HRDD

Presential Address by Shri K.N.Vyas, Director, BARC

Address by Dr G.K.Dey, Dean, Engineering Sciences-HBNI

Dr Avichal Kapur, Registrar, HBNI

Inaugurations 60th Batch

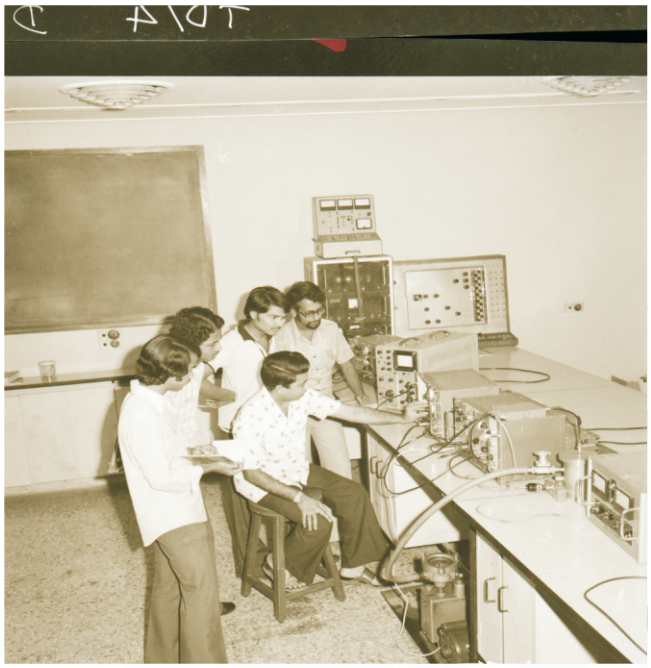
Graduation Function2017 (60th Batch)

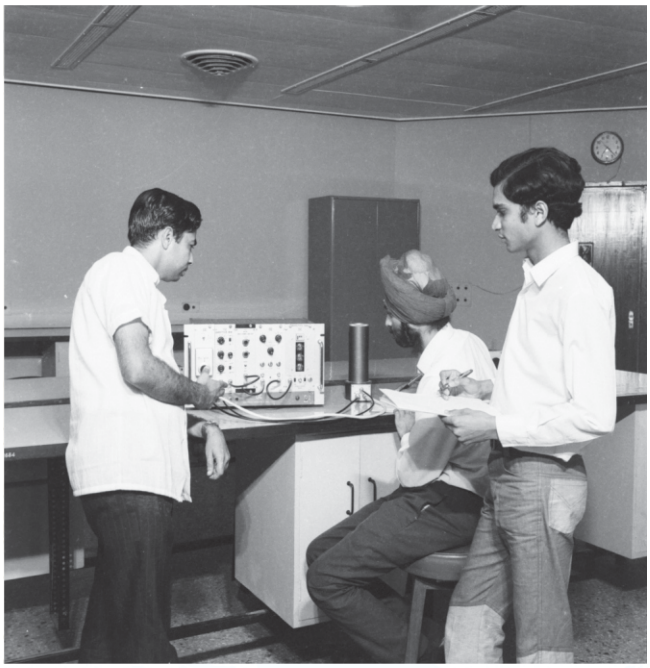
BARC Training School, Mumbai
DIAMOND JUBILEE (1957-2017)

Graduation Function 2017 (60th Batch)

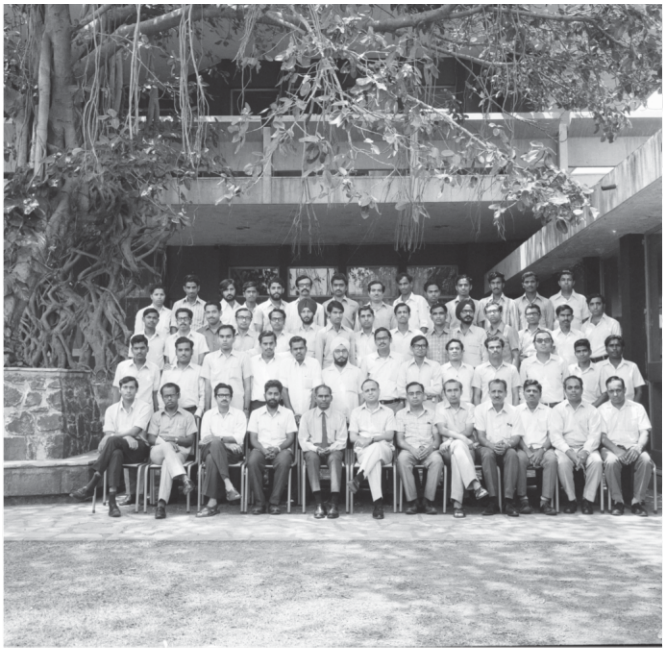
Glimpses of BARC Training School South Site

Glimpses of BARC Training School South Site





Glimpses of BARC Training School South Site



Glimpses of New BARC Training School Anushakti Nagar

Glimpses of BARC Training School Anushaktinagar

Glimpses of BARC Training School Anushaktinagar

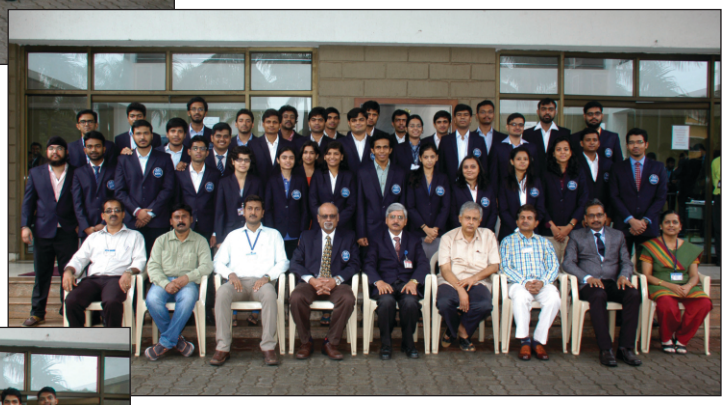
Innauguration of Reactor Model

Innauguration of e-Learning Platform-Pathshala

3rd International Yoga Day Celebrations – for Healthy Body, Mind And Soul

Group Photos 60th Batch

Trainees of Mechanical Group



Trainees of Electrical Group

Trainees of Physics, Chemistry, Biosciences and RSE

OCDF Officers