

## Dr. Bishwajit Bhattacharjee



### A teacher and research worker

To gain knowledge on fundamental understanding of construction material, specifically those related to concrete technology, one can refer, the immensely popular, open access Video lectures, by Dr. Bhattacharjee on Building Materials and Construction (BMC) prepared under the aegis of National Programme on Technology Enhanced Learning (NPTEL), funded by the Government of India available at youtube.com. Large number of civil engineering students, worldwide benefit from the same. Many professionals from the industry, working with concrete, had benefited from his industry oriented solo lectures spanning over two days, in short courses organized at Delhi, Mumbai, Kolkata, Bangalore and Hyderabad by various industries.

Dr. Bishwajit Bhattacharjee is a Professor in the Civil Engineering Department of Indian Institute of Technology Delhi. Born at Silchar in the North East of India, had his initial education at a nearby town Hailakandi and also at Silchar. He obtained B. Tech (Hons.) degree from I.I.T. Kharagpur in 1978 and worked for M/s Gammon India Limited for a short period of two years. Subsequently he obtained M.Tech. and Ph.D. degrees from I.I.T. Delhi in the year 1982 and 1990 respectively. He joined academic staff of IIT Delhi as a Senior Research Assistant in 1982 where he continues to work as member of teaching faculty since

1985. He has been involved in developing several new courses in Materials, construction technology and building science. The latest course designed is titled as "Sustainable materials and green buildings" and includes concrete sustainability. Dr. Bhattacharjee is the main architect behind formulating the syllabus for L&T-ECC sponsored M. Tech. (BIS) program in Construction Technology and Management at IIT Delhi that started way back in 1998 and still continuing. Dr. Bhattacharjee is also instrumental in starting a two way video conference mode PG program in Construction Engineering and Management at IIT Delhi for students at Addis Ababa University, Ethiopia, under MOU between Ministry of Education Government of Ethiopia and IIT Delhi.

Over a period of two decades, Prof. Bishwajit Bhattacharjee has been actively pursuing some original research in the realms of Concrete Technology, Construction Materials and Building Sciences. Dr. Bhattacharjee's contribution in the area of micro-structural characterisation of cement based materials through implementation of Mercury Intrusion Porosimetry (MIP) and Back Scattered Electron microscopy (BSE) have been of particular prominence. His findings on the porosity and pore size distribution of concrete and its relation to in situ strength continue to remain very well acclaimed amongst the scientific community. His expositions on

the effective implementation of MIP for study of pore size distribution of cement based materials are also well accepted. His deliberations in the sphere of rebar corrosion in RC structures and efforts on modelling of chloride diffusion in concrete are widely cited. In the area of building sciences, Prof. Bhattacharjee has been working on Energy Efficient Building Design with special emphasis on the development of the concept of Overall Thermal Transfer Values (OTTV) for Indian conditions. Implementation of advanced soft computing techniques such as Artificial Neural Networks (ANN), Genetic Algorithm (GA) and Fuzzy Set Theory (FST) for effective solution of engineering problems has also been a trait of his research pursuits. His work in the development and implementation of Fuzzy based Structural Condition Assessment procedures and GA based Energy Optimization Design of Buildings bears a special significance in this regard.

At IIT Delhi, Prof. Bhattacharjee played an instrumental role under the stewardship of his "Guruji" Prof. S. Krishnamoorthy in the setting up and development of the state of the art Materials Research Laboratory in Department of Civil Engineering. The laboratory continues to thrive under Prof. Bhattacharjee's active participation and presently supports comprehensive research projects being pursued in the areas of Wetting-Drying of Concrete, Carbonation induced rebar corrosion and Atomic Force Microscopy of cement based materials.

Apart from his involvement in several sponsored research projects at national and inter-national levels, Prof. Bhattacharjee has guided over 135 M.Tech. and 11 Ph.D. projects at IIT Delhi. The findings of these intensive research projects, pursued over the years under his guidance have been published in the form of about 100 journal and conference papers with 190 citations and h-index:8 (web of science). Prof. Bhattacharjee continues to contribute to Indian Concrete Journal on regular basis as author and also listed as a reviewer.

In appreciation of his contributions made in the sphere of Cement & Concrete Technology, Prof. Bhattacharjee has been nominated in the editorial board of the Magazine of Concrete Research, an international technical journal published by Thomas Telford Ltd., London. He also holds the editorial membership of the International Journal of 3R's, published by Dr. Fixit Institute, India. He is also member of Research Council of CBRI and NCCBM, Governing council of Dr. Fixit Laboratory and TERI academic advisory board.

A student of Dr. Bhattacharjee says.....

"It was my great luck that I got an opportunity to work under Prof. B. Bhattacharjee for my PhD degree. I joined IITD as his first PhD student in the year 1991. Right from the beginning his guidance was very much systematic and focused towards achieving quality research outcomes. I found him as a great human-being having ability to think critically and with a strong belief in simple life. His excellent experimental and analytical skills helped me quite a lot in planning and executing my doctoral research work. Under his guidance, I was able to develop a set-up for in-situ measurement of reinforcement corrosion rate, which was a great achievement at that time. He always encouraged me to publish papers from my PhD work and as a result I got several papers published from my PhD thesis in refereed journals including ACI and Corrosion Science Journals. Recently, he was invited at King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia for delivering key note lectures in the field of corrosion research. His understanding of the subject and the amount of his research work in the area of reinforcement corrosion were very much appreciated by the audience. I strongly believe that Prof. Bhattacharjee is a great academician who has made enormous contribution towards high quality teaching and state-of-the art research. Myself and many other persons who worked under him as his Master and PhD students consider him as a role model. I wish him all the best in his life ahead."

Dr. Shamsad Ahmad, Associate Professor, Civil Engineering Department, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia

Prof. Bhattacharjee continues to remain as one of the very active researchers of international repute within the country, working devotedly in the domains of cement and concrete research and building sciences. Thus one may conclude his profile with following famous quote by Sir, Isaac Newton

*Amicus Plato – amicus Aristoteles – magis amica veritas, that is, Plato is my friend – Aristotle is my friend – but my greatest friend is truth*

