National Award in the field of Ocean Science & Technology

Prof. C. P. Vendhan

Prof. C. P. Vendhan formally retired as an Emeritus Professor from the Ocean Engineering Department, IIT Madras in May 2015 after about 35 years of distinguished service. His journey in the field of Ocean Engineering Science and Technology commenced in December 1979 briefly as a Research Associate, and then as a faculty member in September 1980, both at the Ocean Engineering Centre, subsequently known as the Ocean Engineering Department (OED), IIT Madras (IITM). He had his engineering education at the College of Engineering, Guindy, Chennai, where he completed B.E. (Civil Engg.) in 1968 and M.Sc. (Structural Engg.) in 1970. Then he obtained his Ph.D. (Civil Engg.) in September 1975 from IIT Kanpur. Immediately after that, he joined the Civil Engineering Department, University of Massachusetts, Amherst, Mass., USA, as a Post-doctoral Research Associate and worked from 1975 to 1979. He then returned to India and joined IIT Madras in December 1979. During his career at IIT Madras, he also served as Head of the department during 1997-2000 and immediately thereafter, as Chairman, Estates and Works for two years.

The OED at IITM has been started in the late 1970s, with its main objectives set as developing postgraduate education in the field of Ocean Engineering and Technology, manpower training for Indian industries, undertaking research and collaborating with Indian offshore industries. Prof. Vendhan has contributed quite significantly to fulfil each and every one of these. He, with his basic strength in structural mechanics and engineering, developed postgraduate courses in Offshore Structural Dynamics and Wave-Structure Interaction, both of which he taught for over 2 decades. He has focused on numerical modelling of offshore structural dynamics and fluid-structure interaction problems, primarily using the finite element method. He mainly focused on postgraduate education in Ocean Engineering and Technology and trained a generation of students including 12 Ph.D. scholars.

Prof. Vendhan developed many large-scale generic, versatile numerical models to tackle a variety of complex problems in Ocean Engineering. Notable among them are models for predicting the stochastic vibration and fatigue of offshore structures, nonlinear analysis of a variety of floating systems especially for deep water applications, and hydrodynamic analysis of large volume floating structures.

Since 2005, Prof. Vendhan pioneered the development of a course on Ocean Acoustics for M.Tech. Students sponsored by the NIOT. Sponsored projects from NIOT lead to the development of extensive course material on this topic. He has also contributed significantly to numerical modelling of ocean waveguide acoustics primarily for shallow water applications, and interacted with NIOT to transfer this knowhow.

Prof. Vendhan has collaborated with agencies such as NIOT, ISRO and DRDO on many R&D projects in strategic areas. He has introduced advanced analysis tools as an alternative to empirical methods in many of the projects. He has had long term collaboration with ISRO primarily for developing numerical models for liquid sloshing, and recently for a study of water impacting capsules.

When DRDO embarked on the development of underwater missiles in the early 90s, Prof. Vendhan, as a part of a three member team at the OED, IITM, made critical contributions by studying the hydrodynamics of underwater objects and underwater launch dynamics. He was also part of the team that developed a Towed Transmitter Body module for the NPOL. He has provided technology leadership in many ways. He has served on the Hydrodynamics Panel of the Naval Research Board (NRB) right from its inception, and he is the Panel Head now. He successfully drafted a proposal for instituting the Hydro and Vibro Acoustics Panel which has been accepted by the NRB.

Prof. Vendhan has had close interaction with the NIOT for over 3 decades right from its inception. He has been associated with the OTEC, Desalination and Deep Ocean Mining projects of the NIOT by way of technical discussions and assessment of designs. He now serves as Chairman of the Project Review Board for acoustics, at NIOT.

Prof. Vendhan has attended a few international conferences organised by the American Society of Mechanical Engineers and the Acoustical Society of America, apart from a few organised by the Acoustical Society of India. He has published over 80 research papers in refereed journals and conferences.

Awards and Honours

Prof. Vendhan was given the short-term DAAD fellowship to work for three months at the University of Hamburg, Germany, in 1989. He is part of a team of three, which has been conferred the Academy Excellence Award in 2011 by the DRDO, in recognition of the contributions made to the underwater missile programme. Two special issues, one the Journal of Engineering for the Maritime Environment (Vol. 227(3), 2013 - Sage) and the other, Ships and

Offshore Structures (publication due in Dec. 2015 - Taylor & Francis) have been brought out to mark his retirement.

In recognition of outstanding contributions to the Ocean Science & Technology, the Ministry of Earth Sciences honors Prof. C. P. Vendhan with National Award in Ocean Science and Technology for the year 2015.