



INTRODUCTION TO ANCIENT INDIAN TECHNOLOGY

PROF. D.P. MISHRA

Department of Aerospace Engineering
IIT Kanpur

PRE-REQUISITES : Open to All

COURSE OUTLINE: This course is designed for undergraduate students, interested in learning about the ancient Indian Technology which is the hallmark of glorious Indian civilization, only living civilization of the world that exists till today. The main emphasis is placed on nature centric aspects of ancient Indian technologies that can be adopted in modern time. As this is an introductory course, care has been taken to present the materials in a gradual manner to instill confidence in the minds of the students. Attempts have been made to keep the deliberation as simple as possible with intriguing questions so that students can take exploratory route to learn more about it in future. Adequate emphasis is given in this course for exposing the students to ancient science and technologies which can be adopted for modern technological development. The tenets of various technologies which are essential for human living are discussed in details to encourage the students to develop a feel for ancient Indian and technologies.

ABOUT INSTRUCTOR :

Prof . D.P. Mishra is a professor in the Department of Aerospace Engineering at Indian Institute of Technology (IIT) Kanpur, India where he was instrumental in establishing a combustion laboratory. He currently holds the Indian Oil Golden Jubilee Professional Chair in IIT Kanpur. He was a Visiting Professor in 2002 at the Tokyo-Denki University, Japan. His areas of research interest include combustion, computational fluid dynamics, atomization, etc. He is the recipient of the Young Scientist Award in 1991 from the Ministry of New and Renewable Energy, Government of India. He was conferred the INSA-JSPS Fellowship in 2002. In recognition of his research, Dr. Mishra received Sir Rajendranath Mookerjee Memorial Award from the Institution of Engineers (India). Dr. Mishra is a recipient of the Samanta Chadrasekhar Award for his contributions to science and technology. For technological contribution for the common people, he has been conferred with the Vikash Prerak Sanman in 2010. Currently he is serving as an Assistant Editor, International Journal of Hydrogen Energy, Elsevier, USA. Besides this, he also serves as an editorial board member of Journal of the Chinese Institute of Engineers, Taylor & Francis, and International Journal of Turbo and Jet engines. Dr. Mishra has six Indian patents and around 200 research papers in refereed Journals and in conference proceedings to his credit. He has authored a textbook titled "Fundamentals of Combustion", published by Prentice Hall of India, New Delhi. Two other text books on "Experimental Combustion" and "Engineering Thermodynamics" have been published by Taylor and Francis, USA and Cengage India Pvt Ltd., New Delhi, respectively. He has published a text book titled as "Gas turbine propulsion" (MV Learning, New Delhi/London). He is also serving as a managing trustee of the International Foundation of Humanistic Education. He is also actively involved in social works in the field of education, natural farming, etc. He is instrumental in making all India level group, Awake Mother India which is trying to rejuvenate our Mother land. He is working to revitalize the ancient Indian science and technology. He has published two books, "Glimpses of Ancient Indian Science and Technology" and "Forays into Ancient Indian Science and Technology".

COURSE PLAN :

Week 1 : Introduction: Why are ancient Indian science and technology relevant today? What is science? How is it different from technology?

Week 2 : Philosophy of ancient Indian technology, how is different from modern technology? Ancient Indian Scientific methods.

Week 3 : Glimpses of ancient Indian science and technology?

Week 4 : Material Technology : Mining, Metals and Metallurgy, Iron Making and craftsmanship, Wootz Steel Technology

Week 5 : Extraction of Zinc in ancient India, Glass making, Bead making Techniques, Ceramic Technology

Week 6 : Water Harvesting Technology, Irrigation Systems

Week 7 : Town planning, Building construction, Sanitation

Week 8 : Agriculture and Textile Technology