FLUID MACHINES

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TYPE OF COURSE : Rerun | Core | UG
COURSE DURATION : 8 weeks (23 Aug’21 - 15 Oct’21)
EXAM DATE : 23 Oct 2021

PRE-REQUISITES : Basic knowledge of Fluid Mechanics
INTENDED AUDIENCE : Any interested Learners

COURSE OUTLINE
This is an introductory course in Fluid Machines. The subject Fluid Machines has a wide scope and is of prime importance in almost all fields of engineering. The course emphasizes the basic underlying fluid mechanical principles governing energy transfer in a fluid machine and also description of the different kinds of hydraulic and air machines along with their performances. There is a well balanced coverage of physical concepts, mathematical operations along with examples and exercise problems of practical importance. After completion of the course, the students will have a strong foundation on Fluid Machines and will be able to apply the basic principles, the laws, and the pertinent equations to engineering design of the machines for required applications.

ABOUT INSTRUCTOR
Dr. Suman Chakraborty is currently a Professor in the Mechanical Engineering Department as well as an Institute Chair Professor of the Indian Institute of Technology Kharagpur, India, and the Head of the School of Medical Science and Technology. He is also the Associate Dean for Sponsored Research and Industrial Consultancy. His current areas of research include microfluidics, nanofluidics, micro-nano scale transport, with particular focus on biomedical applications. He has been awarded the Santi Swaroop Bhatnagar Prize in the year 2013, which is the highest Scientific Award from the Government of India. He has been elected as a Fellow of the American Physical Society, Fellow of the Royal Society of Chemistry, Fellow of ASME, Fellow of all the Indian National Academies of Science and Engineering, recipient of the Indo-US Research Fellowship, Scopus Young Scientist Award for high citation of his research in scientific/technical Journals, and Young Scientist/ Young Engineer Awards from various National Academies of Science and Engineering.

COURSE PLAN

Week 1 : Introduction and basic principles
Week 2 : Hydraulic Impulse Turbine
Week 3 : Hydraulic Reaction Turbine Part I
Week 4 : Hydraulic Reaction Turbine Part II and Hydraulic Pump Part I
Week 5 : Hydraulic Pump Part II
Week 6 : Hydraulic Pump Part III
Week 7 : Air Compressor Part I
Week 8 : Air Compressor Part II