



Control of Fluids: Theory & Computation

Overview: Flow control is one of the recent and rapidly evolving field of fluid dynamics. It implies a small change of a configuration serving an ideally large engineering benefit, like drag reduction, lift increase, mixing enhancement or noise reduction. This change may be accomplished by passive or active devices. Flow Control is increasingly incorporated in the design of engineering devices ranging from aircraft and space vehicles to microfluidic devices. Research work in this domain aims to integrate knowledge in flow physics with theoretical advances and novel experimental capabilities and engineering devices capable of materializing advanced design concepts. In turn controlled flow phenomena exhibits a new array of physics and open frontiers for further interdisciplinary research in fluid mechanics and all the engineering domains that it affects. This course aims at introducing the mathematical theory and computational elements related to the developments on control of fluids.

Course Details	
Course Title	Control of Fluids: Theory & Computation
Dates	Jan 22-27, 2018
Host Institute	IIT Kanpur
No. Of Credits	1
Max No. Of Participants	50
Eligibility	1) You are a Scientist/ Engineer with specific interest in Fluid Mechanics 2) You are involved in the work related to Control of Fluid Flows 3) you are a student or faculty from academic institution interested in Control of Fluids 4) Fluids Engineers with a reasonable liking for Applied Mathematics
Registration	Registration Fees: The participation fees for taking the course is as follows: Student Participants: Rs.2500 Faculty Participants: Rs.5000 Government Research Organization Participants: Rs.10000 Industry Participants: Rs.12000 The above fee is towards participation in the course, the course material, computer use for tutorials and assignments, and laboratory equipment usage charges. Mode of payment: Demand draft in favour of "Registrar, IIT Kanpur" payable at SBI, IIT Kanpur
Accommodation	The participants will be provided accommodation, depending on the availability, on payment basis. Request for accommodation should be sent to contact address.
Contact Details	Prof. B. V. Rathish Kumar, Co-ordinator, FB-555, Department of Mathematics & Statistics, IIT Kanpur Email: cof.iitk.2018@gmail.com Phone:0091-512-259-7660/7636 Fax: 0091-512-259-7500
Important Dates	Last Date for Registration: Dec 05, 2017 Selection List Announcement Date: Dec 15, 2017

Course Faculty	Professional Details
 Prof. Jean Pierre Raymond	Prof. Jean Pierre Raymond is currently working as Professor at Equipe MIP, Institut de Mathematiques, Universite Paul Sabatier, 31062 Toulouse, Cedex, France. His areas of specialization are Analysis and control of systems governed by partial differential equations, Optimal control, Control of fluid flows, Fluid-structure systems, Numerical approximation of optimal controls and of stabilizing controls. He has published several research papers in peer reviewed international journals. He has delivered several invited and plenary talks in international conferences across the world. (https://perso.math.univ-toulouse.fr/raymond/)
 Prof. B. V. Rathish Kumar Course Coordinator	Prof B V Rathish Kumar is currently a Professor in the Department of Mathematics and Statistics at IIT Kanpur. He has made seminal contributions through the development of Numerical Methods for solving PDEs. He developed high performance computing strategies using parallel algorithms. He has designed and developed a wide spectrum of numerical solvers that employ Finite element, Finite volume and Wavelet based techniques for solving fluid dynamics, biomechanics problems of interest to both science and technology.